ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
1954

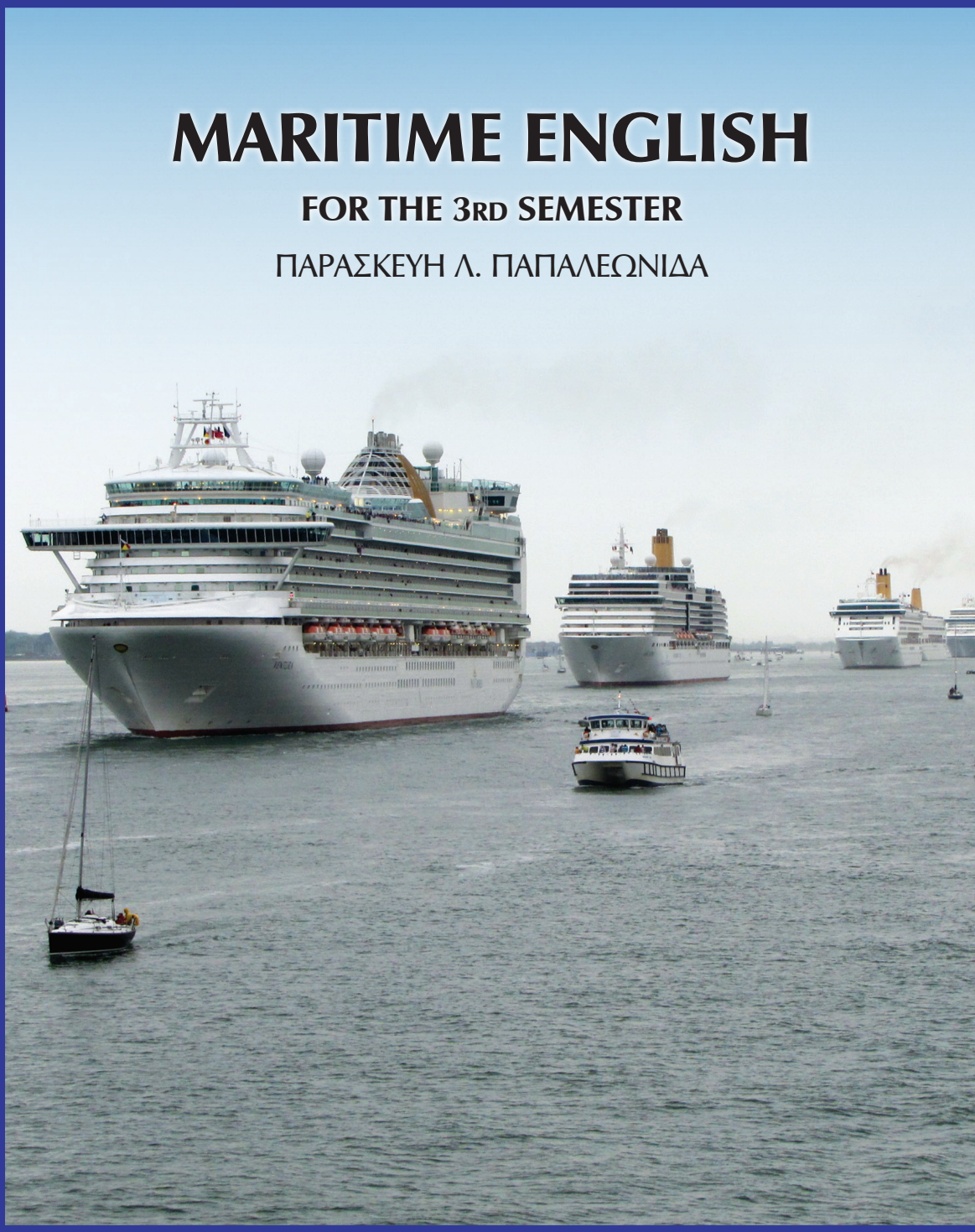
ΧΡΥΣΟΥΝ ΜΕΤΑΛΛΙΟΝ
ΑΚΑΔΗΜΙΑΣ ΑΘΗΝΩΝ

ΕΚΠΑΙΔΕΥΤΙΚΟ ΚΕΙΜΕΝΟ
ΑΚΑΔΗΜΙΩΝ ΕΜΠΟΡΙΚΟΥ ΝΑΥΤΙΚΟΥ

MARITIME ENGLISH

FOR THE 3RD SEMESTER

ΠΑΡΑΣΚΕΥΗ Λ. ΠΑΠΑΛΕΩΝΙΔΑ



ΑΘΗΝΑ 2013

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ΠΡΟΛΟΓΟΣ ΙΔΡΥΜΑΤΟΣ ΕΥΓΕΝΙΔΟΥ

Ο Ευγένιος Ευγενίδης, ιδρυτής και χορηγός του «Ιδρύματος Ευγενίδου», προείδε ενωρίτατα και σχημάτισε τη βαθιά πεποίθηση ότι αναγκαίο παράγοντα για την πρόοδο του έθνους αποτελεί η άρτια κατάρτιση των τεχνικών μας σε συνδυασμό προς την ηθική τους αγωγή.

Την πεποίθησή του αυτή την μετέτρεψε σε γενναία πράξη ευεργεσίας, όταν κληροδότησε σεβαστό ποσό για τη σύσταση Ιδρύματος, που θα είχε ως σκοπό να συμβάλλει στην τεχνική εκπαίδευση των νέων της Ελλάδας.

Έτσι, τον Φεβρουάριο του 1956 συνεστήθη το «Ίδρυμα Ευγενίδου», του οποίου την διοίκηση ανέλαβε η αδελφή του Μαρ. Σίμου, σύμφωνα με την επιθυμία του διαθέτη. Από τη στιγμή εκείνη άρχισαν πραγματοποιούμενοι οι σκοποί που οραματίσθηκε ο Ευγένιος Ευγενίδης και συγχρόνως η εκπλήρωση μιας από τις βασικότερες ανάγκες του εθνικού μας βίου. Το έργο του Ιδρύματος συνέχισε από το 1981 μέχρι το 2000 ο Νικόλαος Βερνίκος-Ευγενίδης· έκτοτε συνεχίζει αυτό ο κ. Λεωνίδας Δημητριάδης-Ευγενίδης.

Κατά την κλιμάκωση των σκοπών του, το Ίδρυμα προέταξε την έκδοση τεχνικών βιβλίων τόσο για λόγους θεωρητικούς όσο και πρακτικούς. Διεπιστώθη πράγματι ότι αποτελεί πρωταρχική ανάγκη ο εφοδιασμός των μαθητών με σειρές από βιβλία, τα οποία θα έθεταν ορθά θεμέλια στην παιδεία τους και θα αποτελούσαν συγχρόνως πολύτιμη βιβλιοθήκη για κάθε τεχνικό.

Ειδικότερα, όσον αφορά στα εκπαιδευτικά βιβλία των σπουδαστών των Δημοσίων Σχολών Εμπορικού Ναυτικού, το Ίδρυμα ανέλαβε τότε την έκδοσή τους σε πλήρη και στενή συνεργασία με τη Διεύθυνση Ναυτικής Εκπαιδεύσεως του Υπουργείου Εμπορικής Ναυτιλίας, υπό την εποπτεία του οποίου υπάγονται οι Σχολές αυτές. Η ανάθεση στο Ίδρυμα έγινε με την υπ' αριθ. 61228/5031, της 9ης Αυγούστου 1966, απόφαση του ΥΕΝ, οπότε και συνεκροτήθη και η αρμόδια Επιτροπή Εκδόσεων.

Αποτέλεσμα της συνεργασίας αυτής ήταν η έκδοση της Σειράς Βιβλιοθήκη του Ναυτικού, όπου εξεδόθησαν: α) Για τους μαθητές των Δημοσίων Σχολών Εμπορικού Ναυτικού 30 τόμοι βιβλίων (1967 – 1979). β) Για τις ΑΔΣΕΝ (Ανώτερες Δημόσιες Σχολές Εμπορικού Ναυτικού) 54 τόμοι (1979 – 2001).

Κύριος σκοπός των εκδόσεων αυτών, των οποίων το περιεχόμενο είναι σύμφωνο με τα εκάστοτε ισχύοντα αναλυτικά προγράμματα του ΥΕΝ, ήταν η παροχή προς τους σπουδαστές των Ναυτικών Σχολών ΑΔΣΕΝ και Ναυτικών Λυκείων των αναγκαίων τότε εκπαιδευτικών κειμένων, τα οποία αντιστοιχούν προς τα μαθήματα που διδάσκονται στις Σχολές αυτές.

Επίσης ελήφθη ιδιαίτερη πρόνοια, ώστε τα βιβλία αυτά να είναι γενικότερα χρήσιμα για όλους τους αξιωματικούς του Εμπορικού Ναυτικού, που ασκούν το επάγγελμα ή εξελίσσονται στην ιεραρχία του κλάδου τους, χωρίς αυτό να σημαίνει ότι επέρχεται μεταβολή στη στάθμη του περιεχομένου τους.

Με την υπ. αρ. Μ 2111. 1/2/99/28-05-1999 (ΦΕΚ 1168Β/14-6-99) υπουργική απόφαση, όπως τροποποιήθηκε με την Κ.Υ.Α. των υπουργών Οικονομίας και Οικονομικών και Εμπορικής Ναυτιλίας αρ. Μ 3611.2/05/05/16-12-2005 (ΦΕΚ 1942 Β/30-12-2005 και ΦΕΚ 169 Β/13-02-2006), το ΥΕΝ ανέθεσε στο Ίδρυμα Ευγενίδου την συγγραφή και έκδοση των διδακτικών εγχειριδίων των Ναυτικών Ακαδημιών· ήδη το ΥΠ.ΟΙ.Α.Ν.

προεκήρυξε την συγγραφή 27 βιβλίων προς κάλυψη των αναγκών των σπουδαστών βάσει των ισχυόντων αναλυτικών προγραμμάτων.

Οι συγγραφείς και η Επιτροπή Εκδόσεων του Ιδρύματος καταβάλλουν κάθε προσπάθεια, ώστε τα βιβλία να είναι επιστημονικώς άρτια αλλά και προσαρμοσμένα στις ανάγκες και τις δυνατότητες των σπουδαστών. Γι' αυτό έχουν προσεγμένη γλωσσική διατύπωση των κειμένων τους και η διαπραγμάτευση των θεμάτων είναι ανάλογη προς τη στάθμη της εκπαιδεύσεως, για την οποία προορίζονται.

Με την προσφορά στους καθηγητές, στους σπουδαστές των ΑΕΝ και σε όλους τους αξιωματικούς του Εμπορικού Ναυτικού των εκδόσεών του, το Ίδρυμα συμβάλλει στην πραγματοποίηση του σκοπού του ιδρυτή του Ευγενίου Ευγενίδου.

ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
ΒΙΒΛΙΟΘΗΚΗ ΤΟΥ ΝΑΥΤΙΚΟΥ

MARITIME ENGLISH

for the 3rd Semester

ΠΑΡΑΣΚΕΥΗΣ Λ. ΠΑΠΑΛΕΩΝΙΔΑ
Καθηγήτριας Αγγλικής ΑΕΝ/Μακεδονίας

ΑΘΗΝΑ
2013

ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
1954

ΠΡΟΛΟΓΟΣ ΣΥΓΓΡΑΦΕΑ

Το βιβλίο αυτό σχεδιάστηκε ώστε να αποτελέσει διδακτικό βοήθημα για το μάθημα «Ναυτικά Αγγλικά» Γ΄ εξαμήνου στις Ακαδημίες Εμπορικού Ναυτικού. Έχει ως στόχο να βοηθήσει τους/τις σπουδαστές/τριες να αποκτήσουν τις γλωσσικές δεξιότητες εκείνες (κατανόηση και χρήση του προφορικού και γραπτού λόγου) που θα τους επιτρέψουν να επικοινωνούν με ευχέρεια στο επαγγελματικό τους περιβάλλον, δηλαδή να ανταποκρίνονται σε γενικότερες και ειδικότερες καταστάσεις επικοινωνίας ως Αξιωματικοί (Πλοίαρχοι και Μηχανικοί) του Εμπορικού Ναυτικού.

Το παρόν εγχειρίδιο βασίζεται στο ισχύον αναλυτικό πρόγραμμα διδασκαλίας των ΑΕΝ, το οποίο με τη σειρά του ακολουθεί τις προδιαγραφές του Διεθνούς Ναυτιλιακού Οργανισμού (IMO), όπως αυτές καταγράφονται στο Model Course 3.17 για τα Ναυτικά Αγγλικά. Η μεθοδολογία που προτείνεται από το Model Course ως κατάλληλη για τη διδασκαλία του μαθήματος είναι η επικοινωνιακή προσέγγιση, μέθοδος που συναρμονίζεται με μια από τις βασικές απαιτήσεις της Συμβάσεως STCW (όπως τροποποιήθηκε το 1995), δηλαδή την ανάγκη για πρακτική «επικοινωνιακή επάρκεια» των Αξιωματικών Φυλακής στην Αγγλική. Η έμφαση στην «επικοινωνιακή επάρκεια», που βρίσκεται στον πυρήνα των απαιτήσεων της STCW από την ειδική Ναυτική Εκπαίδευση γενικότερα, αντικατοπτρίζεται στον προσανατολισμό του παρόντος βιβλίου. Χρησιμοποιώντας σύγχρονα αυθεντικά κείμενα ναυτικού ενδιαφέροντος, τονίζοντας την αλληλεπίδραση με την προώθηση της κατανόησεως του λόγου κατά ζεύγη και ομάδες, συμπεριλαμβάνοντας συνεντεύξεις εφιστώντας την προσοχή σε στρατηγικές αυτοδιαχείρισης της μάθησης, και μέσα από δραστηριότητες που (κατά το δυνατό) προσομοιώνουν αυθεντικές διαδραστικές καταστάσεις και επιτρέπουν στους/στις σπουδαστές/τριες να ασκούνται ως εν δυνάμει πομποί και δέκτες σε πραγματικά επικοινωνιακά γεγονότα, το βιβλίο γενικά λειτουργεί μέσα σε ένα πλαίσιο θεματικής και επικοινωνιακής προσεγγίσεως της διδασκαλίας της Αγγλικής για Ειδικούς Σκοπούς.

Το βιβλίο απευθύνεται σε τάξεις μεικτής ικανότητας και καταβλήθηκε προσπάθεια ώστε να προσφέρει στο διδάσκοντα την ευελιξία να επιλέγει, ανάλογα με το επίπεδο της τάξεως, από μια ποικιλία διδακτικού υλικού. Το υλικό αυτό παρουσιάζεται σε 6 ενότητες. Υπάρχουν επίσης 2 επαναληπτικές ενότητες με ολοκληρωμένες δραστηριότητες αποτελούμενες από ασκήσεις που βοηθούν στην εμπέδωση της σχετικής ορολογίας και την επέκταση ειδικών θεμάτων.

Οι γλωσσικές δεξιότητες που εξασκούνται σε κάθε άσκηση, καθώς και ο κεντρικός της άξονας επισημαίνονται με ειδικά σύμβολα στην αρχή κάθε ασκήσεως, ως εξής: α) Ομιλία, β) Ανάγνωση, γ) Γραπτός Λόγος, δ) Κατανόηση Προφορικού Λόγου – Συζήτηση στην τάξη, ε) Αυτοαξιολόγηση, στ) Εργασία κατά ζεύγη, ζ) Εργασία σε Ομάδες, η) Πληροφορίες και θ) Κατανόηση ακουστικού κειμένου.

α) *β)* *γ)* *δ)* *ε)* *στ)* *ζ)* *η)* *θ)*

Ιδιαίτερη προσοχή δίνεται στις Τυποποιημένες Ναυτικές Φράσεις Επικοινωνίας (IMO SMCP), και επιχειρείται παρουσίαση και εξάσκηση των φράσεων στις επιμέρους ενότητες του βιβλίου.

Κάθε ενότητα περιέχει υποενότητες με τίτλο «Γλωσσική Ευαισθητοποίηση» (Language Awareness), όπου παρουσιάζονται οι γραμματικές δομές που υπάρχουν ενσωματωμένες στα επιμέρους θέματα. Επίσης, μετά από κάθε κείμενο δίνεται ένα «Γλωσσάριο» (Glossary) όπου παρα-

τίθενται συνώνυμα ή ορισμοί για το λεξιλόγιο του κειμένου, ώστε να αποτελέσει σημείο αναφοράς για την εξάσκηση και επανάληψη του λεξιλογίου και να ενθαρρύνει τους/τις σπουδαστές/τριες να κρατούν τις δικές τους Αγγλο-Αγγλικές σημειώσεις λεξιλογίου με παρόμοιο τρόπο.

Το βιβλίο συνοδεύεται από ένα audio CD που περιέχει το υλικό για τις δραστηριότητες κατανόησης προφορικού λόγου. Τα απομαγνητοφωνημένα κείμενα των ασκήσεων παρατίθενται στο παράρτημα «Audio Material Transcripts».

Ένα Παράρτημα για Μηχανικούς περιλαμβάνεται ως συμπλήρωμα του διδακτικού υλικού και έχει ως στόχο να εξοικειώσει τους/τις σπουδαστές/τριες στις σχολές Μηχανικών με την αγγλική ορολογία στο ειδικό γνωστικό αντικείμενο των σπουδών τους, παρουσιάζοντας θέματα που προβλέπονται στην αναλυτική ύλη της ειδικότητάς τους. Συγκεκριμένα το Παράρτημα για το Γ' εξάμηνο κάνει μια εισαγωγή στα καύσιμα, τα λιπαντικά και την συντήρηση της μηχανής Diesel. Θα ήθελα ολόψυχα να ευχαριστήσω την αγαπητή μου συνάδελφο Κάτια Γρηγόρογλου, Καθηγήτρια Αγγλικής στη Σχολή Μηχανικών της ΑΕΝ Μακεδονίας, που με προθυμία μοιράστηκε μαζί μου υλικό για αυτό το κομμάτι του βιβλίου.

Είναι ιδιαίτερα ευπρόσδεκτα τυχόν σχόλια ή προτάσεις που θα βελτιώσουν την ποιότητα του παρόντος βιβλίου από τους συναδέλφους που διδάσκουν στις Ακαδημίες, καθώς και από τους/τις σπουδαστές/τριες που είναι ο πραγματικός αποδέκτης της δουλειάς αυτής. Ελπίζω το βιβλίο να ανταποκρίνεται στις ανάγκες και προσδοκίες των σπουδαστών/τριών που θα το χρησιμοποιήσουν ως εργαλείο για να γίνουν επαγγελματίες στον ταχύτατα μεταβαλλόμενο χώρο της εμπορικής ναυτιλίας.

Θα ήθελα να ευχαριστήσω την Επιτροπή Εκδόσεων του Ιδρύματος Ευγενίδου για τη συμπαράσταση της κατά την πραγμάτωση αυτού του έργου. Είχα τη μεγάλη χαρά να συνεργαστώ με το εξειδικευμένο προσωπικό του Εκδοτικού Τμήματος του Ιδρύματος, χωρίς την αμέριστη βοήθεια και τις φιλότιμες προσπάθειες του οποίου το βιβλίο δεν θα έπαιρνε την τελική του μορφή, και του ανήκουν ιδιαίτερες ευχαριστίες.

Είμαι ευγνώμων στον επιστημονικό σύμβουλο του βιβλίου, Γεώργιο Δούναβη, καθηγητή Αγγλικής στην ΑΕΝ Σύρου, για την άφογη συνεργασία μας και την αδιάλειπτη παρουσία του ως υποστηρικτή αυτού του έργου και ως πολύτιμου συναδέλφου.

Ιδιαιτέρως ευχαριστώ τον κ. Άκη Χαραλαμπίδη (Πλοίαρχο Α' Ε.Ν. και καθηγητή Ναυτικών Μαθημάτων στην ΑΕΝ Μακεδονίας) για το απαραίτητο υλικό και τις συμβουλές που μου παρείχε. Τέλος, ευχαριστώ τους Laurie Drakontis, Γιώργο Ελισσαίο, Δημήτριο Φλώρο, Φίλιππο-Χρυσοβαλάντη Αργυρουδάκη, Σιδέρη Παγιατάκη, Παύλο Κωνσταντινίδη και Κων/νο Παγγέα για την πρόθυμη βοήθειά τους στην ηχογράφηση ακουστικού υλικού, καθώς και τους Κων/νο Βασιλό, Κων/νο Λαγό, Κων/νο Καρυαδάκη, Κων/νο Δημάνη και Σωτήρη Χατζημανώλη για την γενναιοδωρία με την οποία μου παρείχαν φωτογραφικό υλικό από τις ιδιωτικές τους συλλογές.

Η συγγραφέας

UNIT 1

Incidents and accidents at sea

1. *Reporting details of incidents at sea*
    - *I. Story in the news*
    - *Language Awareness:*
        - *II. Revision of linking sounds in English*
        - *III. Past Simple (questions and negatives) / Question words*
2. *The nature of various types of incidents at sea*
    - *I. Classification / Definitions*
    - *II. Key vocabulary from report forms*
    - *III. Types of incidents*
3. *Marine Accident Reports: Formal Reports and Forms*
4. *VHF communications for distress and urgency messages*
    - *I. SMCP for distress communications regarding collision and grounding*
    - *II. SMCP for urgency communications regarding engines / equipment and cargo problems*

Round-up

1. Reporting details of incidents at sea

I. Story in the news

a) Listen to the news report as many times as you like. Then do exercises i - iii.

i. Can you answer the following questions?

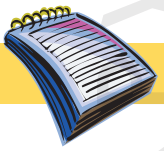
- What was the accident?
- Where did it happen?
- Was there any damage?

ii. What is the correct title for the news report?

a) Collision causes traffic congestion in the North Sea.
b) Danger of environmental disaster due to leaking tanker in the North Sea.
c) A Greek tanker carrying jet fuel collided with a container ship in the North Sea.
d) Two crewmembers were injured in a collision in the North Sea.

iii. Fill in the Glossary with the words given in the box:

shipping lane	**contain** (a leak, a fire)	**en route**	**spokesman** (*gender neutral:* spokesperson)	**congestion**



Glossary

..... a person who speaks on behalf of a group or an organization
..... on the way; while travelling from/to a particular place
..... a route used by ships on regular journeys
..... the state of being crowded and full of traffic
..... to prevent something harmful from spreading or getting worse

b) Read the two articles on the incident from two different sources and do exercises i – v.

(text from *Daily Mail*)

A tanker carrying jet fuel has collided with a container ship, causing fuel to briefly spill into the North Sea. The Cypriot vessel York Ranger tore a 20ft hole in the hull of the Greek tanker Mindoro around 20 miles off the Dutch coast at Scheveningen. Some highly inflammable kerosene leaked from a hole above the water line before the crew managed to pump the remaining fuel into an undamaged part of the ship.

Peter van Oorschot, a spokesman for the Dutch Coast Guard, confirmed that no one was hurt in the collision. Mr Oorschot said the jet fuel quickly vaporised and posed no public health risk, and it is not expected to reach the Dutch coast. He could not say how much jet fuel the 25-man tanker was carrying but added that the situation was under control. Offshore winds are blowing the slick away from the coast. The container ship has a crew of 12 and has asked permission to sail on to Rotterdam, its original destination after leaving St Petersburg.

(text from *www.shipwrecklog.com*)

The Greek tanker Mindoro collided with the Cypriot container vessel Jork Ranger near Scheveningen, Netherlands. The Mindoro was loaded with jet fuel which leaked from a hole above the waterline. The vessel was able to stop the leaking by pumping the fuel into an undamaged tank. The pollution released is not a severe risk as it is expected to evaporate. The Jork Ranger sailing from St. Petersburg continued towards Rotterdam. The Mindoro was heading for anchorage off Scheveningen. The reason for the collision has not been reported, but the weather was clear and waves were around 1 meter.

i. How did they stop the leak in the Mindoro?

ii. The *Daily Mail* published the following pictures of the accident. Match the pictures to the appropriate captions:

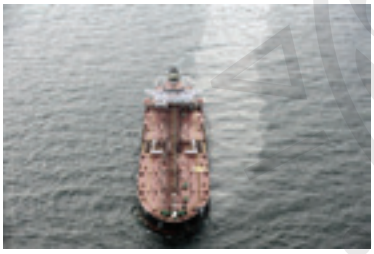
Heading for port: The damaged cargo ship Jork Ranger passes through River Maass watergate on its way to the harbour in Rotterdam, its original destination

Pollution: Kerosene is seen leaking from the punctured hull of the Mindoro

Collision: The damaged hull of the Greek tanker, Mindoro, after it hit the Jork Ranger container ship 20 miles off the Dutch coast

Hull damage: The exact spot (marked with a red circle) where the Cypriot container ship ripped a 20 ft hole in the Mindoro

Breach: The Mindoro loses jet fuel off the coast of Amsterdam

a) 

b) 

c) 

d) 

e) 

Glossary

to puncture something	to make a small hole in something (e.g. to puncture a tyre)
breach	an opening, a tear (e.g. created by strong winds or sea)
to rip	to tear something, often suddenly or violently

Words that show violent movement, and can be used in case of grounding or collision:
[nouns] ***ingress of water, inflow of water, breach, hole, crack.***
[verbs] ***break through, crack open, puncture.***

iii. Vocabulary work. First match the words to their definitions. Then use them to fill in the gaps. Change the form of the word if you need to (by adding an ending for example).

a. severe _____ turn into gas
b. evaporate _____ create a threat, problem, etc. that has to be dealt with
c. briefly _____ extremely bad or serious
d. confirm _____ an area of oil that is floating on the surface of the sea
e. pose _____ state that something is definitely true
f. slick _____ for a short time

1. I met him …….. on Tuesday night.
2. The lack of trained crewmembers …….. a threat to ship security.
3. The victim suffered …….. injuries.
4. The 50 km …….. from the damaged tanker is visible from a distance.
5. Heat until all the water has ……..
6. She …….. that the rumors are true and offered to prove it with some evidence.

iv. Match the words to form correct collocations.

1. original ☐ inflammable
2. public health ☐ winds
3. offshore ☐ risk
4. highly ☐ destination

v. Below there is an extract from an incident report form. Fill in the information you know regarding the oil spill incident you read about on page 10. If there is something you don't know, write "N/A" which means "not available" or "not applicable".

G. To be filled in if the accident has caused pollution/discharge

POLLUTION/DISCHARGE

Type of pollution (technical and characteristic designation of the discharged substance)						
Did the pollution occur in connection with	☐ Collision	☐ Loading unloading	☐ Bunkering	☐ Transfer of cargo or bunker	☐ Tank cleaning	☐ Dumping in open sea
	☐ Grounding	☐ Capsizing	☐ Leakage	☐ Equipment failure	☐ Other cause	
Was the discharge caused by faulty handling of equipment on board ☐ yes ☐ no			If the discharge consisted of oil or hazardous cargo, was the ship provided with a valid certificate for such cargo ☐ yes ☐ no			
Indicate the amount discharged in litres			Indicate the size of oil slick or other liquid hazardous substances			
Describe how the discharge occurred!						
What was done in order to minimize/stop the discharge or in order to limit the spreading? Who were notified concerning the discharge and how?						

II. Language Awareness: Revision of Linking Sounds in English

a) To revise the feature of speech we call "linking" (joining final consonant sounds and initial vowel sounds between words), match the two halves below to make full statements.

1. Linking is a way of joining the pronunciation of two words…	…the words in a sentence do not always sound the same as when we say them individually. For example "ice cream" can sound like "I scream" because of linking.
2. In English, consonant to vowel linking happens when…	…so that they are easy to say and flow together smoothly.
3. Because of linking…	…the first word ends with a consonant sound and the second word begins with a vowel sound.

When we speak naturally we do not pronounce a word, stop, then say the next word in the sentence. The way we pronounce the end and beginning of some words can change: sounds link, sounds disappear, sounds join together (they are pronounced together as one). These changes are features of *connected speech* in pronunciation.

b) Do you agree with the following statements? Discuss.

- It is important to know what native speakers do when they speak, in order to understand fast and fluent speech.
- As listeners we should be aware of linking sounds. If you recognize and use "linking" you will understand other people more easily and they will understand you more easily.
- Your words can be mistaken for other words when you don't pronounce them very well.
- In Maritime English, the wrong pronunciation can cause problems with communication and so jeopardize safety.

c) With the help of your teacher, say the following phrases aloud in order to understand and practise linking.

⌒ Switch off the lights.	⌒ ...because of…
⌒ ⌒ Click on it.	⌒ ⌒ ...and a lot of…
⌒ ⌒ Because it is.	⌒ …full of…

d) Look at the linking that happens in the following sentence, taken from the news report on the North Sea collision. Listen to it and identify the linking.

The cause of the collision is still unknown.

e) Listen carefully to the following phrases from the news report and mark the linking in the places where you can hear it (in some cases there is linking in more than one place).

- **"damage from a collision"**
- **"collided with a Cypriot containership"**
- **"a Port of Rotterdam spokesman"**
- **"Rotterdam is one of Europe's biggest ports"**
- **"no delays as a result of the accident"**

f) Imagine asking the following question to a member of the crew of the Mindoro.

What did you do?

What did you use to stop the leak?

Linking is noticeable with "did it" and "did you" in past simple questions. Note the linking in the questions we need to ask about an accident. Practise saying the questions aloud.

What was the accident?	Who was involved?
Where did it happen?	Was anyone injured?
What time did it happen?	Was there any damage?
How did it happen?	

III. Language Awareness: Past Simple (questions and negatives) / Question words

Did you notify the authorities? What **did** they do to contain the spill?
The leak **did not** cause dangerous pollution.

We use **did** in past simple negatives and questions:

infinitive	*positive*		*negative*			*question*		
watch	I	watch**ed**	I		watch		I	watch?
clean	we	clean**ed**	we		clean		we	clean?
play	you	play**ed**	you		play		you	play?
do	they	**did**	they	**did not**	do	**did**	they	do?
go	he	**went**	he	**(didn't)**	go		he	go?
have	she	**had**	she		have		she	have?
begin	it	**began**	it		begin		it	begin?

BUT:

	I	**was**	I				I?
	he	was	he	**was not**		**Was**	he?
	she	was	she	(wasn't)			she?
be	it	was	it				it?
	we	**were**	we	**were not**		**Were**	we?
	you	were	you	(weren't)			you?
	they	were	they				they?

a) Change each sentence into a negative one.

e.g. *We had a quiet night.* ⇨ *We didn't have a quiet night.*

1. The Bosun drank all the wine. ⇨ .....
2. We were in the port. ⇨ .....
3. Nick bought a new i-phone. ⇨ .....
4. The food was expensive. ⇨ .....

Note the most usual mistakes: I watched *but* I didn't watch (*not* I didn't watched)
He went *but* Did he go? (*not* Did he went?)

b) Which of the sentences are correct [☑] and which are not [☒]? Correct the mistakes.

1. I played backgammon with the captain yesterday but I didn't won. ☐
2. They went to a new restaurant near the port but they didn't enjoyed the food. ☐
3. We didn't do much work on deck yesterday. The weather was very windy. ☐
4. What did you at the weekend? I didn't anything special. ☐

Yes / No questions – Wh-questions

Note the word order in questions with "did" and the position of the question word in wh-questions:

	Did	the captain	give	you the master key?
What	did	you	do	yesterday evening?
How	did	the accident	happen?	
Where	did	the messmates	go	after lunch?

Short answers
Yes, I did. [Yes, I / we / you / they / he / she / it did]
No, I didn't. [No, I / we / you / they / he / she / it didn't]

c) Write short answers.

1. Did you see the engineer yesterday? *No, I didn't.*
2. Did it rain on Sunday? Yes, ……
3. Did Dimitris come to the safety management seminar? No, ……
4. Did the port authorities make an announcement? Yes, ……

d) Complete the following sentences with the verb in the negative.

1. I saw the accident but I *didn't see* if there were any victims.
2. They worked on Monday but they _____ on Tuesday.
3. We went inside the hold but we _____ inside the ballast tank.
4. She had a pen but she _____ any paper.
5. He took the entry exams but he _____ the final exams.

e) You are asking somebody questions. Write questions with "Did…?"

1. I watched TV last night. And you? *Did you watch TV last night?*
2. I made a lot of money this year. And you? _____ you _____ ?
3. I had a good holiday. And you? _____ ?
4. I got up early this morning. And you? _____ ?
5. I slept well last night. And you? _____ ?

f) What did you do yesterday? Talk about what you did yesterday. Your sentences can be positive or negative.

e.g. (watch TV) *I watched TVyesterday.* OR *I didn't watch TV yesterday.*

1. (get up before 7.30)
2. (buy a newspaper)
3. (call my mum and dad)
4. (go to bed before 11)

g) Write the following questions.

1. I met somebody.	Who _____ *did you meet* _____ ?
2. The inspector arrived.	What time _____ *he*_____ ?
3. I saw somebody.	Who _____ ?
4. I heard a noise.	What_____ ?
5. The Captain wanted something	What_____ ?

h) Put the verbs in the correct past form (positive, negative or question).

1. We ……. (wait) for the bus for a long time but it …… (not/come).
2. The bus drivers …….. (be) on strike.
3. That's a nice T-shirt. Where ……. (you/buy) it?

4. She …… (see) me but she ……(not/speak) to me. I wonder why!
5. ……. (it/rain) yesterday? No, it was a nice day.
6. What a stupid thing to do! Why …… (you/do) it?

i) A friend has just come back from his/her 6-month training voyage. You ask him/her about it. Write your questions.

1. (where / travel?) ….. Where did you travel?
2. (how long / stay on board?) ……
3. (visit / any ports?) ……
4. (food / be good on board?) ……
5. (what / do in the evenings?) ……
6. (meet / anybody interesting?) ……

j) Fill in the missing phrases in the correct place in the text.

a roll call was held	filled with smoke
he was dead on arrival	after a voyage from Japan
for the storage of dirty linen	wearing breathing apparatus

A refrigerated ship of some 9.742 gross tons arrived in Port Nelson, New Zealand, early one morning (1)…….. . That night the crew enjoyed an evening in port and some of the local girls attended a party held on board.

Early the following morning a fire was discovered in the accommodation, which quickly (2)…… . The alarm was raised and the ship's crew tackled the blaze with hoses until the shore fire brigade arrived. (3)……. and all on board were accounted for with the exception of one deckhand. When the firemen arrived, they searched the accommodation, (4)…….…….. . The missing man was found unconscious in his cabin. Despite all efforts to revive him, (5)…….. at the hospital.

The fire was put out with no further casualties. The source of the fire was traced to an unoccupied cabin used (6)……. . The crew used this cabin to make calls as a ship-to-shore telephone had been installed there. The fire officer considered that the most probable cause of the fire was the careless disposal of matches and cigarette-ends in the cabin.

k) After reading the text, look at the answers and complete the questions.

1. When …… ?
   The fire broke out in the evening.
2. Did …… ?
   No, the crew didn't put out the fire.

3. Were ..... ?
   Yes, there was one casualty.
4. What ..... ?
   The missing person's rank was deckhand.
5. How ..... ?
   The fire started by matches and cigarette-ends which were not properly extinguished.

l) Complete the sentences. Put the verbs into the correct past form, positive or negative.

1. There were many seagulls in the sky and one bird ..... into the funnel. (fly)
2. The air ticket wasn't expensive. It ..... very much. (cost)
3. I was in a hurry, so I ..... enough time to phone you. (have)
4. It was hard work carrying the paint containers. They ..... very heavy. (be)
5. I knew the Chief Engineer was very busy, so I ..... him. (disturb)
6. I was very tired, so I ..... to bed early. (go)
7. The bed was very uncomfortable. I ..... very well. (sleep)
8. The food looked delicious but I wasn't hungry, so I ..... anything. (eat)
9. It was a funny situation but nobody ..... (laugh)
10. I couldn't afford to keep my car, so I ..... it. (sell)
11. An A/B ..... (fall) down the ladder and ..... (break) his leg yesterday morning.

m) Read the text on a marine accident and fill in the following missing verbs. Use the Past Simple.

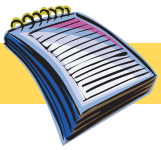
start	lose	worsen	break off	drift

10/10/2008

M/V Fedra, a 35886 gt, 1984 built bulk carrier, ... engine power and ..... drifting toward the coast on the east side of Gibraltar.

Tugs deployed to the area but unfortunately the stormy weather ..... and the ship ..... stern first onto the cliffs just below the lighthouse at Europa Point and then swerved alongside the cliffs. The ship ..... in two and the crew was rescued after a dramatic helicopter rescue.

Fedra grounding in Gibraltar in 2008



Glossary

to deploy	to bring (forces or material) into action
to swerve	to change direction suddenly (especially in order to avoid hitting somebody or something)
cliff	a high area of rock with a very steep side, often at the edge of the sea or ocean

n) In pairs, ask and answer questions about the accident orally.

Student A:	*Student B:*
When did the accident happen?	The accident happened on 10th October 2008.
How……..?	……
Where…..…?	……
What …….. ? (weather)	It was……
……..any damage?	…….
…... anyone injured?	…….
How……. ? (the crew / rescue)	…….

2. The nature of various types of incidents at sea

I. Classification / Definitions

a) Fill in the gaps. Use the following words: serious / medical / disaster / results.

What is the meaning of "casualty"?

In the SMCPs "casualty" refers to a "case of death in an accident or shipping ……". In broader terms, and chiefly in insurance, "casualty" refers not only to *the person* injured or killed in an accident but more generally to *the accident* which involves …….. injury or loss of life.

"Marine casualty", for the United States Coast Guard for example, is defined as "any occurrence which …….. in damage by or to a vessel or its cargo, or injury which requires professional …… treatment beyond First Aid, or death".

b) Listen to how the IMO classifies incidents. Then decide what each of the following incidents are classified as. Circle the correct classification.

there is fatality (death of crew-member)	**very serious casualty / serious casualty**

there is engine breakdown, the ship requires tug assistance	**very serious casualty / serious casualty**
there is ingress of water, the ship is unseaworthy	**very serious casualty / serious casualty**
there is total loss of the ship	**very serious casualty / serious casualty**

c) Fill in the missing verb or noun in the following table.

Verb	*Noun*	*Verb*	*Noun*
……	– classification	……..….	– pollution
lose	– …….	assist	– ……
……	– immobilization	penetrate	– ……
……	– towage	……	– definition

d) Match the words to form correct collocations.

1. Total …… of life
2. Loss …… assistance
3. Weather …… cracking
4. Hull …… damage
5. Unfit …… classification
6. Shore …… to proceed
7. IMO …… loss

e) We saw how casualties are distinguished into "very serious" and "serious". Below are some more useful definitions of terms. Write the correct term for each definition.

Near miss (hazardous incident) / Investigation /
Marine accident / Marine incident

1. _____ means an abnormal event occurring in the course of operation of seagoing ships and likely to cause danger to man, ships or the environment.
2. _____ means one (or more than one) marine undesired incident which results in personal injury, damage or loss, including loss of life or major injury to any person on board, the actual or presumed loss of a ship, abandoning the ship, collision or grounding, the ship becoming disabled, and also material damage caused to a ship.
3. _____ is an accident that nearly occurs in connection with the operation of the ship.
4. _____ means the determination of conditions, circumstances, causes of marine accidents with a view to effective measures to prevent and limit similar accidents.

f) Read information about an accident, ask for and provide details about it and fill in a report form.

Lead-in: Look at the following two pictures. What type of accident has happened?

Student A: Ask Student B for all the information you need and fill in the incident report form that follows.

INCIDENT DESCRIPTION

DATE:

LOCATION:

TYPE OF INCIDENT:

VESSELS INVOLVED:

#1	**#2**
NAME:	**NAME:**
IMO NUMBER:	**IMO NUMBER:**
FLAG:	**FLAG:**
TYPE:	**TYPE:**
CARGO:	**CARGO:**
BUILT:	**BUILT:**
DAMAGE SUFFERED:	**DAMAGE SUFFERED:**
CURRENT LOCATION:	**CURRENT LOCATION:**
☐ **REMAINING AT INCIDENT SITE**	☐ **REMAINING AT INCIDENT SITE**
☐ **ANCHORED AWAY FROM INCIDENT SITE**	☐ **ANCHORED AWAY FROM INCIDENT SITE**
☐ **MOVED TO DRY DOCK FOR REPAIRS**	☐ **MOVED TO DRY DOCK FOR REPAIRS**

INCIDENT SEVERITY RATING: (circle as appropriate)

INJURIES: YES / NO

POLLUTION: YES / NO

OIL-SPILL RESPONSE: YES / NO

(IMO classification) VERY SERIOUS CASUALTY / SERIOUS CASUALTY

Student B: Go to page 262 and read the news report. Give Student B all the information s/he needs to fill in the Incident Report Form.

II. Key vocabulary from report forms

The following exercises use samples of phrases from incident reports; they include common/useful instructions, questions, headings, etc[1].

involve *How many vessels were **involved** in the collision?* *Was any hazardous material released or **involved**?* *The incident **involves**…* • If a situation, an event, etc. involves somebody or something, they take part in it or are affected by it.	***damage*** *The fire **damaged** the E/R.* • to damage, to cause damage • serious / severe / extensive / permanent / minor damage • fire / storm / weather damage
occur *When did the accident **occur**?* *What is the date of **occurrence**?* • occur: happen, take place	***fail*** *The diesel generator **failed**.* *There is engine **failure**.* • fail (of machinery): to stop working
affect *Did the incident **affect** the ship's stability?* • affect: to produce a change in somebody or something	***location*** • the site, area, position, location, scene … of the accident
cause *Do they know what **caused** the fire?* • cause (something): to make something happen, esp. something bad or unpleasant	***accident*** • a serious / minor / fatal accident [expressions: to "have an accident", "by accident": not deliberately]

a) The following are questions regarding "manning on the bridge at/before a collision / grounding". Match the two halves and write them in the space provided.

1. Who was	➜	the radar no 1?	Who was on the bridge?
2. Where was	➜	the look-outs?	_____
3. Who operated	➜	the master?	_____
4. Where were	➜	~~on the bridge~~?	_____
5. Who was	➜	at the helm?	_____

b) Write questions with "was there...?" or "were there...?"

1. ..... a pilot on board?
2. ..... any witnesses?

1. The phrases come from: "Marine Incident Report" (Australian Maritime Safety Authority), "Report of Marine Accident, Injury of Death" (U.S. Coast Guard) and "Report on Accident at Sea" (Swedish Transport Agency).

3. ..... any damage?
4. ..... any injuries?
5. ..... any spill?

c) The following questions come under the heading "Manning". Write the appropriate question that finishes each sentence.

who was on duty?	who was at the helm?
who supervised it?	~~who was on watch~~?
who operated it?	

1. At manual steering, ...?
2. At manned engine room, ... who was on watch.....?
3. At unattended engine room, ...?
4. At use of automatic pilot, ...?
5. At manoeuvring of the main engine from the bridge, ...?

Make sure you know the following verbs.

- ***determine:*** to discover the facts about something, to establish, *e.g. We must determine exactly what happened that night.*
- ***recommend:*** to advise a particular course of action, *e.g. The manager recommended a 10% increase.*
- ***complete:*** to write all the information you are asked for on a form, fill in / out, *e.g. 1000 people completed the questionnaire.*
- ***collect:*** to bring things together from different people or places, to gather, *e.g. to collect data, evidence, information.*
- ***state:*** to formally write or say something, especially in a careful and clear way, *e.g. The facts are clearly stated in the report.*

d) Complete the gaps with the appropriate phrases.

determine	preventive actions
recommend	who was involved
complete	all necessary data
collect	the form as soon as possible
state ..... the cause of the accident..	~~the cause of the accident~~

e) Look at the following instructions and write what questions must be asked.

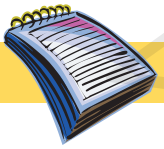
Describe how accident occurred, damage, information on alcohol/drug involvement, witnesses.

How did…… ……..…?	Was there… ……?	Was the person under the influence of ……..…?	Were there …... .....?

f) The following are instructions given for the completion of incident reports. Fill in the gaps with the words in the box.

events	cargo	defect	state	designated
application	addresses	attach	sketch	inadequate

1. This report must be forwarded within 72 hours of the incident by the ISM Code …… Person to the General Manager of Maritime Operations, AMSA.
2. ……: this report is required for Australian ships anywhere, all ships in Australian waters.
3. If the incident involves breakage of gear or injury to a person during …… work, complete Part 1.
4. If the incident involves damage or …… to ship, machinery or equipment, complete Part 2.
5. If the incident involves peril or close-quarters situation, complete Part 3.
6. Give a brief description of the course of …… .
7. Give names and …….. of any witnesses.
8. At a fire: …….. whether the fire-fighting equipment failed / was …… .
9. At a collision: draw a …….. showing the situation from the time when the other ship was detected to the collision moment.
10. …….. additional pages if necessary.



Glossary

to forward	to send or pass information or goods, e.g. forward our new catalogue
peril	serious danger
close-quarters situation	when ships approach each other and there is danger of collision

g) Write the words under the correct heading.

Gangway / pilot ladder	Open sea
Close quarters	Machinery failure
Channel, river, buoyed fairway	Normal sea voyage (routine work)
Grounding	Machinery spaces
Safety drills / training	Collision
Traffic separation zone	Mooring / preparation for departure
Flooding	~~At quay, in dock, etc~~.
Galley	Maintenance / repair in machinery spaces

Cleaning cargo holds / tanks	Coastal waters
~~Accommodation block~~	Deck / cargo spaces

INCIDENT DESCRIPTION	PLACE OF INCIDENT (ON BOARD)	TYPE OF WATERS/ FAIRWAYS	MAIN ACTIVITIES ON BOARD
	Accommodation block	At quay, in dock, etc.	

h) First match the phrases, then write them up in the first column and fill in the second column with the correct information.

1. Name of person…	….. of oil spill
2. Date of…	….. in charge
3. Estimated damage…	….. where bound
4. Hazardous material…	….. occurrence
5. Estimated amount…	….. released
6. Last port…	.3... to cargo

~~Extensive damage, cargo spoilt~~ / Jefferson / Noxious gas / Rotterdam / 31-12-2011 / 1,300 mt

1.	
2.	
3. Estimated damage to cargo:	Extensive damage, cargo spoilt
4.	
5.	
6.	

i) Write the missing derivatives.

Verb	***Noun***	***Verb***	***Noun***
explain		fail	
	description		damage
	witness	involve	
recommend		occur	

j) Match the two halves to make full phrases.

1. the cause	involvement
2. alcohol	of the accident
3. action taken to prevent	narrative
4. recommendations	similar occurrences
5. incident	for corrective safety measures

III. Types of incidents

Read about the following incident reported by IMO in "Lessons Learned for Presentation to Seafarers" and do the vocabulary exercises that follow.

CONTACT

What happened?

In good weather, a ro-ro ferry had turned and the master was backing the ship into the link-span. As he did so, the starboard controllable pitch propeller (CPP) alarm was activated, but this went unnoticed. The master moved both CPP controls to take the way off, but the starboard CPP did not respond and continued to drive astern. The asymmetric thrust caused the stern to sheer to port, initially making contact with the pile fenders on the port side. Six minutes after the original alarm sounded, the master regained control of the starboard CPP at the centerline console, but not early enough to prevent the vessel making heavy contact with the link-span. The vessel suffered damage to the shell plating and the stern ramp was blocked by bent steel. Ashore, damage occurred to the pile fender and the loading ramp of the link span.

Why did it happen?

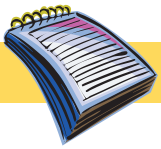
- The CPP failure alarm was heard on the bridge, but the bridge team could not identify which alarm was sounding.
- The engine-room staff saw the alarm had activated and had not been reset, but did not contact the bridge to check that they were taking action.
- The bridge team was not familiar with the propulsion system's emergency procedures and time was lost while they determined the appropriate action.
- The bridge CPP alarm only sounded briefly and the flashing light on the panel reverted to steady illumination after a short time. Therefore, the audio and visual triggers as to which alarm was activating were too transient.
- Despite intensive investigations, the cause of the CPP failure was not found.

What can we learn?

- The value of continually monitoring engine control feedback indicators.
- The value of understanding all alarm indicators prior to an emergency situation

Pier pile fender

Link span with loading ramp



Glossary

sheer	to change direction suddenly, to make a sudden movement to change course
revert to	to return to a former condition, go back to
transient	continuing for only a short time
intensive	extremely thorough, done with a lot of care

a) Supply the correct title to the following incidents, reported by the IMO in "Lessons Learned for Presentation to Seafarers". Choose from the titles below.

SINKING / NEAR MISS GROUNDING / HEAVY WEATHER DAMAGE-FLOODING / MACHINERY FAILURE-ADRIFT / MACHINERY FAILURE-EXPLOSION

(1)……

What happened?

A ship nearly ran aground when it was being navigated in pilotage waters with its auto-pilot in "automatic track keeping mode". The ship was equipped with a sophisticated integrated bridge system which allowed the auto-pilot to make course alterations at programmed way-points. The system failed to initiate a course change, and when the ship was very close to running aground, the master engaged manual steering and turned the ship sharply to avert the grounding.

(2)……

What happened?

A single-hold general cargo vessel with a cargo of clay and manganese was en route to its next destination when the weather deteriorated and the winds became south-westerly at Beaufort force 10. A trim by the head was observed and an inspection of the cargo hold revealed the presence of water; however, the location of water ingress could not be determined. Pumps were deployed, but were unable to stem the vessel's increasing draft. The vessel was abandoned and it later sank.

(3)……

What happened?

The second engineer was in the engine-room carrying out some maintenance jobs when he noticed that the main engine's turbo charger was over speeding at a dangerous rate. Before he could reach the control room to shut down the main engine, the turbo charger exploded. This was the second turbo charger explosion in four months, but no one was injured.

(4)……

What happened?

The 1972-built bulk carrier was intentionally grounded by its master after the ship took water into cargo holds Nos. 6 and 7 during cyclonic weather and seas. The water could not be removed by either the ship's fixed pumps or portable pumps lowered into the holds. All crew members were safely evacuated from the ship after the grounding.

(5)……

What happened?
A four-engine twin-screw passenger vessel left port with all four engines running but lost propulsion power some thirty minutes later and drifted dangerously close to land. The engines stopped because of the loss of water in the main engine cooling system and consequent overheating. There was considerable delay in restarting the main engines because of loss of air pressure from the air start system. The air compressor had to be shut down as the engineers prepared to restore propulsion power.

b) Vocabulary work. Match.

1. Regain……	an alarm
2. Suffer ……	pumps
3. Reset ……	contact
4. Deploy ……	vessel
5. Abandon ……	control
6. Make ……	damage

c) Write up the sentences. Choose the correct phrase from those in brackets and use the Past Simple.

1. The problem……	(not respond)
2. The CPP ……	(deteriorate)
3. The weather ……	(reveal a system failure)
4. A crew member …… activated the alarm ……	(go unnoticed)
5. An inspection ……	(~~activate the alarm~~)

d) Listen to three news stories about the same marine accident. Then do exercises i and ii.

i. Choose the correct title for each news commentary. Put the correct number (1, 2 or 3) in the boxes.

☐ Containers removed from stricken ship
☐ Cargo ship threatens environmental disaster
☐ Bad weather halts cargo ship salvage

ii. Take notes about the accident. Use the following headings:

Type of Incident:
Location:
Vessel name: Rena
Vessel type:
Pollution:
Oil-spill Response / Salvage Operation:

Expand your notes from the previous exercise and write a paragraph reporting the accident.

What happened?

M/V Rena .....
.....
.....
.....
.....
.....
.....
.....
.....

3. Marine Accident Reports: Formal Reports and Forms

A. *Read the following report summary and choose the correct alternative of the verbs in italics.*

Marine Accident Report: Pearl of Scandinavia Fire, 17 November 2010[2].

The PEARL OF SCANDINAVIA departed from Oslo on November 16 2010 at 17:30 on a voyage to Copenhagen. At 05:58 a fire alarm ***indicated / recommended*** fire on the car deck and it was established that some cars and trailers were on fire in two sections on the car deck aft on the port side. The fire was ***switched off / extinguished*** by the ship's sprinkler systems and subsequently by the ship's fire-fighting teams assisted by Swedish fire-fighters who had been flown to the ship by helicopter. The cause of the fire was an electric car that was being charged during the voyage. After having recognized the fire, all passengers were ***abandoned / evacuated*** to safe areas in the ship. Neither the passengers nor the crew were ***injured / damaged***. The PEARL OF SCANDINAVIA arrived in Copenhagen on 17 November 2010 at 12:15 by its own power.

B. *Choose the appropriate factual information to fill in the table.*

Accident data

Type of accident	
Time and date of the accident	
Position of the accident	

2. The casualty report was issued on 02 August 2011 and is available from the webpage of the Danish Maritime Accident Investigation Board, www.dmaib.dk

Area of accident	
Injured persons	
IMO Casualty Class	

Navigation data

Stage of navigation	

Ship data

Name	
Flag state	
Construction year	
Type of ship	
Tonnage	
Classification	
Engine power	

• En route from Oslo to Copenhagen	• Denmark
• Serious	• 56° 23'5 N - 012° 19'8 E
• Ro-Ro passenger ship	• 23,760 kW
• Fire	• 40,039 GT
• Det Norske Veritas	• 1989
• 05:58 local time on 17 November 2010	• Pearl of Scandinavia
• None	• 6 nm NW of Kullen, Sweden

C. ***The following information comes from the "incident narrative" part of the formal report. Write the correct question for each piece of information. First, put the words in the correct order to make full questions. Then match them to the correct answer below and write them in the space provided.***

a) the crew / how / guide / did / on board / to safe areas / passengers?
b) of the electric car / what / the brand / was?
c) the fire / where / break out / did?
d) there / was / damage / any?
e) start / the evacuation / did / when / of the passengers?
f) the fire-fighting teams / into / go / when / action / did?

1. ……?

The car was originally a conventional Nissan Qashqai with a combustion engine, but had been rebuilt by the owner to be powered by electricity.

2. ……?

The scene of the fire was deck 3, the car deck; the car deck is divided into sections by flooding control doors.

3. ……?

The first fire-fighting team was ready for action at 06:14 and during the following minutes a total of 4 teams were ready to go in action.

4. ……?

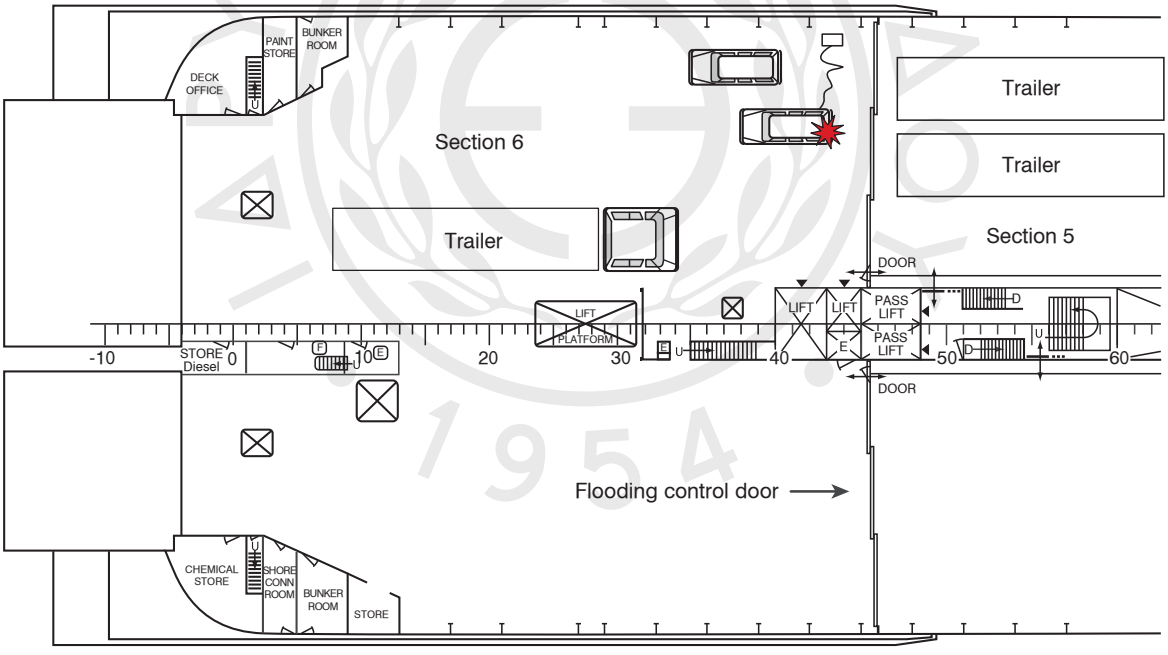
The evacuation of the passengers started immediately after the general alarm was sounded at 06:05.

5. ……?

Evacuation groups guided the passengers to designated restaurants. Guides were posted at all staircases to make sure that no passengers moved down the stairs or towards the aft part of the ship where there was fire and smoke.

6. ……?

Besides the electric car, three trailers and a car aft caught fire. Also, although the fire was extinguished effectively, it caused damage to the car deck resulting in the ship being taken out of service for some days.



The car deck aft showing where the electric car was parked

D. *Use all the information provided to answer the following questions.*

– Where did the fire start?
– What was the cause of the ignition?
– What type of extinguishing equipment was used (fixed or portable)?
– Did the extinguishing equipment function satisfactorily?

E. ***Look at the following Marine Accident Report Form and fill in the numbered blanks with the following words.***

Moderate	**Capsizing**	**Stability**	**Rendered**	**Fatality**
Hospital	**Wharf**	**Overcast**	**Rough**	**Gale**
	Issue		**Unseaworthy**	

Incident description

Position of incident

Latitude: ***Longitude:***

Date: / / ***Time: (UTC)***

Location

Type of incident

Collision

- ☐ Between ships
- ☐ With Fixed Object
- ☐ With Floating Object
- ☐ With Overhead Obstruction
- ☐ With Submerged Object
- ☐ With _____ **(1)**

Grounding

- ☐ Unintentional
- ☐ Intentional

_____ **(2)**

- ☐ Sinking
- ☐ Flooding

- ☐ Loss of _____ **(3)**
- ☐ Fire
- ☐ Explosion
- ☐ Person Overboard
- ☐ Onboard Injury
- ☐ Other

Incident Severity Rating

- ☐ No. of ships involved
- ☐ Fatality / No. of persons
- ☐ Injury / No. of persons
- ☐ Ship Lost
- ☐ Ship damaged
- ☐ Damage to property only
- ☐ No damage

Environmental Conditions

Weather

- ☐ Clear
- ☐ _____ **(4)**
- ☐ Rain
- ☐ Other

Water conditions

- ☐ Calm
- ☐ _____ **(5)**
- ☐ Very rough
- ☐ Strong current

Wind speed

- ☐ None
- ☐ Light (up to force 2 / 1-7 knots)
- ☐ _____ **(6)** (force 3-4 / 8-16 knots)
- ☐ Strong (force 5-7 / 17-33 knots)
- ☐ _____ **(7)** (force 8 and above/more than 33 knots)

Wind Direction

Wind coming from:

Visibility

☐ Good ☐ Moderate ☐ Poor

Damage to Ship(s)

- ☐ Lost
- ☐ Moderate damage (ship remains seaworthy)
- ☐ Major damage [ship _____ **(8)**]
- ☐ No damage

Persons Involved

Injury Status

- ☐ _____ **(9)**
- ☐ Missing person
- ☐ Serious injury
- ☐ Minor injury (no _____ **(10)** treatment required)

Watchkeeper

Name

Gender

☐ Male ☐ Female

Date of Birth

/ /

Licence No.

Issuing Authority

_____ **(11)** date

/ /

Report Details

A full description (including a diagram or chart extract) of the incident and events leading up to the incident are to be detailed in the space provided below.

N																			
↑																			

Assistance _____ **(12) /** ***received at incident*** .....
.....
.....
.....
.....
.....
.....
.....

Signature ..... ***Date*** / /

F. *Vocabulary work. Match the words to their synonyms/definitions.*

1. Incident	_____ fit to travel by sea
2. Fatality	_____ male or female
3. Unintentional	_____ to get
4. Gender	_____ to give
5. Seaworthy	_____ an occurrence, something that happened
6. Intentional	_____ deliberate, on purpose
7. Render	_____ number of deceased (dead)
8. Receive	_____ by accident, not on purpose

G. *Fill in the words in the gaps.*

licence / obstruction / issuing / expiry / submerged

1. In a document like a passport or an id card you can find information about the _____ authority and the _____ date.
2. After you graduate from university, the working _____, or working permit, allows you to be a professional teacher.
3. The vessel capsized but it did not sink, only a part of the hull was _____ into water.
4. You would be surprised at how often a vessel's superstructure collides with an overhead _____, such as a bridge. It sounds like a strange accident but it is actually quite frequent.

H. *Read about an incident from the Marine Accident Report Summary and do the exercises that follow.*

Factual information:

At 20:49 local time (UTC + 1 hour) on 1 December 2008 HAGLAND BONA (outward bound) and BLUE BIRD (inward bound) collided in Randers Fjord close to a mutually agreed meeting point. Both vessels sustained damage to their port bows. In an attempt to avoid the collision HB grounded just east of the channel. BB was able to continue to Randers by its own power. HB was taken afloat in the morning of 2 December, and subsequently anchored off Randers Fjord.
On the night of the collision the weather was good with southerly winds 2-3, good visibility and no current. None of the two vessels had a pilot on board.

The damage to BLUE BIRD

Narrative:

a) Fill in the missing sentences. Write A, B or C in the blanks.

General cargo vessel HAGLAND BONA (bound for Herre, Norway, to load timber / logs) was outbound from Randers Fjord. At the same time general cargo vessel BLUE BIRD (loaded with iron bundles) was inbound. When HB departed from Randers, the master announced the departure on VHF channels 16 and 12 and he was informed of the expected arrival of BB.

When the Master of HB was informed of the arrival of BB he contacted BB and it became clear that HB could not clear the channel before BB had entered the channel.

The Master of HB recommended that the two vessels passed each other port to port at a position east of Stovringgaard, 56° 30'28N / 010° 13'77E (see figure below). The master of BB agreed to the suggested way of passing and the passing point.

When BB was approximately 0,2 nm north of the passing point, it was on the western edge of the dredged channel. 15 minutes before the collision the Master of HB observed that BB would not enter the narrow stretch before HB could clear this narrow part. Therefore, he called BB requesting it to reduce speed.

(1) _____

HB decided to increase its speed in order to clear the narrow stretch before BB entered. Shortly before the end of the narrow stretch the Master of HB observed that BB was no longer staying in the western part of the channel but it was drifting towards the eastern part.

The Master requested that it returned to the western side but no change of course was observed. In order to avoid a head-on collision, he decided to continue on its present heading instead of turning to the course of the next leg of the channel (001°).

(2) _____

When the collision occurred HB had just started to have contact with the sea floor and the speed was very low. The two vessels hit each other on their port bows, and BB slid down the port side of HB.

(3) _____

Missing sentences:

[A] At the same time he chose first "Stop" then "Full Astern" on the engine, but shortly after that the vessel ran aground outside the channel.

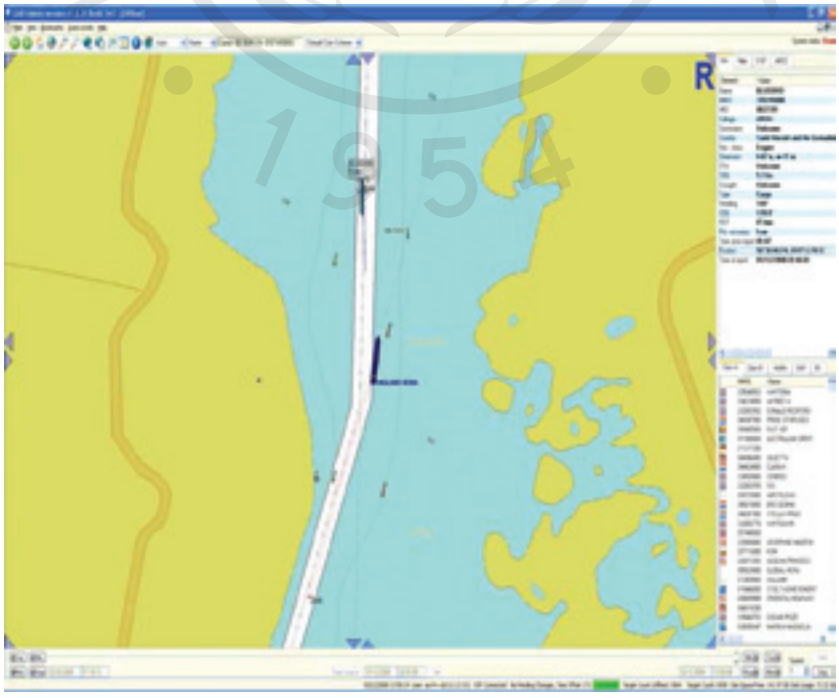
[B] Luckily, there was no danger for any crew members.

[C] Although BB agreed, there was no reduction in its speed.

Other information:

The channel where the collision took place is a dredged channel, and the assured water depth in the channel is 7.0 m. According to local pilots the water depth in the part of Randers Fjord where the collision took place decreases rapidly to less than 1.0m outside the channel, causing the sea floor to form a steep subsea slope. Inward bound the width of the channel is 30-50m, and for the remaining parts the minimum width assured is 22m. The agreed passing point is not the position recommended by local pilots. Vessels' draught on the day of the collision: BB: 3.22m / 3.82m, HB: 2.20m / 3.50m

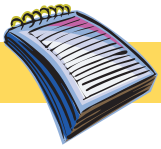
In the following figures you can see the agreed passing point, and the AIS-plot showing the HAGLAND BONA track prior to the collision



Conclusion:

The collision between HB and BB was caused by:

- The interaction between the sea bed and BB forced the vessel towards the middle of the channel. Because of the interaction, it was not possible to return to the western part of the channel in order to pass HB port to port at a safe distance.
- Due to the water depths outside the channel decreasing rapidly to below 1.0m in this area and the fact that the position was in immediate vicinity of a turn in the channel, the chosen position for passing each other was not the best choice.
- None of the two vessels had a pilot on board. Local pilots would have been able to choose the best position for passing each other and would have been aware of the risk of interaction between the sea bed and the vessels.



Glossary

sustain	to suffer, experience something bad, e.g. sustain damage, an injury, a defeat
stretch	an area of land or water, especially a long one
assured	guaranteed
steep	rising or falling quickly, not gradually, sharp
slope	a surface or piece of land that is higher at one end than the other

b) Based on your understanding of the report, are the following statements True or False?

True	False	
☐	☐	Both vessels had contact with the sea floor.
☐	☐	After the collision, there was intentional grounding for both vessels.
☐	☐	Both vessels had to refloat after the incident.
☐	☐	Blue Bird was seaworthy after the incident and proceeded with its voyage.
☐	☐	Hagland Bona did not proceed with its voyage.

c) Fill in the marine accident report on pages 32-34 with all the relevant information regarding the particular incident. Remember to:

- ▶ keep the non-applicable parts in the report form blank
- ▶ draw a diagram in the space provided, showing the two vessels and what happened (here you can use the AIS-data from the vessels' ECDIS-system and the Danish Maritime Safety Administration)
- ▶ fill in the "report details" where the ships were damaged, where they went after the accident, if there was danger for the crew, etc.

d) Vocabulary work. Match the words to form correct collocations.

1. Assured	meeting point
2. Take	collision
3. Mutually agreed	depth
4. Dredged	vessel
5. Head-on	afloat
6. Outbound	channel

4. VHF communications for distress and urgency messages [A1/1.1.3-4, A1/2.1-2.2]

I. SMCP for distress communications regarding collision and grounding

a) Put the sentences in the correct order under the correct heading to recreate two exchanges between the distress traffic control station and a vessel in distress.

- I require tug assistance.
- What part of your vessel is aground?
- I cannot establish which part is aground. I will jettison cargo to refloat.
- When do you expect to refloat?
- Report damage.
- What kind of assistance is required?
- MV Maniana, position 20° 32' N, 040° 15' W. I am aground.
- I have damage below waterline.
- I expect to refloat when draught decreases.
- MV Alegro, position 15° 34' N, 061° 20' W. I have collided with unknown vessel.

Collision	*Grounding*
VESSEL:	*VESSEL:* .....
VTS:	*VTS:* .....
VESSEL:	*VESSEL:* .....
VTS:	*VTS:* .....
VESSEL:	*VESSEL:* .....

b) Match the terms to their definitions.

IMO class cargo	**to proceed**	**to beach**
Not Under Command	**to jettison (cargo)**	**to refloat**

1. ..... : to run a vessel up on a beach to prevent its sinking in deep water.
2. ..... : to pull a vessel off after grounding; to set afloat again.
3. ..... : to continue with the voyage.
4. ..... : to throw goods overboard in order to lighten the vessel or improve its stability in case of an emergency.
5. ..... : vessel which through exceptional circumstances is unable to manoeuvre as required by the COLREGs.
6. ..... : group of dangerous or hazardous goods, harmful substances or marine pollutants in sea transport as classified in the International Maritime Dangerous Goods Code (IMDG Code).

c) Choose the correct alternative from the words in bold in the following SMCPs.

1. MV Fedra, in position 15° 34' N, 061° 20' W. I am aground.
   What part of your vessel is aground?

Aground ***full / all*** length.

Can you repair damage by your own ***way / means***?

I can repair damage.

When do you expect to ***heave up / refloat***?

I expect to ***heave up / refloat*** when weather improves.

What kind of ***assistance / help*** is required?

I require ***guide / escort***. I can only ***advance / proceed*** at slow speed.

2. I have stability problems. I will ***jettison / capsize*** cargo to ***recover / regain*** stability.
   WARNING. Do not ***jettison / capsize*** IMO class cargo!

3. Can I ***beach / ground*** in position 16° 35' N, 060° 22' W?
   WARNING. ***Unknown / uncharted*** rocks around your position.

II. SMCP for urgency communications regarding engines / equipment and cargo problems

a) Put the sentences in the correct order under the correct heading to recreate two urgency traffic exchanges between the traffic control station and the calling vessel.

Cargo	*Technical failure*
VESSEL:	*VESSEL:* .....
VTS:	*VTS:* .....
VESSEL:	*VESSEL:* .....
VTS:	*VTS:* .....
VESSEL:	*VESSEL:* .....

- Can you stop spillage?
- Yes, danger of pollution.
- I have problems with propeller.
- No, I cannot stop spillage.
- I am manoeuvring with difficulty.
- I am spilling crude oil in position 15° 35' N, 060° 20' W.
- I am trying to proceed without assistance.
- Is there danger of pollution?
- Can you proceed without assistance?
- What problems do you have?

b) Join the two parts to make full sentences.

1. Stand by	…of radiation
2. MV Prime is dangerous source.....	…with caution
3. Keep clear	…on VHF channel 16
4. Navigate.....	…of IMO class A
5. I am spilling dangerous goods	…of MV Nero

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Understand formal reports of accidents
- ☐ Fill in incident reports
- ☐ Name various types of incidents
- ☐ Use SMCP for collision and grounding

B. Class Project.

- Look at ***www.imo.org*** *[Maritime Safety ⇨ Casualties]* to find out more on the procedure required by IMO to report a marine incident. What is the GISIS (Global Integrated Shipping Information System) and why are data on Maritime Incidents entered into it? What is the service entitled "Lessons Learned for Presentation to Seafarers"?
- Look up the fire accident on the car ferry Lisco Gloria (Oct. 9, 2010), an accident similar to but more serious than that on board the Pearl of Scandinavia. Present to class what happened. Did other Ro-Ro ferries have similar fire accidents on board?

C. Choose the correct alternative.

1. It was a *close / near* miss grounding.
2. It was a *close / near* quarters situation between a passenger ship and a tanker.
3. You must *determine / decide* the location of the fire.
4. CPP malfunction led to *contact / collision* with the dock.
5. There was cargo hold flooding and subsequent *decease / loss* of vessel.
6. Our original *destination / path* was Singapore, but there was a change of plans and we are now heading for India.
7. There is heavy traffic *congestion / blocking* in the area.
8. A police *spokesperson / speaker* announced the arrest of the arsonist.
9. The company *sustained / affected* losses of millions of dollars.

D. Write up the missing words. The first and the last letters are given.

1. We were en r _ _ _ e from Brazil to Rotterdam when the accident happened.
2. To c _ _ _ _ _ n a leak you must use booms.
3. The Singapore strait is a busy shipping l _ _ e.
4. After i _ _ _ _ _ _ _ e investigation they found the cause of the accident.
5. The tanker grounded on an unspoiled s _ _ _ _ _ h of coastline.

UNIT 2

I require medical assistance

1. Personal Injury

- *I. Types of injury / Parts of the body*
- *II. Describing injury*

2. First Aid

- *I. First aid advice*
- *II. First aid kit*
- *III. The ABC of Resuscitation*

3. Personal Protective Equipment

- *Language Awareness: Connecting words*

4. Occupational Accidents

- *I. Slips, trips and falls*
- *II. Common injuries on board: causes and prevention*
- *III. SMCP: Occupational Safety / Requesting Medical Assistance / Radio Medical Advice*

Round-up

1. Personal Injury

I. Types of injury / Parts of the body

a) Look at the two pictures and answer the following questions.

- What type of accident can you see?
- What is the cause of the accident?
- How can it be prevented?
- What is the proper way of rigging the accommodation ladder?

b) An injured seafarer is talking to the medical officer. Listen to the dialogue and fill in the PERSONAL INJURY form below[1].

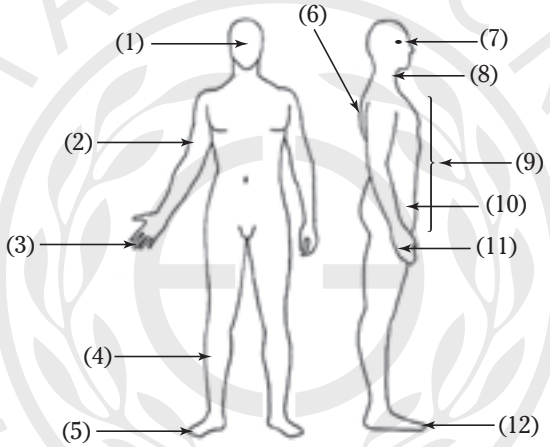
PERSONAL INJURY

Affected area			
☐ Head	☐ Eyes	☐ Trunk	☐ Arms
☐ Hands	☐ Legs	☐ Internal	☐ Back
☐ Neck	☐ Fingers	☐ Feet	☐ Toes
☐ Other (specify)			
Type of injury			
☐ Drowning	☐ Crushing	☐ Laceration	
☐ Burns & scalds	☐ Hernia	☐ Fracture	
☐ Electric shock	☐ Amputation	☐ Foreign body	
☐ Abrasion	☐ Bruising	☐ Asphyxia	

1. The form is an extract of the Marine Accident Report Form by AMSA (Australian Maritime Safety Authority).

☐ Strain & sprain	☐ None	
☐ Other (specify)		
Results of Incident		
☐ Death	☐ Serious injury	☐ Minor injury
☐ Near miss	☐ Temporary disability	☐ Partial disability
☐ Permanent disability	☐ Disappearance	☐ Time off work
☐ None	☐ Other (specify)	
First aid provided:		
Action(s) taken:		

c) Look at the part of the form above entitled "affected area". Show the parts of the human body mentioned there in the picture below. Write the names of the respective parts as they are shown by the arrows.



d) Make sure you understand the* type of injury *part of the accident form. Use the words from that list and fill in the appropriate type of injury next to each description / definition below.

1.	to injure a joint in your body, especially your wrist or ankle, by suddenly twisting it
2.	a break in a bone
3.	an object that has entered something (e.g. the eye) by accident and should not be there
4.	an injury to a part of your body, such as a muscle, that is caused by using it too much or by twisting it
5.	the state of being unable to breathe, causing death or loss of consciousness
6. laceration	a cut, a tear in the skin or flesh (especially with irregular edges, and done with a sharp object)
7. abrasion	a damaged area of the skin where it has been rubbed against something hard and rough

8.	to die because you have been underwater too long and you cannot breathe
9.	injuries or marks caused by fire, heat or acid
10.	a sudden painful feeling you get when electricity passes through your body
11. hernia	a medical condition in which part of an organ is pushed through a weak part of the body wall
12. scalds	injuries to the skin from very hot liquid or steam
13.	pressing or squeezing something so hard that is damaged or injured
14. amputation	to cut off somebody's arm, leg, finger or toe (in a medical operation)
15.	a blue, brown or purple mark that appears on the skin after somebody has fallen, been hit, etc.

e) Fill in the gaps with the following words.

bruises, sprained, bodies, strain, fracture

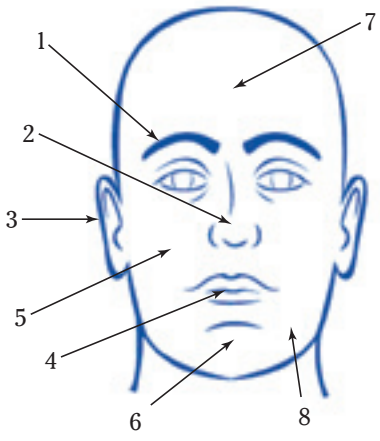
1. I stumbled and …….. my ankle.
2. He wasn't wearing a hard hat and, as a result of the fall, he suffered a …….. of the skull.
3. Exercising without a proper warm-up can cause muscle …….
4. Tears protect the eye from potentially harmful foreign …….
5. He got into a fist fight in the bar last night and his face is now covered in ……

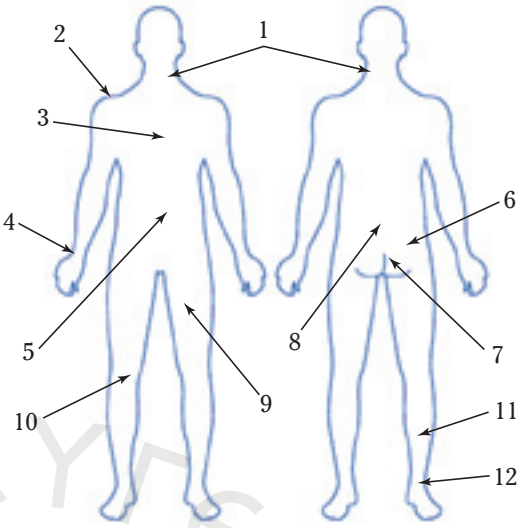
f) Parts of the body: Put the words under the correct part of the body in the lists below.

calf	~~skull~~	thigh	ribs	~~ankle~~
collar bone	tongue	upper arm	nail	forearm
~~palm~~	forehead	thumb	spine	heel
cheek	sole	eyebrows	toe	tooth
jaw	elbow	finger	lip	~~wrist~~

Hand	***Leg***	***Foot***	***Arm***	***Mouth***	***Face***	***Skeleton***
	ankle					skull
palm			wrist			

g) Write up the parts of the body / face shown in the diagrams.





[FACE]

1. E _ _ _ _ _ w
2. N _ _ e
3. E _ r
4. M _ _ _ h
5. C _ _ _ k
6. C _ _ n
7. F _ _ _ _ _ _ d
8. J _ w

[BODY]

1. T _ _ _ _ t
2. S _ _ _ _ _ _ r
3. C _ _ _ t
4. W _ _ _ t
5. S _ _ _ _ _ h
6. H _ p
7. B _ _ _ _ m
8. W _ _ _ t
9. T _ _ _ h
10. K _ _ e
11. C _ _ f
12. A _ _ _ e

II. Describing injury

• **I injured my arm…**

Being injured
- have a fall / an injury
- hurt / injure your back/leg
- pull / strain / tear a muscle/ tendon
- sprain / twist your ankle/wrist
- break a bone / three ribs
- fracture / crack your skull
- bang / hit your head

Treating injuries
- treat somebody for burns / a wound
- clean / dress / bandage / treat a wound
- put on / apply (or take off) a bandage/a sticking plaster
- need / require stitches
- put on / rub on / apply cream/ointment/lotion
- have an X-ray
- have an operation

• **I feel ill…**

The patient:
- feel ill / sick / nauseous
- have a headache / stomach ache
- have a high temperature (a fever in American English)

The doctor:
- examine a patient
- diagnose a disease
- prescribe drugs / medicine / medication / pills / painkillers / antibiotics

Useful verbs: ***injure / hurt / wound***

• I ***injured*** my arm when I fell off the ladder. *injure* (verb): if you injure somebody, you cause physical damage to part of their body, usually the result of an accident or through fighting. Also: *injured / injury* (nouns), *injured* (adj.) • The ***injured*** were taken to hospital by helicopter. • Their ***injuries*** were very serious. • He was not seriously ***injured,*** but they took him to hospital as a precaution. Useful collocation: *seriously injured*	• Tell me where it ***hurts***. • My arm ***hurts***. • Ouch! Don't touch me. That ***hurts***! *hurt* (verb): if part of your body hurts, you feel pain there. Also: *hurt* (adjective) • They were suffering from shock but did not seem to be otherwise ***hurt***. Useful collocation: *badly hurt*	• He was ***wounded*** by the bullet. *wound* (verb): if you wound somebody, you inflict physical damage on part of their body, esp. a cut in their flesh caused by a knife, or some other weapon (often in battle). Also: *wound* (noun), *wounded* (adjective) • The open ***wound*** really needed stitches and took a long time to heal. • The four ***wounded*** men were taken to the field hospital in the back of the jeep. Useful collocation: *mortally wounded*

a) Use words from the tables above to fill in the gaps.

1. After the explosion, the two …… seafarers were taken to hospital.
2. I feel …… . It's my stomach! I want to throw up.
3. I cut myself with the hacksaw. It's a deep ……..... .
   Let's see. You must clean it and …….. it immediately to stop the bleeding.
4. Did the dermatologist ……. anything for your skin allergy?
   Yes, she gave me some cream to …….. twice a day.
5. Doctor, I have a …….. temperature, a sore throat and my nose is running.
   Well, you might have a cold or the flu. Don't take any antibiotics, just get some rest and some paracetamol.
6. I …… my head on the door. It …… a lot!

b) Fill in the gaps. Use the words in the box.

sprained	operation	put on	stitches
headache	bruises	painkillers	fractured

1. It's a deep cut, I think it requires …….. .
2. I have a terrible …… . I need a couple of strong …… to help me make it through the day!
3. He landed awkwardly after a jump while playing basketball and ……. his ankle. He's lucky it's not broken.

4. That's not a cut - it's just a scratch. …….. a sticking plaster and don't make such a fuss!
5. The X-ray showed that I …….. three ribs in the accident. I must have a(n) ……..... ..... .
6. The Chief Engineer fell down the ladder and was lucky to get away with a few……. .

c) Use the following verbs which describe personal injury to complete the sentences. Change the verbs into the Past Simple tense.

cut	burn	break	bruise	strain

1. The assistant cook …… his hand in the galley fire.
2. The pilot …….. his leg when he fell from the pilot ladder.
3. The bosun …… his back when he lifted some heavy equipment.
4. The apprentice engineer ……..…… his knee when he bumped into a pipe.
5. The fitter ……..... his finger when the chisel slipped from his hand.

d) Fill in the table with the appropriate derivatives.

NOUN	VERB	
1. ……	cure	(a disease)
2. prescription	……	(medicine, pills, etc)
3. treatment	……	(a patient)
4. ……..	vaccinate	(against the flu / measles, etc.)

e) Use words from the table above to fill in the gaps. Change the verb form if necessary.

1. Are you …… against yellow fever?
2. Doctors and researchers all over the world are trying to find the …….. for cancer.
3. After the accident, he was ……. in hospital for first degree burns; in fact, he stayed in hospital for two weeks.
4. Take the …… to the pharmacy; I need to start taking these pills as soon as possible.

f) In pairs, talk about injury. Describe physical symptoms and identify the type of injury.

Student A: You are the patient.
Tell your study partner your symptoms.

1. I fell on my hand. My wrist hurts, especially when I try to move it, and it is swollen.
2. I injured my belly. I am coughing up blood and I feel faint.

For example:
Student A:
I am bleeding from the nose.

Student B: You are the doctor.
Listen to the symptoms and identify the type of injury.
Give a suggestion for treatment.
Go to page 262 for help.

Student B:
Sit with your head over a bowl. Pinch the soft part of your nose for 10 minutes. Don't lie down.

2. First Aid

I. First aid advice

a) What is the first aid you must give in each case[2]? Write it in the space provided.

⇨ ***Apply ice to the injury.*** ⇨ ***Hit the victim firmly on the back between the shoulder blades.*** ⇨ ***Put pressure on the wound.***

	First Aid	***Learn more***
Chocking		This will dislodge the blockage in the airway and allow the person to breathe again.
Heavy bleeding		This will stop or slow down the flow of blood.
Strains & sprains		This will reduce the swelling and pain.

b) In pairs, use the completed table and tell each other.

What is the first aid for someone who is chocking?
The first aid for someone who is chocking is to ....

c) First aid advice: Burns[3]

i. What is the best First Aid advice for burns? Must you or must you not do the following things? Circle the sentences you think offer good first aid advice for burns.
ii. Listen to check if you were right. Write YES or NO in the space provided.

Burns	YES / NO
Cool the burn down by pouring running water.	
Pour large amounts of water for at least 10 minutes over the burn.	
Talk to the casualty and explain what you are doing.	
Remove any jewellery, such as rings or watches.	
Remove any clothing that is stuck to the skin over the burn.	
Put cream or lotion onto the burn to relieve the pain.	

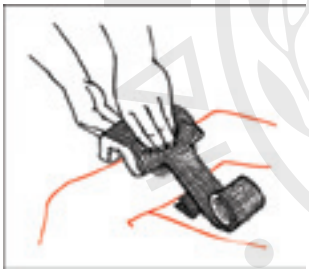
2. First Aid Advice from the website of the British Red Cross, found at www.redcross.org.uk
3. Recorded First Aid Advice from the South East Coast Ambulance Service, National Health System, UK.

Cover the burn to protect it from infection.	
Wrap the wound up tightly with a dressing.	

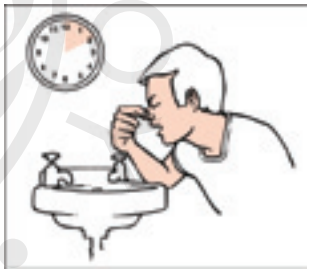
c) Match the injury to the first aid treatment[4]. Draw arrows.

Injury	*What to do*
1. Burns and scalds	… Get the casualty into fresh air, give artificial respiration
2. Suffocation (asphyxia)	… Cool as quickly as possible with running cold water and apply a clean dry dressing (covering) to the burned area
3. External bleeding	… Do not make the casualty vomit; give a glass of milk; do not give painkillers by mouth, use suppositories or a pain-killing injection
4. Poison swallowing (such as bleaches, disinfectants, corrosives)	… Lay the patient down, lift up the affected area if possible, press firmly where the blood comes from

d) Look at the figures below and match them to the recommended first aid treatment. Give the correct title for each figure.

1. 

2. 

3. 

Picture:

	BLEEDING FROM THE NOSE Ask the casualty to sit with his head over a basin or bowl while pinching the soft part of the nose firmly for 10 minutes.
	HOW TO DRESS A WOUND Use a standard dressing (consisting of a thick pad of gauze which is attached to a bandage); place the pad upon the wound and take the bandage round the wound.
	WRIST AND PALM BANDAGE Place palm on the middle of a narrow fold bandage, cross the bandage at the back of the hand, leaving out the thumb.

4. First aid advice from Ship Captain's Medical Guide by Maritime and Coastguard Agency, UK.

II. First aid kit

a) Listen to a presentation on the contents of a home first aid kit[5]. Circle the items mentioned. The first one has been done as an example.

- Gauze
- Tape
- Bandages
- Eye Wash
- Ointment
- Wipes
- Hydrocortisone Cream
- Aspirin
- Burn Wrap
- Compress
- Elastic Bandage
- Scissors
- Synthetic Gloves
- Thermometer
- Tweezers
- Emergency guide

b) Draw arrows to match the words to the pictures.

Gauze
Antibiotic ointment
Adhesive tape
Sticking plaster
Sling

5. 13 Essentials for a First Aid Kit from Answers.com videos.

c) What do you use the following first aid items for? Write the correct heading above each list.

Common problems / Sprains and fractures / Cuts – Minor Trauma

Bandage strips	Aspirin	Adhesive tape
Gauze pads	Peptic relief tablets	Elastic bandage
Roll gauze	Thermometer	Finger splint
Synthetic gloves	Eye wash	Ice pack
Antibiotic ointment	Cotton swabs (pads or wipes)	Splint
Disinfectant	Seasickness remedy	Triangle sling

d) What is the purpose of the items used in first aid?

In the ship's stores you will find the following first aid items:

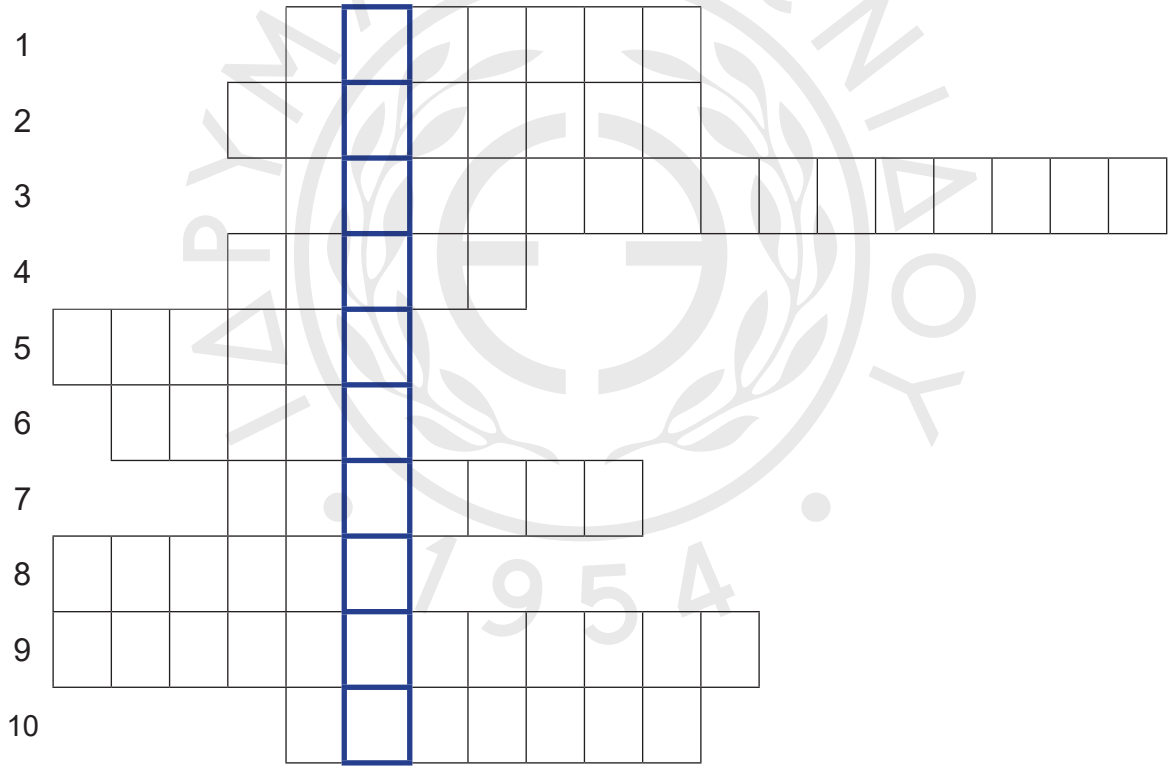
roller bandage / thermometer / splint(s) / saline solution / resuscitation device / tweezers

Read about their suggested use and write the appropriate name in the boxes provided.

Use:		*Name*:
1. You apply it to a limb to relieve pain by immobilizing the fracture and prevent further damage to the surrounding muscles or nerves.		
2. You use it to remove splinters (splinter: a small think piece of wood, metal, glass etc. that has broken off a larger piece).		
3. You use it to flush wounds and skin abrasions, rinse eye, nose, also for IV (intravenous infusion).		
4. You use it to take temperature.		

5. You use it to secure wound dressing in place.		
6. You use if for protection during rescue breathing or CPR (Cardiopulmonary Resuscitation).		

e) Word puzzle on first aid kit contents. Complete the words across according to the information given below. Use vocabulary from previous exercises.



1. A strip of cloth used for tying around a part of the body that has been hurt in order to protect or support it.
2. A smooth substance that you rub on the skin to heal a wound or sore place – cream.
3. A piece of material that can be stuck to the skin to protect a small wound or cut, Band Aid™ (AmE) – two words.
4. A band of cloth that is tied around a person's neck and used to support a broken or injured arm etc.
5. They protect from infection when you are dressing a wound, you wear them in your hands.

6. A type of thin cotton cloth used for covering and protecting wounds.
7. A chewable pill for symptoms of heart attack.
8. A long piece of wood or metal or inflatable material that is tied to a broken arm or leg to keep it still in the right position.
9. Sticky tape, that can stick to something, you use it to secure bandages – two words.
10. Plastic container filled with ice that is used to cool parts of the body that are injured (instant cold compress) – two words.

Down: A substance that helps to prevent infection in wounds by killing bacteria – disinfectant.

III. The ABC of Resuscitation

a) Read the following text and do the exercises below.

(IMO Lessons Learned FSI 14, No 11)

What happened?

During a loaded voyage on board a bulk carrier, the chief mate and a deck cadet went inside one of the vessel's bilge space enclosures to repair a sounding pipe. They walked inside the duct keel and then through a steel hatch, they removed a manhole cover and crawled inside the bilge space enclosure. The crew members started working on the sounding pipe but about an hour later, a second cadet ***found them unconscious*** inside the enclosed space. The alarm was raised and the two crew members were pulled out to the main deck. ***First aid was administered***, however they were both proclaimed dead later that evening.

Why did it happen?

1) The bilge space enclosure had been closed ***for a considerable period*** and the atmosphere inside the space was non-life supporting.
2) ***Prior to entry,*** the atmosphere inside the bilge space enclosure was not tested ***as required*** by the company's safety management system.
3) A Permit-to-Work was not issued before access was made inside the enclosed space, as required by the procedures laid down in the safety management system manual.
4) The Master ***was not aware of*** the work in progress.
5) The chief mate involved ***failed to appreciate*** a life-threatening situation inside the bilge space enclosure.
6) Evidence indicates circumventing of safety norms and procedures.
7) The chief mate *was* ***likely to have consumed*** more alcohol than the limit stipulated in the company's safety management system.

i. What is the correct title for the incident? Choose from the ones below:

– CARELESSNESS CAUSES SERIOUS INJURY TO TWO CREWMEMBERS

– FATAL ACCIDENT IN AN ENCLOSED SPACE

– ALCOHOL ABUSE CAUSES NEAR MISS ACCIDENT

What type of injury took place?

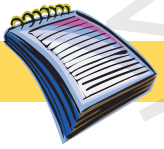
What type of first aid must you provide in this case?

ii. Match the two halves of the following sentences:

A. A Permit-to-Work	☐ didn't follow the correct safety procedures.
B. The atmosphere inside an enclosed space	☐ must be issued before entering an enclosed space.
C. The chief mate	☐ can affect people's judgment and impair safe behaviour.
D. The chief mate	☐ didn't realize the situation was dangerous.
E. Small quantities of alcohol	☐ must be tested before entry.

iii. What do the following phrases from the text mean? Choose (a) or (b).

1. *"found them unconscious"*
   a. they were feeling sick
   b. they were not awake, they had lost their senses
2. *"First aid was administered"*
   a. they gave the two crew-members first aid
   b. they delayed giving first aid
3. *"for a considerable period"*
   a. for an insignificant period of time
   b. for a long period of time
4. *"Prior to entry"*
   a. after entering
   b. before entering
5. *"as required"*
   a. it is obligatory, you must do it
   b. you can choose to do it or not, it's optional
6. *"was not aware of"*
   a. did not know
   b. forgot about
7. *"failed to appreciate"*
   a. did not recognize
   b. did not care about
8. *"was likely to have consumed"*
   a. definitely consumed
   b. probably consumed



Glossary

enclosure	an enclosed area or space
sounding pipe	a pipe through which the depth of liquid in a water or oil tank on board a ship can be measured or sounded
manhole	a hole, with a cover, through which a person can enter a closed tank or similar structure
to crawl	to move forward on your hands and knees, with your body close to the ground
life-threatening	that is likely to kill somebody
to circumvent	to find a way of avoiding to follow a rule

iv. Match the phrases to form correct collocations.

1. raise	dead
2. he was proclaimed	the alarm
3. safety management	a permit
4. issue	situation
5. the work	system
6. life-threatening	in progress
7. enclosed	procedures
8. safety	space

b) There are three instruction sentences missing from the following text. You will find them below the text. Read carefully and write the missing instructions in the appropriate space.

ABC of Resuscitation[6]

The ABC of resuscitation stands for Airways, Breathing and Circulation. These are the signs you should check on finding a casualty. Determine if the casualty is conscious and if there are signs of breathing and circulation. Follow the ABC procedure whenever you find a casualty and then treat for the specific injury.

- **A – Airways**: Ensure the airway is open. Remove any obstruction from the mouth. To open the airways, ……
- **B – Breathing**: Check that the casualty is breathing for 10 seconds. If there are no signs of breathing or if in doubt ……
- **C – Circulation**: Find the pulse in the neck or wrist and check for 10 seconds. If there are no signs of a pulse, ……

In cases where circulation has failed, breathing will also stop. In this case you will have to alternate between artificial ventilation and chest compressions. This technique is called cardio-pulmonary resuscitation (CPR).

…commence chest compressions.	…commence artificial ventilation by using the mouth-to-mouth or mouth-to-nose techniques.	…lift the chin and press the forehead backwards to tilt the head back.

c) Listen carefully to the following First Aid advice. Do the exercises below.

i. Breathing but unconscious

Lead-in: What is the first aid advice for a victim that is breathing but unconscious? Must you move the victim? Listen to find out.

1. Underline the correct alternative:
   – Place the victim with their *head up / on their side* to protect their breathing.
   – Do not move the victim if they've hurt *their back or neck / their head.*
   – Check for signs of *circulation / sweating.*
   – Check for a pulse at *the neck / at the wrist.*
   – If the victim is bleeding, *do not touch / press firmly on* the wound.

2. True or False? Write "T" or "F" in the box.
   ☐ You must never move a victim who's hurt their back, even if their breathing is noisy or their mouth is blocked with blood or vomit.
   ☐ The signs of circulation are coughing, movement and normal breathing.
   ☐ The most important thing to remember is to check if the victim is breathing every 5 minutes or so.

6. From SOLAS Manual, Methane Jane Elizabeth, Ceres LNG Services Ltd., December 2007, 11.2 p. 2 of 8.

ii. CPR for adults

What is the number of chest compressions and breaths you must give in CPR? Listen to the first aid advice and fill in the rule in the box.

Give ..... chest compressions and then give ..... breaths. Continue with this sequence.

RECOVERY POSITION: An unconscious but breathing casualty can be placed at this position as part of first aid treatment; it helps the casualty breathe and permits fluids to drain from the nose and throat so that they are not breathed in.

d) Look at the following illustrations which give instructions on how to place a casualty at the recovery position[7]. Read the following sentences. Which sentence goes with each number? Write the numbers in the boxes below. One has been done as an example. (Note that number 4 must be used twice)

1. Kneel beside the casualty. Remove spectacles and any very bulky objects, such as mobile phones. And large bunches of keys from the pockets. Do not search the pockets for small items.

2. Make sure that both the casualty's legs are straight.

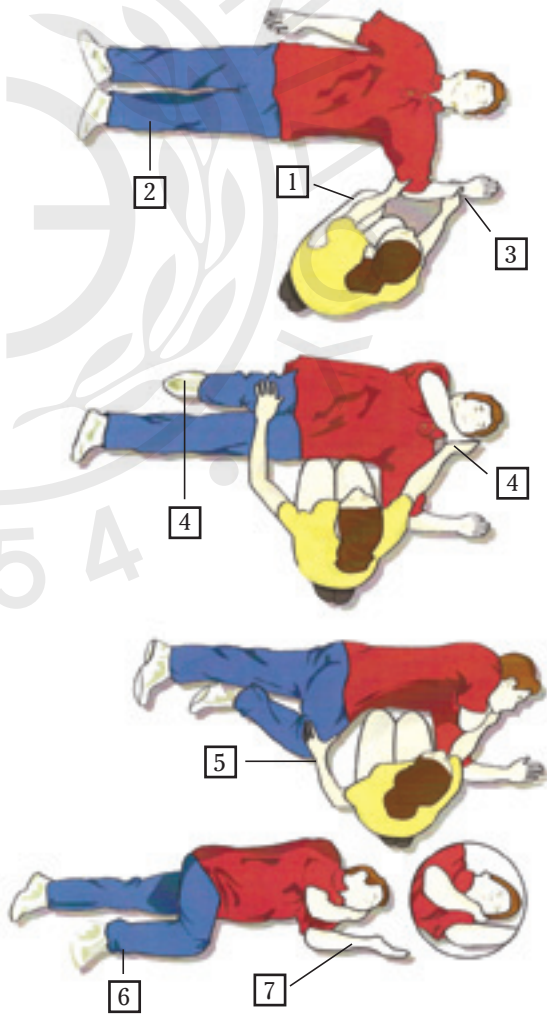
3. Place the arm that is nearest to you at right angles to the casualty's body, with the elbow bent and the palm facing upwards.

4. Bring the arm that is farthest from you across the casualty's chest, and hold the back of his hand against the cheek nearest to you. With your other hand, grasp the far leg just above the knee and pull it up, keeping the foot flat on the ground.

5. Keeping the casualty's hand pressed against his cheek, pull on the far leg and roll the casualty towards you on to his side.

6. Adjust the upper leg so that both the hip and the knee are bent at right angles.

7. Till the casualty's head back so that the airway remains open. If necessary adjust the hand under the cheek to make sure that the head remains tilted and the airway stays open.



7. from SOLAS Manual, Methane Jane Elizabeth, 11.2, pages 7-8.

- [4] Pull the far leg just above the knee and pull it up – foot is flat on the ground.
- [ ] Hold on the casualty's leg and pull it over.
- [ ] Make sure that the legs are straight.
- [ ] Place arm at right angles to the casualty's body and the palm facing upwards.
- [ ] Bent leg props up body and prevents casualty from rolling forwards.
- [ ] Hand under cheek helps to keep airway open.
- [ ] Hold casualty's hand, palm outwards, against the cheek.
- [ ] Kneel next to the casualty.

3. Personal Protective Equipment

A. *Fill in the missing words in the text below*[8].

feet / the body / eye / the head / skin / hands

MAIN PERSONAL PROTECTIVE EQUIPMENT USED ON BOARD SHIP

1. ***Protective clothing:*** Protective clothing is a coverall which protects ……. of the crew member from hazardous substances like hot oil, water, welding sparks etc. It is popularly known as "boiler suit".
2. ***Helmet:*** The most important part of the human body is …… . It needs utmost protection which is provided by a hard plastic helmet on the ship. A chin strap keeps the helmet in place when there is a trip or fall.
3. ***Safety shoes:*** Safety shoes ensure that nothing happens to crewmembers' …… while working or walking on board.
4. ***Safety gloves:*** They are used in operations where it becomes imperative to protect one's ……..…… . Different types are provided on board ship: heat resistant gloves to work on hot surface, cotton gloves for normal operation, etc.

8. 10 Main PPE used on board ship, from www.marineinsight.com

5. ***Goggles:*** Protective glasses or goggles are used for …… protection in daily operations.

6. ***Ear muff/plug***: In the Engine room of the ship 110-120 db of sound is produced, which is very high for human ears. Even few minutes of exposure can lead to headache, irritation and sometimes partial or full hearing loss. Ear muffs or ear plugs are used on board ship to dampen the noise to a bea-rable decibel value.
7. ***Safety harness:*** Routine ship operation includes maintenance and painting of high and elevated surfaces which require crew members to reach areas that are not easily accessible. To avoid a fall from such heightened areas, a safety harness is used.
8. ***Face mask:*** Painting, carbon cleaning, etc. involves minor hazardous particles which are harmful for the human body if inhaled directly. To avoid this, face masks are provided which act as a shield from hazardous particles.
9. ***Chemical suit:*** Use of chemicals on board ship is very frequent and some chemicals are very dangerous when they come in direct contact with human …… . A chemical suit is worn to avoid such situations.
10. ***Welding shield:*** Welding is a very common operation on board ship for structural repairs. A welder is provided with a welding shield or mask which protects the eyes from coming in direct contact with ultraviolet rays.

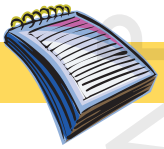
B. *Look at the following phrases / words from the text. What do they mean? Choose the correct alternative.*

1. *utmost protection*
   a. greatest protection
   b. simple protection
2. *it becomes imperative*
   a. it becomes irrelevant
   b. it becomes very important
3. *heat-resistant*
   a. that increases the heat
   b. not easily damaged by heat
4. *to dampen the noise*
   a. to make the noise less strong
   b. to filter the noise
5. *bearable*
   a. it can be accepted or dealt with
   b. too painful or annoying or unpleasant to deal with or accept
6. *elevated*
   a. higher than the area around
   b. rough, uneven

C. *Put the words in the correct list. Some are given as examples.*

Dust mask	Thermal gloves	Welding gauntlets	Impact gloves	Full face mask
Safety boots	Latex gauntlets	Arc welding helmet	Barrier cream	Ear plugs
~~Riggers gloves~~	Hard hat	~~Ear defenders (ear muffs)~~	~~Boiler suit~~	Thermal suit
Half face mask	PVC gloves	Wellington boots	PVC wet suit	Safety shoes

					
Head protection	Foot protection	Hand protection	Respiratory protection	Skin protection	Hearing protection
		Riggers gloves		Boiler suit	Ear defenders (or ear muffs)



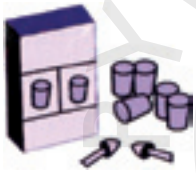
Glossary

gauntlet	a strong long glove with a wide covering for the wrist
riggers gloves	gloves for rigging, fitting equipment, handling ropes, etc.
respiratory	connected with breathing

D. *Match the PPE words given in the table above to the correct picture/description below.*

1.		..... dust mask ..... Protects from: non-toxic, heavy dust particles such as some cargo dusts and abraded paint dust.
2.		..... Protects from: arc welding light, radiation and splatter (also, a flame retardant scarf and apron should always be worn when arc welding).
3.		..... Protects from: falling objects, swinging lines, hair entanglement, chemical, paint and hot water drips.

4.		……..…….. Protects from: fine dusts and some fumes but relies on a good seal to the face. It is supplied with interchangeable filter pads.
5.		……..…….. Protects from: rain and salt water, some mild chemicals and oils. Should be a high visibility colour for deck and tank operations.
6.		……..……. Protects from: general dirt and grime and entrapment in moving machinery. Should be flame retardant and long-sleeved.
7.		……. Protects from: fine dusts, and some fumes and affords protection to eyes and face.
8.		…….. Protects from: cold. Use when working in refrigerated compartments or in cold climates. Can be worn under a PVC wet suit where weather conditions dictate.
9.		…… Protects from: light soiling from non-hazardous substances. Helps prevent dermatitis.
10.		……. Protect from: soiling and abrasion. Use for manual handling or ropes and machinery.
11.		……. Protect from: vibration. Use when operating needle guns, jack hammers and impact tools.

12.		…….. Protect from: heat, welding splatter and abrasions. Use for arc and gas welding flame cutting and grinding.
13.		……..…….. Protect from: abrasion, oil and mild chemicals. Use for bunkering, oil cargo operations and appropriate engine room work.
14.		…… Protect from: abrasion, oil and many chemicals. Use for chemical handling, chemical cargo operations and sand blasting work.
15.		…… Protect from: cold. Use for work in refrigerated compartments and on deck in cold climate. Can be worn under work gloves.
16.		……..…… Protect from : low level sound energy; they are inserted directly into the ear canal.
17.		…… Protect from heavy impact and sole penetration, ankles protected from impact. They usually have steel toe caps, steel sole plates and oil resistant soles.
18.		…… Protect from: light impact and minor sole penetration. Shoes do not offer ankle protection and may not have steel toe caps.
19.		…… Protect from: a higher level of sound energy, but not all possible sound dangers. Only effective when a tight seal to the head is maintained.
20.		…… Protect from: water, oils and many chemicals. Should have steel toe caps and steel sole plates.

E. *What is the name of the following specialized PPE?*

	Safety h _ _ _ _ _ _	Protects from: falls. Use when working more than 2m above deck level or when working out board.
	Personal g _ _ m _ _ _ _ _	Warning of: oxygen depletion and toxic or explosive gases.
	A _ _ _ _	Protects from possible burns created from sparks

F. *Match the signs to the names of the protective equipment.*

Eye protection

1. Safety goggles
2. Gas welding goggles
3. Safety glasses
4. Face shield

a) 

b) 

c) 

d) 

G. *Choose the correct equipment for your safety. What PPE must you wear for the specific tasks on the following occasions?*

– You are supervising cargo operations in a dry bulk carrier; there is cargo dust to deal with.
– You are going on deck to check for ice damage, your vessel is in the Baltic Sea.
– You are handling the mooring ropes.
– You are grinding metal in the E/R workshop.
– You are removing heavy lifts in the engine room.
– You are doing fumigation in a dry bulk carrier.

e.g. You need the …. to protect yourself from …..
You must wear a …. when you work… / when you use…

H. *What are the works done in each picture? Are the crewmembers using the correct protective equipment?*

Talk about the pictures; use some of the phrases below for help.

scaffolding for painting the funnel / on scaffold / on ladder /
painting inside the hold / sand blasting / chipping / chipping hammer /
arc welding / washing / water hose

a) 

b) 

c) 

d) 

e) 

f) 

I. ***Listen to injured seafarers talking about the injury. What was the injury? What was the cause of the injury? Was the seafarer wearing appropriate PPE? Fill in the table for each case.***

	Injury	*How did it happen?*	*PPE (yes / no)*
Case #1			
Case #2			
Case #3			

J. ***What is the correct question to ask in each case? Choose the best one for each case.***

Did you have your gloves on? Did you have a safety harness on? Did you use a hoist?
Were you wearing goggles? Were you wearing a face mask?

Language Awareness: Connecting words

Connecting words (conjunctions) are used to link ideas and connect sentences.

a) Look at the examples in the table below. What is the function of each connecting word? Write it in the correct box.

adds information or links ideas
shows result
gives alternatives
shows the reason
contrasts ideas

1. It was raining heavily **so** we decided to stop the loading operations.	"so" ⇨
2. We decided to stop the loading operations **because** it was raining heavily.	"because" ⇨
3. I was wearing my safety boots **and** my hard hat.	"and" ⇨
4. He works extremely hard **but** he doesn't earn much.	"but" ⇨
5. We need an X-ray to see if it's a strain or a fracture.	"or" ⇨

b) Choose the appropriate connecting word in the following sentences.

1. They exceeded the SWL of the crane ***so / because / but*** the cargo fell.
2. The pilot fell off the pilot ladder ***so / because / but*** it wasn't secure.
3. There is danger of toxic gas in enclosed spaces ***but / so / or*** you must always check the air before you enter.
4. The safety arrangements were not properly rigged around the hatchway ***but / and / so*** the Chief Mate didn't notice it during the safety round.
5. Accidents at sea happen because of carelessness ***so / but / or*** they happen because of lack of training.

c) Connect the sentences. Use the connecting word given.

1. A pipe leaked. Some hot water spilled on me. [AND]
2. I was not careful with the drill. I cut my finger. [SO]
3. The container fell overboard. The lashing was inadequate. [BECAUSE]
4. A steel plate fell on my feet. I didn't break anything. [BUT]
5. Collision accidents happen due to human error. They can happen when navigation equipment fails. [OR]

4. Occupational Accidents

I. Slips, trips and falls

Lead-in: Look at the following safety sign.

- What type of accidents does it warn about?
- Do you think such accidents are common on board ships?
- Where on board ships can they happen?
- How can we prevent them?

Read and find out more[9]:

Mitigating slip, trip and fall hazards

Slips, trips and falls (STFs) account for the majority of occupational accidents aboard ship. Here is a list of some of the hazards that can be encountered and some ideas as to how to mitigate them.

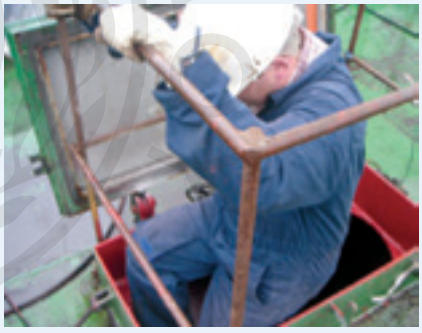
9. The International Maritime Human Element Bulletin, No 17, May 2008 [www.he-alert.org]

Hazards

Slips	Trips	Falls
• inappropriate foot-wear • inattention • loose / unattached rugs & mats • oil & grease • polished deck sur-faces • wet or slippery decks	• loose fittings on stairs • frayed rugs / carpets • inadequate hand-holds • loose or no handrails or stair rails • unmarked deck fit-tings	• corroded ladders • improperly secured gangways • inadequate guardrails in con-fined spaces, tanks and voids • inadequate scaffolding • lack of guardrails, chains or manropes at hatch openings • loss of balance • poor illumination • shaky ladder or ladder with slippery or broken rungs

In service

- clean up spills
- conduct safety training
- do not leave equipment, stores lying around the decks
- erect safety rails
- follow safety procedures
- mark unavoidable tripping hazards
- post safety notices
- provide extra lighting when needed
- rig upper deck safety lines in rough weather
- wear personal protective equipment (PPE)
- wear lifejackets when working in the vicinity of ship's side
- wear safety harness when aloft



Glossary

to mitigate	to make less harmful, serious, etc
occupational accidents	work-related accidents
frayed (rugs / carpets)	unraveled or worn at the edge; the threads in the rug/carpet start to come apart
rung (of a ladder)	the bar that forms a step in a ladder

What can you do to prevent STF accidents on board? Look at the pictures and tell the class.




II. Common injuries on board: causes and prevention

a) Read the following article[10] and fill in the gaps. Use the phrases in the box.

fatigue	maintenance	preventable accidents	trips and falls
human error	higher priority	trade route	crew injuries

Personal Injury

Why do maritime accidents occur?

Research and statistics show that (1) ……..…….. is to blame in over 70% of marine accidents. These include (2) ……..……, fire, pollution and collisions,

10. From *The Standard Bulletin*, Special Edition: Personal Injury, 8 September 2006, article by Neale Rodriguez, Director of Loss and Prevention, The Standard P&I Club, London.

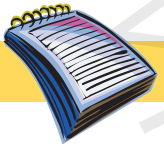
and are invariably due to a failure in safe working practices. Such incidents often result in (3) ……. or fatalities, with the ship being consequently delayed or damaged.

Even when there has been a mechanical failure, human error can play a role either by way of lack of (4) ……..…….. or monitoring (failing to pick up a potential problem), a lack of suitable equipment or protective devices, or a breakdown in communication procedures.

The question we should be asking is "Why does this happen?" The average seafarer is competent and well trained, has been shown the right way to work, has the appropriate equipment for the job and does not necessarily want to put himself or his fellow crewmembers in danger. So why are these (5) ..……. recurring?

Manning issues

Crew (6) ……..…… and complacency can often be a major factor in incidents. The prudent shipowner or manager will ensure that these are addressed by way of additional manning or rotating the ship staff more regularly if the ship is employed on a demanding (7) ……..…… . These are, however, owners and managers who are unable to do this, which could in part be due to a shortage of available trained seafarers, but is more often attributed to commercial or operational considerations. Good equipment can cost more, but safety should be accorded a (8) ……., because a ship cannot be operated safely without the seafarer.



Glossary

invariably	always; in every case or on every occasion
consequently	as a result; therefore
competent	having enough skill or knowledge to do something well or to the necessary standard
recur	to happen again or a number of times
complacency	a feeling of satisfaction with your own abilities or situation that prevents you from trying harder
prudent	sensible and careful when you make judgements and decisions; avoiding unnecessary risks

b) Match the words to form correct collocations.

1. Human	hazard
2. Mechanical	failure
3. Higher	priority
4. Staff	error
5. Occupational	rotation

c) Read about two different occupational accidents, reported by IMO. Are such occupational accidents (and the types of injuries that are suffered in them) common?

A broken leg sustained during a berthing operation

(IMO FSI14, No14)

What happened?

A ship was in the process of berthing in a relatively strong wind and tide. The master on the bridge was using the main engine, rudder and bow thrusters to hold the vessel alongside while the mooring lines were (1) ……. ashore by the forward and after mooring parties. The forecastle party, led by the boatswain, had run a line from each of the port and starboard mooring winches before being made fast ashore. Tension came on the forward mooring lines suddenly which (2) ……..……one line to part where it was led around a roller fairlead.

The section of the line between the fairlead and the winch drum snapped back and (3) ……..…… the boatswain's right leg in two places.

Why did it happen?

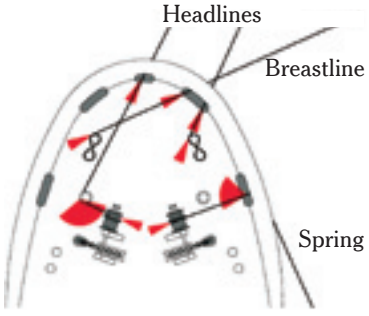
1. The mooring rope which parted was in a poor condition.
2. The maintenance of the ship's mooring lines was inadequate.
3. The boatswain was standing in an unsafe position in the "snap-back" zone of the mooring line.

What can we learn?

Mooring operations carry risks due to the loads placed on lines and equipment. Mooring lines must be regularly inspected and carefully (4) …… . Working within the "snap-back" zone of a loaded mooring line can be dangerous and should be (5) …….. .

i. Fill in the missing verbs in the text above: ***caused / avoided / fractured / maintained / passed***

What is a ***snap-back zone***? A snap-back zone is where crew could be hit by snapped rope; it is the dangerous zone where, if the mooring line slacks, the line will roll out so fast it would snap back at the people around it.



A personal injury with face and neck burns caused by auxiliary boiler explosion

(IMO FSI19, No7)

What happened?

While exchanging the auxiliary boiler burner on board an about 39,000 gt bulk carrier at anchor, there was a ***flashback*** from the boiler furnace. Flames ***engulfed*** the ship's engineer, burning his face and neck. The burner was being replaced to ***rectify*** misfires.

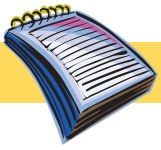
Why did it happen?

The ship's engineer was not aware of all the hazards associated with maintenance of the boiler burner, i.e. accumulated fuel oil at the furnace bottom resulting from burner misfiring, while disconnecting the fuel line from the burner.

The boiler furnace was not sufficiently ***purged*** to remove the ***residual*** heat in order to avoid ignition of any flammable mixtures.

The ship's crew was not aware of previous flashbacks involving similar burners, and the company had not ensured that such safety information was ***disseminated*** to the ship's crew.

ii. Match the definitions below to the appropriate words in bold in the text.



Glossary

.....	put right, correct, something that is wrong
.....	explosion
.....	remaining at the end of a process
.....	spread (to spread information, knowledge, etc. so that it reaches many people)
.....	surrounded or covered completely
.....	cleaned (made clean by getting rid of unwanted material)

d) What are the causes of minor accidents on board? What do you think?

Carelessness? Overconfidence? Fatigue?
Lack of training? Other?

The OS was **careless** and he was hit by the snapped rope.	⇨ careless, overconfident, etc. (*adjectives* that describe the person)
Many fires on board are the result of **carelessness**.	⇨ carelessness, overconfidence, etc. (*nouns* for the problem in general)

e) Write a basic report of the causes of a minor accident on board.

i. First read the 1st case in the table below.
ii. Then, read the 2nd case and keep notes regarding the cause of the incident, similar to those in the 1st case.
iii. Finally, expand your notes to write a report on the second case.

Case description	***Corrective actions taken / suggested***	***Root cause***
1. During repair works, the Apprentice Engineer injured his right hand while handling the grinding wheel. Also, his eyes were irritated from some steel particles / flakes. He was not wearing proper PPE, i.e., working gloves and safety goggles.	The EOW immediately interrupted the works and first aid was provided to the injured person. The incident was communicated to the entire engine crew for experience feedback purposes. Additional training to be provided in terms of proper PPE use according to company's safety procedures and Code of Safe Working Practices as well as regarding the correct use of machinery tools. The incident to be included in the next safety committee meeting for further analysis. Said App. Engineer, once he recovers from his injury, to perform safety rounds in the engine room area in order to identify similar omissions, if any.	– Failure to use PPE properly – Lack of experience – Lack of skill – Lack of training – Inadequate supervision – Lack of compliance with company safety procedures
2. While the fitter was working in E/R workshop repairing the air condition shaft, a small foreign metallic body entered his right eye. He was not wearing proper safety goggles.	First aid was provided to the injured fitter. Agent was notified to arrange transportation to a doctor for medical examination / treatment. The incident was communicated to shipboard personnel and the importance of using proper PPE at all times while on duty was stressed once more. Even when working in very confined and narrow space / area or perspiration impedes clear vision, safety goggles should not be removed but only for a few seconds when job is interrupted.	– .... – .... – .... – ....

Regarding the causes of the injury in the E/R workshop, one can note the following:
The fitter failed to .....
.....
.....
.....
.....
.....
.....

III. SMCP: Occupational Safety [B2/2] / Requesting Medical Assistance [A1/1.3] / Requesting Radio Medical Advice

a) The following exchange is about an occupational accident on board. Put the missing sentences in the correct place. Choose from the sentences in the box below.

What kind of assistance is required?	**Report injured persons.**
What happened?	**Secure the danger area and report.**

	There is an accident in the engine room.
(1)	
	The number of injured persons is two.
Provide first aid.	
(2)	
	Explosion in auxiliary boiler.
(3)	
	The danger area is secured.
(4)	
	Medical assistance is required.

b) In pairs, use the information from the following accident and produce a dialogue like the one on occupational accidents above. Report the accident to the bridge. Expand your dialogue and think of possible injuries suffered by the victim, the type of assistance that is required, etc.

Fall from height

IMO Lessons Learned, FSI 16, No 27)

What happened?

During work on deck, a crew member fell from a height of approximately 7 m from the hatch cover (in no 2 hatch, the hatch cover extends up to the outer side of the vessel) onto the pier.

Why did it happen?

There were no structural measures (permanent safeguards such as permanently installed ladders) to prevent falling overboard at this place. The seaman was not wearing any personal fall protection equipment.

c) Match to make full phrases.

1. Take	casualties
2. Secure	height
3. Report	immediate action
4. Fall from	gas
5. Leakage of	an accident report
6. Prepare	the area

d) Listen to the announcement. Tick the correct box.

The announcement is ….

- ☐ informing all crew members on the next training session on occupational safety.
- ☐ briefing all crew members on winter conditions.
- ☐ briefing all crew members on the storm.
- ☐ briefing all crew members on restricted areas.

e) Fill in the correct word.

take substances appoint conditions instruct

1. …… crew on occupational safety before departure.
2. Dangerous goods of IMO class 6 are carried on deck (in roped-off areas). Brief all crew members on the symptoms caused by dangerous…… .
3. …… an officer in charge of safety before work.
4. …… additional safety measures for the work in extreme weather …… .

f) Fill in the gaps with the correct derivatives of the words in capital letters.

1. …… in training sessions on occupational safety is mandatory.	**PARTICIPATE**
2. Have special …… on cargo securing and …… .	**INSTRUCT ILLUMINATE**
3. Check the …… and …… of the occupational safety equipment and report.	**COMPLETE AVAILABLE**

g) Requesting medical assistance. Fill in the message markers in the following exchange.

QUESTION – ANSWER – INFORMATION – ADVICE – REQUEST

PAN PAN – PAN PAN – PAN PAN
Calling Port Livorno, This is Alto - CBRE
…… I require medical assistance.

	Alto – CBRE, this is Livorno Radio Station …….. What kind of assistance is required?
……. I require radio medical advice and immediate hospital transfer. I have two crewmembers seriously injured after fall.	
	……. Stand by on VHF channel 16. I will arrange for radio medical advice on VHF channel 16. I will send boat to transfer casualties. ……. Boat ETA within 1 hour.

h) Match the two halves to make full sentences.

1. I require .... doctor on board?
2. What kind of .... injured person is not possible.
3. Helicopter ETA .... medical assistance.
4. Do you have .... within 2 hours.
5. Can you make .... assistance is required?
6. Transfer of .... on VHF channel 16.
7. I will arrange for radio medical advice .... rendezvous near pilot station?

• Requesting RADIO MEDICAL ADVICE

Lead-in: What information must you give the radio doctor when you request radio medical advice? Note down at least 4 things you must be prepared to tell the doctor.

a) e.g. ..... age of the casualty .....
b) .....
c) .....
d) .....
e) .....

The information that follows must be given when requesting RADIO MEDICAL ADVICE[11]. Put the following six missing sentences in their appropriate place in the two lists:

• Does the patient remember what happened, or did he lose consciousness?	• List all his complaints and symptoms	• Did the patient lose any blood?
• What other illnesses have you considered?	• Describe the first-aid or other treatment which you have carried out.	• Give particulars of known illnesses which run in the family (family history).

11. From The Ship Captain's Medical Guide, Chapter 13: External Assistance.

Be ready to answer the following questions by the radio doctor:

A. in the case of illness	***B. in the case of injury***
1. Routine particulars about the ship • Name / call sign / MMSI / INMARSAT number • Date and time • Position / course / speed • Last port of call • Port of destination is …….. and is …. hours / days away. • Nearest port is …… and is …… hours / days away.	*1. Routine particulars about the ship* • Name / call sign / MMSI / INMARSAT number • Date and time • Position / course / speed • Last port of call • Port of destination is …….. and is …. hours / days away. • Nearest port is …… and is …… hours / days away.
2. Routine particulars about the patient • Name of casualty • Ethnic origin • Rank • Occupation (job on board) • Age	*2. Routine particulars about the patient* • Name of casualty • Ethnic origin • Rank • Occupation (job on board) • Age
3. Particulars of the illness • When did the illness first begin? • How did the illness begin? (suddenly, slowly…) • What did the patient first complain of? • …… …… • Describe the course of his present illness from the beginning to the present time. • …… …… • Has the patient been taking any alcohol or do you think he is on drugs? • …… ……	*3. History of the injuries* • How exactly did the injury arise? • How long ago was that? • What does the patient complain of? • Give important past illnesses / injuries / operations • List all medicines / tablets / drugs which the patient was taking before the present injury and give doses and how often taken. • List any known allergies. • …… ……
4. Results of examination of the ill person • Temperature, pulse, respiration • Describe the general appearance of the patient and the affected parts. • What do you find on examination of the affected parts? (swelling, lack of movement, etc.)	*4. Results of examination* • Temperature, pulse, respiration • Describe the general condition of the patient. • …… ……
5. Diagnosis • What do you think the diagnosis is?	5. *Treatment* • …… …… • List all the medicines / tablets / drugs which the patient has taken, and give doses and how often given. • How has the patient responded to the treatment?
6. Treatment • List all the medicines / tablets / drugs which the patient has taken, and give doses and how often given • How has the patient responded to the treatment?	

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ personal protective equipment used at sea
- ☐ describing injury
- ☐ occupational accidents at sea
- ☐ items used in first aid treatment and their purpose
- ☐ parts of the body
- ☐ SMCP for requesting medical assistance
- ☐ SMCP for occupational safety

B. Class Project.

- Look for information on how radio medical assistance is requested. Is it available in every port? What are the requirements for helicopter transfer?
- Look up the Safety at Work Requirements Against Falling, from *Accident Prevention Regulations*, and report to class.
- Look at an Investigation Report on flashbacks that caused injuries to Engineers and present to class. [www.atsv.gov.au Marine Occurrence Investigation No 238 by Australian Transport Safety Bureau] What safety actions were taken?

C. Match the pictures to the sentences.

a) 

b) 

c) 

1. Cover the cut with an antiseptic adhesive dressing. PICTURE ☐
2. She broke her leg a month ago and it is still in plaster. PICTURE ☐
3. We keep the first aid kit in a plastic case. PICTURE ☐

D. Fill in the missing words. There is one extra word you don't need to use.

pulse	**bleeding**	**hurt**	**side**
circulation	**breathing**	**coughing**	**vomit**

First Aid for a casualty that is BREATHING BUT UNCONSCIOUS...

1. Place the victim on their _____ to protect their breathing.
2. Do not move the victim if they've _____ their back or neck.
3. Check for signs of _____.
4. Check for a _____ at the neck.
5. If the victim is _____, press firmly on the wound.
6. You must only move a victim who's had a neck or back injury if their breathing is noisy or their mouth is blocked with blood or _____.
7. The most important thing to remember is to check if the victim is _____ every minute or so.

E. Fill in the gaps.

REQUEST I …… medical assistance.
I have person with …… difficulties after an enclosed space …… .

I will send helicopter to …….. person. Helicopter …… in your position within 1 hour.

F. Circle the correct alternative.

1. In CPR for adults, give 30 chest *compressions / pressures* and then give 2 effective breaths.
2. For the first aid treatment of burns, do not put cream or lotion onto the burn to *relieve / reassure* the pain. Loosely cover the burn to protect it from *treatment / infection* but do not wrap it up tightly with a dressing.
3. You can use *tweezers / a bandage* to secure a wound dressing in place.
4. You apply *a splint / an adhesive tape* to a fractured limb to immobilize it.
5. You use a thermometer to take *temperature / fever*.

6. You use *ointment / saline solution* to flush wounds, rinse the eyes or nose, and also for IV (intravenous infusion).
7. Face masks act as a shield to protect you from hazardous particles, which if *inhaled / exhaled* directly, are harmful.
8. Not wearing ear plugs in the engine room can lead to *partial / one-sided* or full hearing loss.
9. Mooring incidents occur because inexperienced crew do not stay out of *snap-back / break-up* zones.
10. It was a terrible explosion. The vehicle was *overcome / engulfed* in flames.

UNIT 3

Call the Watch Engineer

1. *Bunkering*
   - *I. Procedures and responsibilities*
   - *II. Language Awareness: Present Perfect (Regular and Irregular verbs)*
   - *III. Checklists and controls*

2. *Preventing/combating oil spills*
   - *I. Oil spill prevention*
   - *II. SOPEP*
   - *III. VHF Communications / SMCP*

3. *Safety in the Engine Room*
   - *I. Housekeeping guidelines*
   - *II. Instructions to the Engineer of the Watch*
   - *III. Permit-to-work*
   - *IV. Machine and hand tools used in metal work*

4. *Maintenance duties in the deck department*
   - *I. Mooring line care*
   - *II. Painting*

Round-up

1. Bunkering

I. Procedures and responsibilities

Lead-in: pre-bunkering procedures / check what you know.

i. Listen to the Chief Officer reporting to the Master before bunkering starts. Circle the phrases you can hear.

bunker barge, alongside, plug all scuppers,
bunkering checklist, secure moorings, sound the tanks,
put fenders in position, rig firefighting equipment

ii. What other actions can you hear about which are part of the pre-bunkering procedure and are not included in the phrases above?

iii. Vocabulary assessment: The following words are *key words for a bunkering procedure*. How well do you know them? Use the vocabulary development scale to rate the following words:

5 can explain and use in different contexts
4 use in a limited way in speaking/writing
3 understand the "gist" of it
2 recognize but don't understand
1 unknown to me

☐ Fenders	☐ Scuppers	☐ Tank sounding	☐ Bunkering checklist
☐ Drain	☐ Oil spill	☐ Contingency plan	☐ Topping off
☐ SOPEP	☐ Fill sequence	☐ Alongside	☐ Bunker pre-loading plan
☐ Ullage	☐ VRP	☐ Bunker samples	☐ Taking on bunker fuel
☐ Tank overflow	☐ Pumping rate	☐ Drip tray	☐ Bunker connections
☐ Plug	☐ Hoses	☐ Bunker barge	☐ Oil absorbent materials

a) Read the text and choose the correct alternative of the words in bold.

Marine bunkering is the ***supply/capacity*** of fuel oil for ships ("Bunkers" is the term used in the shipping industry for the fuel oil ***wasted/consumed*** by ships while travelling from one destination to another). A range of products and qualities are used for bunker fuel. Fuel can be loaded in different ways, depending on the destination of the bunker material and the ***facilities/arrangements*** at the bunkering terminal.

- If a ship is able to load directly from the bunkering depot, simple pipeline loading is possible.
- Where a ship requiring bunkering is unable to ***dock/land*** at the terminal, a barge, equipped with fenders, hoses and pumps, is used to bring the product alongside the ship for off-loading.

b) What is shown in the following pictures? Talk about them and match them to the descriptions given below.

- Fenders
- Land-sea bunker hose connection
- Bunker barge alongside
- Oil terminal
- Crewmember handling bunker hose
- Passing a bunker hose (from bunker barge to the vessel)

a) 

b) 

c) 

d) 

e) 

f) 

c) Vessel procedures: Bunkering – Responsibility

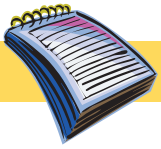
Listen about the assigned duties in bunkering and fill in the five missing ranks in the table below. Use the following:

Chief Officer / Second Officer / Chief Engineer / Second Engineer / Third Engineer

Bunker pre-loading plan – Crew assignments

Rank	***Duties***
	Over all in-charge
	In-charge on deck
	Monitor tank levels & valve alignment
	Tending mooring lines
	Tank soundings/Ullages
A.B.	Watch at bunker header
A.B.	Deck-Rover watch

d) Look at the duties in the table of exercise (c) and complete the Glossary.



Glossary

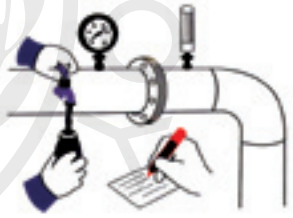
.....	giving your attention to; care for or look after
.....	arrangement in a straight line or in correct positions
.....	the amount that a container, such as a fuel tank, lacks of being full; the distance from the surface of the oil in a tank to the top

e) Do the following actions belong in the "Before Bunkering", "During Bunkering" or "After Bunkering" safety procedures? Write them in the appropriate spaces in the list that follows.

- Reduce loading rate before topping off.
- Send bunker samples for analysis.
- Rig fire fighting equipment.
- Mop up any drips and minor spills.
- Establish communications between ship and bunkering station/barge.
- Take periodic witnessed oil samples.

Bunkering

Safety procedures before, during and after bunkering

Actions: • ..... • ..... • Position drip trays and save-alls. • Plug scuppers. • Post "No Smoking" and "No Naked Light" signs.  • Close scuttles, windows and air conditioning intakes.	***Before Bunkering*** 
Actions: • ..... • ..... • Close valves as each tank is loaded. • Notify bunker station/barge when final tank is being filled. • Allow sufficient ullage to drain hoses and lines.	***During Bunkering*** 
Actions: • ..... • ..... • Close and blank off manifold. • Blank off hose before lifting it over the side. • Unplug scuppers and open drains. • Drain and stow drip trays.	***After Bunkering*** 

Glossary

drip trays	special buckets / containers for small drops of oil that might fall from the connection
save-all	a receptacle (container) for catching leakages
scuttle	a small opening or hatch with a movable lid in the deck or hull of a ship (an opening with a cover in a ship's deck or side)
blank off	block off, cover completely

f) What are the proper actions related to this picture?

Write them here:

- .....
- .....
- .....
- .....

g) Below you will find some of the points that you must check for a safe bunkering procedure. Choose the correct alternative of the words in italics and write up the missing words (the first letter is given). The safety procedure guide above will help you.

Before bunkering: check

- vessel and barge are moored *securely / strongly*.
- safe access between ship and bunker barge
- the deck watch is *totally / fully* briefed
- emergency shut down procedure is discussed and agreed
- torches, radios and other electrical equipment are suitable for hazardous area operation.
- suitable protective clothing is available and being used
- bunkering area is *adequately / poorly* lit

During bunkering: check

- supply line pressure and temperature
- tank levels, and that adjacent tanks are not being *fulled / filled*
- loading *rate / tempo*
- bunker tank vent systems

After bunkering: check

- all filling valves are c _ _ _ _ d
- all lines and hoses have been d _ _ _ _ _ d and b _ _ _ _ _ d
- all bunker tank vents, sounding tubes etc., are s _ _ _ _ _ d
- all areas are free from oil and all equipment is s _ _ _ _ d correctly

II. Language Awareness: Present Perfect (Regular and Irregular verbs)

We **have secured** all moorings.
Have you **sounded** the tanks? Yes, we **have** just **finished** sounding the tanks.
Have you **connected** the bunker hoses?
The Master **hasn't signed** the Bunker Delivery Note (BND) yet.

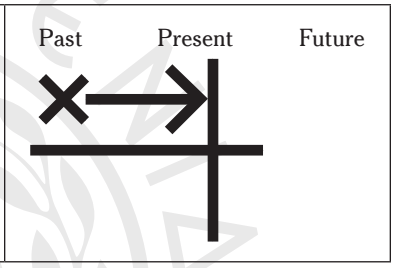
As you can see in the example sentences above, when talking about work operations, we use the Present Perfect Simple tense to

- describe ***recent*** actions
- ***check completion*** of operation procedures
- give information about activities at ***different stages*** of completion

In general, with the Present Perfect we talk about a time

from the past until now

[for instance, ***since*** 2001 (till now), *for* 11 years (till now), ***ever*** (in your life), ***yet*** (until now), etc.]



Form of Present Perfect tense: ***have / has + past participle***

	Positive	***Negative***	***Question***
I / you / we / they	I **have** finish**ed**.	I have not finished.	Have you finished?
he / she / it	He **has** finish**ed**.	He has not finished.	Has he finished?

These verbs are *regular: secure – secured, sound – sounded, finish – finished, connect – connected, sign – signed*

Spelling

- ⇨ ***store + d = stored*** [if the verb ends in –e, add –d]
- ⇨ ***drop + p + ed = dropped*** [if the verb ends with a consonant + vowel + consonant, double the final consonant and add –ed]
- ⇨ ***carry + ed = carried*** [if the verb ends with a consonant + y, change the –y to -i and add –ed]

a) Write the past participle.

supply: ..... plan: ..... manage: .....
remove: ..... provide: ..... empty: .....
try: ..... carry out: ..... fit: .....
arrive: ..... negotiate: ..... close: .....
secure: ..... notify: ..... plug: .....

b) The following members of the crew have just completed an action. Write sentences in the affirmative using the Present Perfect Simple.

1. The Bosun and two ABs / patrol / the vessel for stowaways.
   .....
2. The Assistant Engineer / allocate / duties to the engine ratings.
   .....
3. The OS / wash / the deck.
   .....
4. The AB / rig / the pilot ladder.
   .....
5. The Chief Cook / prepare / a healthier menu.
   .....

c) The members of the crew couldn't complete their duties regarding cargo handling; there is a delay due to bad weather. Write negative sentences in the Present Perfect Simple.

1. The AB / not connect / the cargo hoses (yet).
   .....
2. The OS / not rig / hatch rails (yet).
   .....
3. The Bosun / not talk / to the crane operator (yet).
   .....
4. The Second Officer / not check / the safety arrangements (yet).
   .....
5. The Chief Mate / not communicate / with the harbour Master (yet).
   .....

Pronunciation

There are three ways to pronounce the final –ed of the past participle. This pronunciation is determined by the final sound of the verb in the infinitive. It is pronounced:

/id/ when the verb ends in a sound /t/ or /d/: *examples:* want – wanted decide - decided	**/t/** when the verb ends in an unvoiced consonant sound such as /k/, /s/, /ts/, /f/, /p/: *examples:* like – liked wash – washed miss – missed laugh – laughed watch – watched stop – stopped	**/d/** when the verb ends in any other sound (voiced consonants like /b/, /g/, /v/, /m/, /n/, /r/ and vowel sounds) *examples*: grab – grabbed hug – hugged love – loved open – opened repair – repaired stay – stayed

d) Write the past participle of these regular verbs in the correct column according to how we pronounce the ending –ed. With the help of your teacher, listen to their pronunciation and say the verbs aloud to yourself to decide how the –ed is pronounced.

use, store, board, seal, fix, load, try, need, collect, check, clean, plug, dock, carry, close, fit, follow, agree, help, pick, resume, finish, steer, test, lock, sound, establish, collect, confirm, request, provide, discuss, drop, drain

/id/	/t/	/d/
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

Some verbs are irregular. The past participle does **not** end in **–ed**.

We **have put** the fenders in position.
Has the bunker barge **left** the vessel?
I **have sent** bunker samples for analysis.

These verbs are *irregular*: *put – put*, *leave – left*, *send – sent*
Note: the verb "to be" has the following present perfect form:

I / we / you / they **have been**
he / she / it **has been**

Look at some irregular verbs useful for describing work operations: (the simple past form is also given)

begin – began – begun	give – gave – given	lose – lost – lost
come – came – come	go – went – gone	make – made – made
do – did – done	have – had – had	say – said – said
fall – fell – fallen	hear – heard – heard	see – saw – seen
find – found – found	hold – held – held	take – took – taken
get – got – got	leave – left – left	understand – understood – understood

e) Here are some irregular verbs in groups. The irregular past form of the verb is given. Write the irregular past participle form of each verb; it is similar to the example in each group.

cost – cost – cost	buy – bought – bought	spend – spent – spent
cut – cut –	bring – brought –	send – sent – .....
put – put –	think – thought –	bend – bent – .....
break – broke – broken	know – knew – known	sleep – slept – slept
speak – spoke –	throw – threw –	sweep – swept – .....
wake – woke –	blow – blew –	keep – kept – .....

f) The Master is asking the Chief Mate if the following crew members have finished their duties for the day. Write questions in the Present Perfect Simple.

1. The AB / put / expiry tags on the fire extinguishers?
   Has the AB ..... ?
2. The Second Mate / send / an email to the company?
   ..... ?
3. The Chief Engineer / order / the main engine spare parts?
   ..... ?
4. The steward / clean / the cabins?
   ..... ?
5. The Chief Cook / make an inventory / of food provisions?
   ..... ?
6. The Second Mate / check / the charts?
   ..... ?

g) The following text is a* Bunkering Safety Checklist Declaration*, signed by ship, barge and terminal operators (i.e. the Master, the bunker vessel Master, and the port representative). Write the Present Perfect Simple form of the following verbs. Then use them to fill in the gaps in the declaration.

satisfy ⇨ (we) .....
agree ⇨ (we) .....
make ⇨ (we) .....
check ⇨ (we) .....

DECLARATION
We (1) ....., where appropriate jointly, the items of the Check-List in accordance with the instructions and (2) ..... ourselves that the entries we (3) ..... are correct to the best of our knowledge. We have also made arrangements to carry out repetitive checks as necessary and we (4) ..... that those items coded 'R' in the Checklist should be re-checked at intervals not exceeding two hours. If, to our knowledge, the status of any item changes, we will immediately inform the other party.

h) Complete the following sentences. Use one of these verbs in the Present Perfect Simple.

go	work	lose	witness	finish

1. I …… my passport. I need to issue a new one as soon as possible.
2. Are they still cleaning the tanks? No, they ……..…… .
3. Is the Chief Mate here? No, he …… to the mess room.
4. …….. (you / ever) a collision accident?
5. I …….. (never) on board a cruise ship.

i) The Master is 62 years old. He has had an interesting life. Write sentences to describe the things he has done.

1. (he / do / many different jobs before becoming a seafarer)
   He has done many different jobs before becoming a seafarer.
2. (he / travel / to many places)
   .....
3. (he / met / a lot of interesting people)
   .....
4. (he / make / a lot of money)
   .....
5. (he / be / married four times)
   .....
6. (he / read / many books)
   .....
7. (he / work / for many different companies)
   .....

j) Use the correct verb from the box below in the Present Perfect Simple to complete the sentences.

arrive / paint / sweep / forget / send / practise / finish / read / repair

1. …… you ……. your duties yet?
2. ……..you …… the safety manual yet?
3. The vessel …….. not ……... to its destination yet.
4. The Chief Officer ……. not ..…… the Notice of Readiness yet.
5. …….. the ratings …… the fire drill?
6. The engineer …… the main engine.
7. The deck cadet …….. the railings.
8. The AB …… the deck.
9. The Chief Officer ……. to send the fax to the company.

k) In pairs, check the completion of bunkering procedures. Use the Present Perfect.

Student A: You are the Master. Ask if the procedures have been completed. Use "you" or "we" in your questions.
Student B: You are the Chief Mate. Answer "no" to tell the Master that the bunkering procedures have not been completed yet.

For example: (agree on Emergency Stop signal)
⇨ Have we agreed on the Emergency Stop signal?
⇨ No, we haven't agreed on the Emergency Stop signal yet.

1. (note down the exact amount of bunkers we received)
2. (sound the tanks)
3. (retain a copy of the Bunker Delivery Note)
4. (inspect bunker pipelines)
5. (confirm the fenders are in position)

III. Checklists and controls

The following document is an authentic up-to-date BUNKERING CHECKLIST used in merchant vessels today. Make sure you understand it well in order to use it to exchange information about bunkering procedures.

Vessel _____ **Date/Time**____/____/____-____.____ **Port** _____

BUNKERING CHECKLIST

Prior commencing bunkering	DONE
The Bunker Pre-Loading Plan has been completed and posted.	✓
An accommodation ladder is rigged.	×
Plug all deck scuppers and ensure they are oil- and water-tight.	
Empty out and plug all save-alls.	✓
Place oil absorbent materials and oil brooms at designated locations.	
Inspect hose and couplings for damage.	
Establish two-way communication link with delivery vessel or facility.	
Agree on distinct hand signals for ship and bunker supplier.	
Sight, agree and record supplier meter readings or tank soundings.	
Ensure seamen are assigned to tend moorings.	✓
Prepare (line-up) the filling line – open all relevant valves.	✓
Check all valves on the system.	
During bunkering	DONE
Take ullages / soundings in order to determine the loading rate and cross-check the calculated against the one claimed by the supplying facility.	
When a tank is 70-80% full decrease loading rate and take ullages more often.	✓
Check continuously bunker hoses / connections for leakage.	✓
Close valves as each tank is completed.	✓

Witness, seal, date, jointly countersign, and retain bunker samples.	
Give ample warning to the terminal / barge before the final notification or the interruption of the flow.	✓
Notify supplier when final tank is reached.	
On completion, close all filling valves.	✓
After bunkering	DONE
Ensure all hoses are fully drained.	✓
Close and blank off manifold connections.	
Blank off disconnected hose couplings.	✓
Reconfirm all bunker lines and tank filling lines are secured.	✓
Reconfirm all bunker tank soundings.	
Sight, agree and record shore/barge meter readings or tank soundings.	✓
Verify all details on bunker receipt are correct.	
Complete all relevant entries in Oil Record Book and Log Books.	

Chief Officer **Chief Engineer**

a) The following verbs are included in the checklist. Match them to their meaning, after locating them in the checklist.

sight	**cross-check (against)**	**~~witness~~**	**countersign**	**notify**
assign	**decrease**	**seal**	**retain**	

1. ..... : to keep
2. ..... : to fasten or close securely
3. ..... : to add a signature to (a document already signed by another person)
4. ..... : to formally or officially tell somebody about something
5. ..... : to manage to see or observe
6. ..... : to make smaller in amount, degree, etc.
7. …… witness ..... : to see something happen, to see it yourself
8. ..... : to appoint to a job, allocate a job
9. ..... : to make sure that the figures are correct (by using a different method or system to check them)

b) The following phrases are included in the checklist, too. Identify them and match them to their explanations.

1. accommodation ladder *is rigged* ☐ give more than enough advance notice
2. *delivery* vessel ☐ stated or asserted as true
3. *determine* the loading rate ☐ when (bunkering) is finished
4. *claimed* by the supplying facility ☐ fitted in position
5. *give ample warning* ☐ ascertain exactly
6. *on completion* ☐ the oil has run out, leaving (the hoses) empty
7. *fully drained* ☐ that supplies the fuel oil

c) In pairs, examine how safely bunkering is done on your ship.

Student A: You are supervising the bunkering process. Fill in the checklist. Ask about the actions missing in your list (where there is no check [✓] or cross [×]) and check accordingly.

Student B: Look at your own checklist and give answers on which things have or haven't been done yet. Go to page 262.

For example: *Have you completed the Bunker Pre-Loading Plan?*
Yes, I have.
Have you rigged the accommodation ladder?
No, we haven't.

d) Discuss the issue below, drawing on your own experience and thoughts.

It is wise to check the soundings in the barge tanks. It is helpful in case of dispute.

Yes, sometimes suppliers play tricks on us; they try to cheat.

e) Look at the following possible hazards that exist in bunkering. What must you do in each case? What controls are in place for you? Discuss with your partner and match to the controls that help prevent each hazard.

Hazard ***In case of...***	**Controls in place / preventive measures** ***Make sure you have done the following...***
1. Uncontrolled contact with bunker barge during mooring / unmooring	☐ Inspect bunker pipeline to ensure that there are no signs of leakages.
2. Inadequate access of personnel between ship / barge	☐ Monitor local weather forecast; abort operation if required.
3. Substandard bunker hoses / connections	☐ Verify that bunker tank high level alarms are operational.
4. Adverse sea conditions	☐ Agree, in writing, with the barge Master on the handling procedures, including the maximum transfer rates, and on the action to be taken in the event of an emergency.
5. Bunker tank overflow	☐ Provide additional fenders.
6. Inadequate maintenance condition of the bunker line	☐ Use accommodation / pilot ladder properly.
7. Inadequate ship/barge co-operation / co-ordination / communication	☐ Check visually the condition of barge hoses and flanges prior to commencement of bunkering.

f) What are the possible consequences in each case? Here are some suggestions.

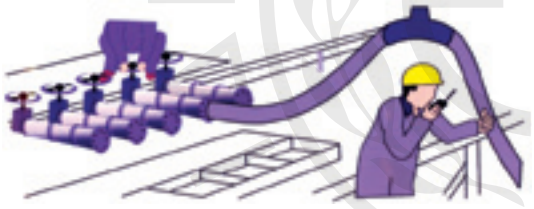
collision, grounding, hull damage, oil pollution, injury

Hazard:	**Consequence:**
1. inadequate Under Keel Clearance	⇨ .....
2. substandard fendering / mooring equipment	⇨ .....
3. inadequate draining of bunker hose	⇨ .....
4. sudden tension of the hose during connection / disconnection	⇨ .....

2. Preventing / Combating oil spills

I. Oil spill prevention

a) Look at the safety procedures below. Put the appropriate picture in the correct place and fill in the gaps with the phrases in the box.

1. 	2. 
3. 	4. 

drain off	any spillage	on the water	after painting or repairs	with care

Preventing Oil Spills – Procedures to reduce the likelihood of oil spills

1. Know your ship Where are the overflow and sounding pipes? Check that they are clearly marked especially …… . Remember that an "air-bubble" can force oil out of a goose-neck ventilator.	
2. Plug scuppers Plug scuppers when bunkering, loading or discharging oil. If there is heavy rain, then open one scupper, …… the water and replug. Repeat if necessary.	Picture:
3. Use serviceable equipment Do not use untested equipment; it may rupture or break. Cargo and bunker hose pipes should be handled …… and stored without bends that may fracture the hose.	Picture:
4. Communications and identification Agree clear signals with terminal / bunkering station. Keep a watch on valves and flanges. Frequently look over the side for traces of oil …… . Make sure you open the correct valve. Always close a valve tight and check the position indicator.	Picture:
5. Control pumping rate Slow down the rate of oil being pumped and "top-off" tanks with extreme caution. Keep a careful watch on ventilators and over-flow points.	
6. Use drip trays When hose connections are being made or broken, drip trays must be used to catch …… . Blank the ends of hoses and ship connections.	Picture:

b) Match the words to form correct collocations.

1. Oil flow	hose		4. Hand	shutdown
2. Bent	indicator		5. Position	signals
3. Emergency	rate			

II. SOPEP

a) Fill in the blanks with the words in the box.

importance	**designated**	**plan**	**booms**	**emergency**
accordance	**contacted**	**response**	**incident**	**requirements**

Shipboard Oil Pollution **(1) _____ (2) _____**

- When an oil pollution (3) _____ occurs or is likely to occur the ship follows the SOPEP, in (4) _____ with the requirements of MARPOL.
- The SOPEP lists the authorities or persons to be (5) _____ in the event of an oil pollution incident. The (6) _____ Person Ashore handles the matter on the part of the company.
- A Vessel (7) _____ Plan is available.
- In the US, the ship owner is required to have a contract with an approved Qualified Individual to assist in the co-ordination of shore response at the time of an oil spill.
- The contingency plan is discussed in a safety meeting.
- The Coastal State Authorities are notified and oil (8)_____ are rigged around the vessel by port authorities to restrict the extent of the pollution.
- For on-deck spills or minor over-side spills there are SOPEP oil spill response kits available on board. They contain the equipment you need to immediately fight the spill and gather the oil in buckets. It is of paramount (9)_____ that the bunkering operations are planned and executed as per Company's SMS and SOPEP (10)_____.

b) Safety Equipment On Board: We will discuss three types of safety equipment on board.

1. LIFEBOAT EQUIPMENT
2. OIL SPILL EQUIPMENT
3. ISPS EQUIPMENT

Divide yourselves in three groups. Each group picks one topic.

i. Give some examples of equipment for your topic.

ii. Which of the following words are related to the type of equipment you picked?

sawdust / security area / oil dispersant /
close circuit surveillance cameras / fishing tackle / seasickness bag

iii. Find the equipment which belongs to your topic.

Name badge	Oil absorbent pad
Oil absorbent boom	Visitor logbook
Jack-knife	Bucket (plus disposable bags, gloves, absorbent booms, pads)
Storm lantern	Food ration
Waterproof matches	Handcuffs
Metal detector	Shovel, broom, squeegee

iv. Look at the pictures in the following diagrams. Write the name of the type of equipment (Lifeboat / Oil spill / ISPS Equipment) in the middle of the diagram. Then, give names for each picture by matching them with the words from exercise (iii) above.

III. VHF Communications / SMCP

a) Look at the communication guide for ship and bunker barge. What do the following hand signals mean?

i. Try the signals yourself and discuss in class what they mean.
ii. Write up the order for each hand signal.

Communication Guide for Ship & Bunker Barge

1.  2.  3.  4.  5.  6. 

1. H _ _ D
2. W _ _ T
3. S _ _ W
4. F _ _ T
5. S _ _ P
6. F _ _ _ _ H

IMO Standard Marine Communication Phrases

[B 3 / 1.3 Handling bunkers / pollution prevention]

b) Study the following VHF exchange between the bunker barge and the vessel and complete the missing words. Then practise saying the dialogue in pairs.

Barge	***Vessel***
Are you ready to bunker?	
	Yes I am ready to bunker. I have prepared all safety measures. …….. barge hoses.
Barge hoses are connected. What is the pumping pressure?	
	The pumping pressure is 3 bars. Start pumping slowly.
Are you receiving?	
	Yes I am receiving. Do not exceed a …… of bunker line of 3 bars.
Pressure steady at 3 bars.	
	We have reached 85% of tank capacity. ……. pumping rate.
I am decreasing pumping rate.	
	300 tones received – stop pumping. …… the barge hoses.
Barge hoses are disconnected.	

c) In pairs give the following orders and report that they are executed.

e.g. Plug the scuppers and report.
All scuppers are plugged.
Stand by fire fighting equipment and report.
Fire fighting equipment standing by.

1. Close the valves and report.
2. Fit bonding wire and report.
3. Stand by absorbent materials and report.
4. Instruct the pumpman and report.
5. Stand by spill control gear and report.

d) Where do the following phrases belong to? Write them in the appropriate space.

• Disconnect hose couplings. • Transfer fuel oil from No.1 tank to No.2 tank. • Call the watch engineer 15 minutes before the arrival at oil terminal for bunkering. • Fill up to 90% of tank capacity. • Are all hoses fully drained? • Instruct the pumpman and report.	• Start pumping. • Maintain contact on VHF channel 23 with the bunker barge / oil terminal. • Complete and sign the oil record books. • Are the barge hoses connected? • Sound the tanks and report. • Finished with pumping. There is no pumping at present.	• Fit bonding wire and report. • Have you sent the fuel oil samples for analysis? • Decrease pumping rate. Do not exceed a rate of filling of 300 t/hr. • Are the barge hoses disconnected? • Keep a safe working pressure. • We are filling No.1 starboard tank.

Before bunkering

- .....
- .....
- .....
- .....
- .....
- .....

During bunkering

- .....
- .....
- .....
- .....
- .....
- .....

After bunkering

- .....
- .....
- .....
- .....
- .....
- .....

e) Write the question.

1. What .....?
   Sounding of No.1 H.F.O.T (S) is 500 m^3. *(Heavy Fuel Oil Tank, Starboard)*
2. Is ..... ?
   Yes, the Oil Pollution Prevention Plan is available.
3. Have ..... ?
   Yes, I have checked bunker temperature. It is 5 degrees (centigrade) above normal.
4. Do .....?
   Yes, I require a further generator to operate an additional pump.
5. What .....?
   Maximum temperature is 50 degrees. Do not exceed a maximum temperature of 50 degrees for the bunker oil.

f) Match.

1. take …	☐ the auxiliary pump
2. fill …	☐ soundings
3. transfer …	☐ a barge
4. operate …	☐ from No.1 tank to No.2 tank
5. order …	☐ a safe working pressure
6. keep …	☐ the pumpman
7. open …	☐ spill
8. instruct …	☐ the scuppers
9. plug …	☐ valves
10. clean up …	☐ the tank
11. complete …	☐ the oil record book

g) Write the opposites. [stop, close, exceed, decrease, disconnect]

1. Keep within ≠ .....
2. Connect ≠ .....
3. Start ≠ .....
4. Increase ≠ .....
5. Open ≠ .....

h) Reporting and cleaning up spillage: *The Chief Officer is on deck during bunkering. S/he is reporting a spillage to the bridge. Read the following exchange and fill in the missing words. Then, practise saying the dialogue in pairs.*

assist escaping stand by contained

Chief Officer (on deck)	*Master (on bridge)*
Leak at manifold connection!	
	Stop pumping! Is oil …… into the sea?

No, oil is spilling on deck.	
	How much is spilled?
Spill is about 2 tonnes.	
	Has spillage stopped?
Spillage stopped.	
	…….…….. oil clearance team and report.
Oil clearance team standing by.	
	Treat spill with oil dispersant and absorbent materials. All crew ……..…. to remove the spill.
Spill cleaned up with absorbent materials. Spill waste ……..…….. in save-all.	

3. Safety in the Engine Room

I. Housekeeping guidelines

a) Read the following safety instructions and fill in the missing words.

unmanned dispose calibrate buckets tripping rotating incinerating

Housekeeping and safety in engine room – Guideline for ships[1]

Summarized below are some basic safety precautions for working on board machinery spaces.

Oily contaminated materials
Place all oil contaminated rags and other material in metal containers and (1)…… ashore when required (no dumping or (2)……).

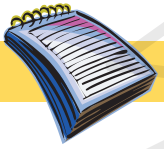
Bilges
Repair all pipe or pump leakages as soon as possible to limit the amount of bilge water that is in need of separation and eventually discharge overboard.

Engine Room Workshop
Keep the engine room tidy to allow hot work when required. No storage of flammable material is permitted. Keep the personal protective equipment (PPE) prepared in place.

1. From www.shipbusiness.com, abridged.

Pay special attention to the following in the engine room:

- Keep floor plates and ladders free from oil or grease and properly fixed to avoid (3)..... .....;
- Keep the E/R properly illuminated at all times;
- Properly insulate exhaust manifolds on engines;
- Make sure there are no leakages in exhaust manifolds and ducts through the entire casing;
- When engine room is (4)……..., lock external entrances to the engine room except designated entrances;
- Properly lag steam pipes and other hot surfaces;
- Do not leave flammable material in (5)…… or open containers;
- Test bunker tank high level alarm before each bunkering operation and at least monthly;
- Contain leakages of fuel and lube oil as soon as possible;
- Test and (6)…….. thermometers and pressure gauges on a sequential basis, allowing all to be tested annually;
- The operation of the bilge water separator shall be strictly supervised by the Chief Engineer;
- If any part of the fire detection system is temporarily disengaged due to any repair, e.g. hot work in the area, mention this clearly on the work permit;
- Keep all (7)…….. parts protected;
- Smoking is not allowed in the engine room;
- Use the incinerator as per manufacturer guidelines;
- Carry out Monthly Safety Inspections.



Glossary

to lag	to cover pipes, etc. with a special material to save heat, or to stop the water in them from freezing, to insulate
sequential	following in order of time or place, following in a logical order or sequence

b) Look at the pictures on the next page and write appropriate instructions related to safety in the engine room, which you read in the guidelines above. They can be related to the following.

oily rags / flammable materials / floor plates / pipes or exhausts / illumination / steam pipes & hot surfaces / rotating parts / tidiness / etc.

.....	.....
.....	.....
.....	.....
.....	.....
.....	.....


OILY
RAGS

c) Check whether proper housekeeping tips are put into practice in the engine room. Match the verbs to the phrases in the box. Then ask your partner: "Have you.....?"

e.g.: *Have you insulated exhaust manifolds on engines?*

1. Carry out	no smoking signs
2. Display	the space from grease
3. Lock	all external entrances
4. Insulate … exhaust manifolds on engines	the monthly inspection
5. Fix	~~exhaust manifolds on engines~~
6. Clean	all floor plates and ladders
7. Place	the rags in containers

II. Instructions to the Engineer of the Watch

a) Read the following* Instructions to the Engineer of the Watch (while in port)[2] *and fill in the missing parts of the sentences.

in doubt **from the engine room** **abnormal conditions of the machinery** **fuel oils, lub oils** **on stand-by** **affect navigation**

Never be absent (1) ……. during your watch.
Make frequent inspection rounds in E/R to prevent accidents. Pay attention to (2) …….. that are difficult to detect from the E/R control room, such as leaks, sound, vibrations, heating and smells.
Appraise the present quantities of (3)……..……. and feed water.
Notify the Officer of the Watch when a failure of machinery has occurred which may (4) ……..…… .
Take proper measures immediately and report to the Chief Engineer without delay in the following cases: • When you are informed from the bridge of the schedule (Time) of the Engine to be placed (5) ……. or to be used. • When you have found abnormal conditions of machinery or you are (6) …….. . • When you have received emergency orders or instructions.

2. From www.shipbusiness.com, abridged.

b) Match the words to form correct collocations.

1. inspection	orders
2. receive	round
3. abnormal	water
4. to be	conditions
5. failure	in doubt
6. feed	of machinery
7. control	attention
8. pay	room

III. Permit-to-work

a) Read the Permit to Hot Work and fill the following information in the appropriate spaces.

E/R Workshop	**Fitter**	**08.00 – 16.00 (8 hours), 09/07/2012**	**Welding**	**Assistant Engineer**

Permit-to-work[3]

Work to be done _____

Period of validity of permit _____

Location _____

Person in charge of the work _____

Person performing the work _____

Responsible officer (*signature*) _____

Date _____ Time _____

Master's signature _____

Date _____ Time _____

Entry into enclosed or confined spaces

_____ Space thoroughly ventilated _____

_____ Atmosphere tested and found safe _____

_____ Rescue and resuscitation equipment available at entrance _____

_____ Responsible person in attendance at entrance _____

_____ Communication arrangements made between person at entrance and those entering _____

_____ Access and illumination adequate _____

_____ All equipment to be used is of an approved type _____

_____ When breathing apparatus is to be used:
(1) familiarity of user with apparatus is confirmed _____
(2) apparatus has been tested and found to be satisfactory _____

3. Permit-to-work form from ILO Code of Practice: Accident Prevention on board ship at sea and in port.

Machinery or equipment

_____ Removed from service/isolated from sources of power or heat ____
_____ All relevant personnel informed _____
_____ Warning notices displayed _____

Hot work

_____ Area clear of dangerous material and gas free _____ ✓ _____
_____ Ventilation adequate _____ ✓ _____
_____ Equipment in good order _____ ✓ _____
_____ Fire appliances in good order _____ ✓ _____

I am satisfied that all precautions have been taken and that safety arrangements will be maintained for the duration of the work.

Signature of person in charge: _____

b) The following phrases are from the Permit-to-work. It is important to be able to understand them. In pairs, find them in the Permit above and explain what they mean. Then, match the phrases in italics to the explanations given on the right.

i.

1. *Validity*	☐ Who has the responsibility
2. *Location*	☐ Being officially and legally acceptable
3. Person *in charge*	☐ Place where something happens
4. Person *performing* the work	☐ Enough light
5. Equipment *available* at entrance	☐ Officially found good enough to be used
6. Person *in attendance* at entrance	☐ Carrying out, doing the task
7. *Communication arrangements*	☐ That you can get or find
8. *Adequate illumination*	☐ Preparation you make so that you can be in contact with
9. Equipment of *approved* type	☐ Who is present (in order to help)

ii.

1. *Familiarity* of user with apparatus	☐ Knowing something well
2. Apparatus found *satisfactory*	☐ Separated from, kept far away from
3. *Isolated from* sources of power or heat	☐ Crewmembers related to this
4. All *relevant personnel*	☐ Good enough for a particular purpose
5. *Warning notices displayed*	☐ It works well
6. Adequate *ventilation*	☐ Put warning signs in a place where people can see them
7. Is *in good order*	☐ Allowing fresh air to enter and move around the space
8. Take *precautions*	☐ Do things to prevent problems and to avoid danger

IV. Machine and hand tools used in metal work

***Note*:** for pictures as well as descriptions of the use of machine and hand tools, see Appendix I, *Maritime English for the 1st semester.*

Engine room workshop

The workshop is found on the top platform of the engine room. There is a ***working bench*** in it and the workshop usually contains the following machines (for fitting and maintenance purposes):

⇨ ***Lathe***
⇨ ***Drilling machine***
⇨ ***Grinding machine***
⇨ ***Bench vice***

a) Which of the items mentioned above are described below? Write them next to each description (one is done as an example).

1. ……: a strong worktable in the workshop, providing workspace and tool storage.
2. ……bench vice ……: a fitter's vice fixed to a workbench.
3. ……: a motor driven device fitted with an end cutting tool that is rotated with sufficient power either to create a hole or to enlarge an existing hole in a solid material.
4. ……: a machine tool that uses a rotating abrasive wheel to change the shape or dimensions of a hard, metallic workpiece.
5. ……: a machine tool which turns cylindrical material, touches a cutting tool to it, and cuts the material in order to shape it.

b) Identify the above-mentioned items in the pictures below. Write the names below each picture.

a)

b)

c)

d)

e)

c) What is the name of the items shown in the following pictures? Match the pictures to the words. Draw arrows.

Machine accessories

a) 

Bolts

Nuts

Washers

Taps (machine screw taps: taper, plug, bottoming)

b) 

c) 

d) 

d) What is the name of the hand tools in the pictures? Write up the words.

Hand tools for holding and twisting a nut or bolt

1. R _ _ g spanner

2. A _ _ _ n key

3. Ratchet w _ _ _ _ h

4. Double G _ _ _ _ n spanner

5. F _ _ _ _ h or adjustable spanner

e) Match (draw arrows).

Filing

Triangular file

Flat file

Rasp

f) What are the names of the tools shown in the pictures? Circle the correct name of each tool.

straight-peen hammer / ball-peen hammer

mallet / hammer

pliers / screwdriver

callipers / feeler gauges

hacksaw / cutting torch

scrapers (to scrape off paint) / cold chisels (struck by a hammer to cut and shape cold metal)

g) Which tool do you use to do the following actions? Circle the correct tool.

1. _____ reamer / file_____ ⇨ shape and enlarge holes
2. _____ wrench / hacksaw _____ ⇨ cut metal
3. _____ pliers / hammer_____ ⇨ cut or bend wire
4. _____ spanner / washer_____ ⇨ gripping and turning a nut and bolt
5. _____ screwdriver / hammer_____ ⇨ drive in a nail
6. _____ feeler gauges / calipers _____ ⇨ measure the diameter
7. _____ pliers / rasp _____ ⇨ smooth, file metal and other hard material
8. _____ bolts / feeler gauges _____ ⇨ measure narrow gaps and clearances

h) Quiz: Choose the correct word to fill in the blanks.

1. Tools worked by air under pressure (such as chipping and hammering tools): ..... **tools**
   pneumatic / pressurized
2. A machine for the removal of metal by feeding a workpiece through the periphery of a rotating circular cutter: ..... **machine**
   press / milling
3. A tool used to drive rivets (rivet: a permanent mechanical fastener): ..... **gun**
   nailing / riveting
4. Brushes, grinding wheels, sand paper, etc. that you use to abrade surfaces: .....
   abrasives / scrapes
5. Drill bitts, reamers, saw blades, etc. and other replaceable items that you use in cutting tools: **cutting tool** .....
   usables / consumables

i) Look at the following pictures and match the items to their names (there are two extra names you won't need to use).

bench grinding wheels	**milling machine**	**abrasive brushes**	
coupling for bunker hose	**cutter**	**T-bolt clamp**	**hose nozzle**

1. 
2. 
3. 
4. 
5. 

j) What tools do we use to...

…tighten / loosen / twist (a nut, bolt)?
…drive in (a screw, a nail)?
…drill a hole?
…cut / weld metal?
…measure?
…grind?
…sharpen?
…polish?
…rivet?
…saw?

4. Maintenance duties in the deck department

Lead in:

i. The following verbs describe maintenance work on deck; write them in the correct list for similar duties below:

Scrape off	Wash	Oil	Service	Lubricate
Sweep	Chip off	Fix	Cover	Coat

ii. What tools do you use to do the duties? Choose them from the tool box below and write them under each arrow.

Maintenance

clean	brush	paint	repair	grease
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
↓	↓	↓	↓	↓
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

roller	painting brush	lube oil/grease applicator (syringe type, grease gun, etc.)				
brushes	broom	mop	wiping rags	scraper	chipping hammer	
abrasive brush	various workshop tools					

iii. Match:

1. scrape	the railings
2. paint	the rust off the hatch covers
3. grease	~~the fork-lift truck~~
4. service … the fork-lift truck	the surface to prepare it for painting
5. brush	the winches

I. Mooring line care

a) You are going to listen to a short presentation on mooring line maintenance[4]. Imagine you are keeping the following notes. First try to guess the missing words, then listen to see if you were right.

Mooring line care and maintenance

If the mooring rope is _____, it can break. To prevent the line from _____ (dividing into parts), you should maintain ropes to keep them in a good condition.

The visual inspection of mooring rope and mooring wire is important.

- The wear along the rope should be examined. You should _____ the worn end of the rope.
- You must _____ worn mooring wire and replace it.

Rope care:

- You should not let fibre ropes exposed to sunlight while at sea; you should _____ fibre ropes, or store them below deck.
- You should dress wire ropes with an appropriate _____ to maintain their condition.

b) Cross out the odd one of the highlighted words (two are correct, one is not).

You must ***search / examine / inspect*** the mooring rope. Any signs of ***wear / damage / erosion*** are dangerous, because mooring rope can ***break / part / spoil*** and cause accidents. In any case, you need to prevent deterioration through good maintenance; you should protect it from sunlight and make sure you ***crack / cut out / crop*** the worn parts, also ***oil / grease / wet*** wire rope to keep it in a good condition. In certain cases, it may be necessary to ***replace / rebuild / renew*** the mooring line all together, following special discard criteria.

4. For more information see Loss Prevention Bulletin, Dec 2009, Risk Alert on "Mooring Line Care and Maintenance.

II. Painting

Lead in: Check what you know.

i. Discuss in class:

Have you done any painting while working on board?
How did you prepare the surface before painting? What tools did you use?
What methods are used for painting / cleaning on board?
in dry dock?
in manufacturing (shipbuilding)?

ii. Keywords

Choose one word you know and explain to class what it means. Then the next student takes over until the list is all crossed out. You can pass if the remaining words are unknown to you.

e.g. *Shot-blasting is to clean or strip a metal surface by directing a high speed stream of steel particles at it.*

Chipping hammer / corrosion / paint layer / coating / tank coating / pre-treatment / dry-blasting (~~shot-blasting~~, grit-blasting, sand-blasting) / brush / roller / spray / surface / primer / rust

Painting [5]

Pre-treatment

For a good painting result it is important that the steel that is going to be painted is pre-treated. The better the material is cleaned, the better the result will be. Pre-treatment also offers protection to the material. The base material can be cleaned in the following ways:

- With hand tools
- Mechanical cleaning (with machines)
- Chemical cleaning (especially degreasing)
- Thermal cleaning
- Sandblasting / gritblasting
- Waterjets

Hand tools: manual cleaning is done with scaling hammers, scrapers, sand paper and wire brushes. This method is very labor-intensive.	***Mechanical cleaning*** is done with mechanical scaling hammer, rotating wire brushes, abrasive wheels and abrasive discs. On board, needle-scaling hammers or chipping hammers are used almost exclusively. Of all the types of mechanical scaling hammers, this is one of the best, although it is not very fast. The roughened surface gives a good anchoring for the paint layer. Almost all methods of cleaning with mechanical devices require breathing and hearing protection.	***Chemical cleaning*** removes the old layer of paint and rust. For local paint jobs, paint-stripping compounds are used. In manufacturing, the cleaning is done with acids. In all cases the cleaned material should be thoroughly rinsed with fresh water.

5. Source of text and pictures: Ship Knowledge 5th ed., Chapter 14: Materials and maintenance, pp. 320-322.

Thermal cleaning: for local removal of paint, a heat paint stripper can be used. The heat softens the paint, which can be removed by tools. The paint stripper is not used on a large scale because of the fire-hazard and the toxic vapors that are released upon heating.	***Gritblasting*** is done by blasting granular materials at high speed with high-pressure air against the steel. The material is cleaned thoroughly and the surface is roughened, which is essential in order to achieve a good mechanical bonding with the coating. ***Sandblasting*** is applied in some cases (but it is no longer allowed in some countries due to health [lung] problems). Gritblasting is not done on a large scale on board because it requires special equipment (for instance, a portable grit blaster consisting of an air compressor and hose). It can be done in drydock, because this method is suitable for treating large areas (20 m^2 per hour is feasible).	***Water washing*** (called "Hydroblasting" when using pressure of more than 700 bars) is used in drydock. The installation consists of a high-pressure pump, hoses and a gun. Water washing is very successful in removing salt deposits, loose paint and algae.
Applying the paint layer Before the paint is applied one has to make sure that • the surface is clean of moisture, dust and grease. • the paint is stirred well before use. • The correct tools are being used: *brush, roller or spray*.		
Types of paint: *finish paint, primers* • Primers are the base for the final paint layers. • Finish paints are the final coatings and include anti-fouling paint.		

a) Write the correct title under each picture.

High pressure water washing / Manual cleaning with a scraper / Using a rotating wire brush / Local gritblasting / Mechanical cleaning with a pneumatic scaling hammer

Pre-treatment / Cleaning

a)

b)

c)

d)

e)

b) Look at the pictures and write the correct title under each picture.

Paint-spraying / Painting the deck with a brush / Applying paint with a roller

Tools for applying the paint layer

a) 

b) 

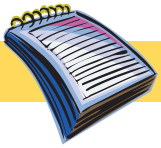
c) 

c) Fill in the table below, according to the text.

Method	*Tools / equipment used*
Manual cleaning	
Mechanical cleaning	
Chemical cleaning	Paint-stripping compounds / acids
Thermal cleaning	Heat paint stripper
Gritblasting	
Water washing	

d) Write up the words.

1. w _ _ _ _ w _ _ _ _ _ _ : method of cleaning that offers better removal of salt deposits (and is also eco-friendly).
2. s _ _ _ b _ _ _ _ _ _ _ : in this method we clean a surface with a jet of sand driven by compressed air or steam.
3. cleaning with c _ _ _ _ _ _ _ hammer: method used on board in which the roughened surface gives good anchoring for paint layer.



Glossary

labour intensive	(of work) needing a lot of people to do it
granular	consisting of small grains or particles
feasible	that is possible and likely to be achieved, practicable
algae	very simple plants, such as seaweed, that have no real leaves, stems or roots, and that grow in or near water
grit	small loose particle of stone or sand
rinse	to wash (something) with clean water to remove dirt, impurities, detergent, etc.
stir	to move a liquid around, using a spoon or something similar, in order to mix it thoroughly
scale (n)	a hard white deposit formed by the evaporation of water (inside water pipes for instance), scale (v): to remove the scale

"The better the material is cleaned, the better the result will be". This is a comparative construction for two things which vary together (and you talk about the expected outcome):

the more..., the more....

e.g. *The older I get, the more I understand.*
The more I get to know you, the more I like you.

e) Put the adjectives in the comparative to complete the following sentences.

1. The …….. you drive, the more petrol the car uses. (fast)
2. The more I work, the …….. time I spend with my family. (little)
3. The …….. you try, the more you achieve. (hard)
4. The …….. you wait, the harder it will be to finish. (long)
5. The more you pay, the …….. the quality is. (good)

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Check the completion of bunkering procedures
- ☐ Understand bunkering checklists
- ☐ Simulate VHF communications on bunkering
- ☐ Describe maintenance duties on deck
- ☐ Name hand and machine tools used in metalwork
- ☐ Use the Present Perfect to talk about recent actions
- ☐ Understand safety procedures in the Engine Room
- ☐ Understand safety procedures regarding pollution prevention on board

B. Class Project.

Find out more about the bunker sample taking procedure. What do they test the sample for? How is the sample taken? Is the new bunker used before the results from the lab are received? Why is the sulphur content of marine fuels important?

C. Put the vocabulary under the correct heading.

Gritblasting	Parting	Shovel	Sounding	Coating
Spanner	Drip trays	Hammer	Primer	Pliers
Wear / worn	Absorbent booms	Grease	Oil spill	MARPOL sample

Hand tools	***SOPEP kit***	***Ropes/maintenance***	***Painting***	***Bunkering***

D. Look at the following verbs. Make sure you know all of them. Explain what they mean and choose at least one noun from the box to match. There are many possible combinations.

pumping	the temperature	VHF contact	hoses	pumping rate	the EOW
the OOW	the oil record books	the pumpman	a safe working pressure		the spill
oil clearance team	the valves	the tank	the bonding wire		the pilot ladder
absorbent materials	spill control gear	the auxiliary pump	the scuppers		

1. Fill / fill up .....
2. Exceed .....
3. Start / stop .....
4. Check .....
5. Call .....
6. Plug .....
7. Stand by .....
8. Fit .....
9. Maintain .....
10. Instruct .....
11. Connect / disconnect .....
12. Keep .....
13. Inform .....
14. Open / close .....
15. Increase / decrease .....
16. Treat .....
17. Sign .....
18. Operate .....

E. Fill in the correct preposition: [at / in / in / of / off / upon / on / with].

1. To the best _____ my knowledge.
2. Overflow _____ No.2 tank!
3. We have put fenders _____ position.
4. The main engine is _____ stand-by.
5. _____ completion of the bunkering procedure, sign the oil record book.
6. During tank change over and topping _____ it is important to monitor for oil spills on deck.
7. A damaged mooring line can strike those standing by _____ the vicinity.
8. Wire ropes should be dressed _____ an appropriate grease for maintenance.

F. Match the words to their definitions.

contingency / pneumatic / ullage / gritblasting / spill control gear / fender

1. _____: a plastic cylinder, tyre, etc. hung over a ship's side to protect it against impact.
2. _____: the empty space above the liquid contained in a tank.
3. _____: anti-pollution equipment for combating accidental spills of oils or chemicals.
4. _____ Plan: a plan designed to take account of possible future event or circumstance / emergency / incident.
5. _____: method of cleaning a surface by directing to it stone particles with high-pressure air.
6. _____ tools: tools worked by air under pressure.

G. PLANS: What do the abbreviations stand for?

1. SOPEP:S…….OilP……E……. Plan.
2. VRP: V……. R…….. Plan.
3. OPPP: Oil Pollution P…… Plan.

REVIEW 1

Units 1-3

Part One: Consolidation / Expansion

Topics:

1. Incidents
2. Seafarer well-being
3. Fatigue at sea
4. Very serious casualties: lessons learned
5. Occupational hazards: working outboard
6. Security threats

Part Two: Terminology Work

Part Three: Communications / SMCP

Part One: Consolidation / Expansion

1. Incidents

Lead in: Look at the picture. What type of operation is in progress?

A. i. Listen to a news report about a maritime accident and fill in the information below.

TYPE OF INCIDENT:
SEA AREA WHERE INCIDENT HAPPENED:
TYPE OF VESSEL:
CASUALTIES:
LENGTH OF VESSEL:
NUMBER OF PERSONS ON BOARD (passengers and crew):
CAUSE OF INCIDENT:

ii. Listen again. Are the following statements true or false according to the news report?

True or False?

1. ……. There was a blackout.
2. ……. The evacuation was calm.
3. ……. Adequate information was given to the passengers.

B. Listen to another news report on the same maritime accident. Are the following statements true or false, according to the report? Write the correct information where necessary.

	True	*False*	*Correct info*
1. There was a helicopter rescue of a crew member.	☐	☐	…….
2. The rescue took place 27 hours after the accident.	☐	☐	…….
3. The crew member was the Chief Engineer, who was airlifted on a stretcher.	☐	☐	…….
4. He has a broken arm.	☐	☐	…….
5. There is fear of pollution as a result of the accident, but no leak has been identified yet.	☐	☐	…….

2. Seafarer well-being

A. Fill in the missing words in the following text on the ABCs of seafarer well-being[1].

housekeeping	**communication**	**vibration**	**investigation**
identifying hazards	**alcohol**	**living**	**internet**

B. Find the following words in the text. What do they mean? Circle the correct meaning in italics (the appropriate paragraph is provided in brackets).

(A) implementing: *putting into practice / offering*
(B) benefits: *good things / payment made by the state to people entitled to receive it*
(D) good conduct: *good organisation / good behaviour*
(F) detention: *being kept in a place and prevented from leaving / punishment*
(J) instil: *ask for / gradually but firmly establish an idea or attitude in a person's mind*
(L) stamina: *the energy needed to do a tiring activity for a long time / patience*

1. From www.he-alert.org, "The Good Guide to Seafarer Health, Safety and Wellbeing".

3. Fatigue at sea

Lead in:

Do you think fatigue is a factor contributing to maritime accidents? How can you manage fatigue?

Note: For more information on this important issue, you can watch a research video about fatigue in *www.seafarersfatigue.com*

A. Fill in the gaps with the words in the box.

approaching	**fell asleep**	**keeping**	**making assumptions**	**did nothing**

Collision caused by fatigue (very serious casualty)
What happened?

The two vessels collided almost head-on after neither watchkeeper took action to avoid the collision. Vessel 1 sank as a result of the collision and her chief engineer was lost.

Why did it happen?

- The watchkeeper on board vessel 1 …… in the bridge reclining chair.
- Consequently, he did not maintain a look-out and did not see the ……. ship until it was too late.
- The watchkeeper on board vessel 2 assumed that the other ship would take avoiding action so ……. despite the fact that the two ships were approaching each other on an almost reciprocal heading so as to involve a risk of collision.

What can we learn?

- The importance of fatigue both in port and at sea following time in port.
- The importance of ……. a proper and effective look-out.
- The importance of not ……..…… that the other ship in a risk of collision situation will take action to avoid the collision.

B. Read the following extract on fatigue[2]. Five parts have been removed from the text. Choose from the parts A-E the one which fits each gap (1-5).

[A]
Sleep needs to last sufficiently long to include several periods of deep sleep and REM (dream) sleep.

[B]
Hundreds of thousands of sea creatures died. Within two years, the local marine population and fishing industry had all but collapsed.

[C]
However, the same organisational mistakes continue to be made to the present day throughout the industry.

[D]
Automation solves some problems at the expense of creating others. In the case of the unfortunate crew on *Exxon Valdez*, the demands placed on them increased fatigue to the point where it became a serious threat to safety.

[E]
Neither had been given their mandatory six hours off duty before their 12-hour duty began.

2. From The Human Element: A Guide to Human Behaviour in the Shipping Industry, Maritime and Coastal Agency, 2010.

How much of a problem is fatigue?

Before 1989, it had been common knowledge for thousands of years that seafaring and fatigue went hand in hand. Then, on a cold midnight in March, the single hulled *Exxon Valdez* struck Bligh Reef off Alaska. The tanker spilt 11 million US gallons of crude oil into the sea. The slick eventually covered 11 million square miles of ocean (a gallon of crude goes a long way), creating the most devastating man-made environmental sea disaster in history. **[1]** ..... Several residents, including a former mayor, committed suicide and the Alaska Native Corporation went bankrupt. Billions of dollars were paid in damages and fines. The shoreline will not recover until 2020.

At the time of the accident, there were two crew members on the bridge. The Third Mate, then aged 25, was in charge of the wheel house and an Able Seaman was at the helm. **[2]** ..... Amongst its main findings, the US National Transportation Safety Bureau's (NTSB) accident investigators concluded that the Exxon Shipping Company's manning policies *"did not adequately consider the increase in workload caused by reduced manning"*.

The widely-shared belief that fatigue played a significant part in marine incidents had been made official. Yet, despite that unambiguous finding 20 years ago, the issues of reduced manning, increased workload and resulting fatigue have continued to play a major role in many maritime accidents to the present day.

Reduced manning is an organisational policy aimed at increasing efficiency. It is often made possible by the introduction of automation. Increased efficiency usually means a corresponding decrease in thoroughness. **[3]** .....

Fatigue is an inevitable and normal human response to wakeful activity. The onset of fatigue is affected by workload, perceived risk, diet, fitness, the time of day and environmental factors such as light, noise, vibration, temperature and motion.

The only treatment for fatigue is sleep. **[4]** ..... . If not, we build up a 'sleep debt' which causes us to misread situations, overlook key information and fall asleep even when we know it will put us and our colleagues in extreme danger.

Many lessons were learned about the role of fatigue and sleep debt in ship and environmental safety from the 1989 *Exxon Valdez* disaster. **[5]** .....

4. Very serious casualties: lessons learned

Divide in three groups. Each group chooses one of the cases below, fills in the table and presents their findings to class. Be ready to give clarifications if asked by the rest of the class. [Alternatively, you can choose one case and fill in the information individually, present it to class; the others can check the information you present if they have chosen the same case.]

Type of accident	
Casualties (fatality / injury)	
Type of vessel / cargo	
Duty performed (during time of accident)	
Cause of accident	
Special points (extra contributing factors, etc.)	
Main thing to learn (preventive measures, etc.)	

Enclosed space entry causing death and personal injury

What happened?

An ordinary seaman (O/S) and a deck cadet serving on board an about 36,000 gt Panamax bulk carrier lost their lives inside a cargo-hold while undertaking routine cargo temperature measurements at sea. A third crew member, the bosun, seeing the two crew members were in trouble, lost consciousness when attempting to assist them. Shortly afterwards the Chief Officer discovered the three crewmen in the cargo hold and raised the alarm. Members of a rescue party wearing SCBAs recovered the three seamen, but only the bosun survived. The event occurred on a bulk carrier carrying a cargo of coal which was known to be oxygen-depleting and prone to self-heating.

Why did it happen?

1. The cargo-hold was oxygen depleted. Carbon monoxide may also have been present in the air space above the cargo. According to readings taken on arrival in port the oxygen content in the hold was 14.1%. The reason why the first person entered the cargo hold is unknown but it may be that the thermometer to measure the cargo temperature was dropped or became snagged and the seaman went into the hold to retrieve it.
2. The three crew members who entered the space without SCBAs may have done so impulsively and possibly under the assumption that they could survive a brief presence in the cargo space.
3. The fact that the access hatch was open to enable the temperature readings to be taken must be considered a contributing factor.

What can we learn?

1. When dangerous cargoes are loaded that require specific knowledge for the crew, a safety meeting should be held prior to departure, at which all crew should be present, when appropriate advice and instructions should be given. Attendance of each crew member should be acknowledged in writing.
2. The dangers of entering enclosed spaces and the need for responding crewmembers to STOP, LOOK, LISTEN and EVALUATE the situation for existing dangerous conditions before taking emergency actions should be fully explained. Don’t make a bad situation worse by becoming a casualty yourself!
3. When intending to carry oxygen-depleting or noxious gas-producing cargoes that require temperature monitoring, provision should be made in advance to enable this to be done without opening personnel access hatches. Measurement of carbon monoxide levels may provide a faster and safer indication of a cargo self-heating than temperature monitoring. Prior to carrying out operations involving dangerous cargoes, crews must be informed and understand the proper procedures and preventative measures to be taken.

Tanker explosion during tank cleaning

What happened?

While en route to load cargo, two crew members began cleaning the cargo holds of an oil tanker. The tanker had just discharged its cargo of unleaded gasoline. A loud whistling noise was heard immediately before the three instantaneous explosions and fire. The deck between the aft superstructure and the midship cargo maniflold was completely destroyed.

The crew member who was at the tanks being cleaned was killed. The other crew member at the midship cargo manifold was unharmed.

Why did it happen?

1. The explosion was the result of ignition of the accumulated gasoline vapours in the tanks.
2. While it is possible that the source of ignition may have been the result of a malfunction of a cargo pump causing an increase in temperature, it is more likely that it was the result of a build-up of electrostatic charges caused by the cargo pump or washing nozzle.

What can we learn?

Precautions should be taken to minimize or eliminate the generation of static electricity during cargo operations and tank washings. Further, cargo tank atmospheric testing should be carried out prior to performing tank cleaning operations and cargo tanks gas freed and monitored.

Fatality and injury to crew caused by hold cleaning rig

What happened?

The about 76,000 gt bulk carrier was at sea, the crew was cleaning cargo hold residues. The weather was good with light winds.

The crew was working with an unapproved, «home-made» lifting rig comprised of a portable boom with wooden blocks and nylon ropes to pick up cargo residues from the hold.

After several hours of work, the makeshift davit's boom failed due to over-heaving of the hoist rope by the winch and the boom struck two crew members who were attending to it on deck. Due to the tension of the hoist rope, the boom gave way at the welding seam and thus caused serious injuries to the attending crew.

First aid was administered on board. Medical help arrived on board by helicopter about 8 hours later. Fifteen hours after the accident, both the casualties were air-lifted by naval helicopter to a naval hospital.

One of the crew died en route to hospital. The second crew member was successfully treated.

Why did it happen?

1. The gear and rigging used for the purpose of lifting cargo from the cargo hold was fabricated on board and unapproved. This made the job conditions unsafe and prone to accident. In addition, the davit was corroded. The winch operator lost attention momentarily and did not notice the marking on the rope. He overheaved the rope using the winch, resulting in the davit boom breaking from the weld and thus causing the casualty.
2. There was also lack of attention on the part of the crew member giving signals by walkie-talkie to the winch operator, and the signal to stop heaving was not given in a timely manner. A qualified dedicated signal man was not assigned. There was lack of coordination on communication between the signalman at the lifting boom and the winch operator.

   There was poor situational awareness on the part of the crew who were making use of the unsafe lifting gear – not even knowing that they were working in unsafe conditions which could cause an accident. The risks involved in using the unapproved lifting gear were not identified or understood.
3. The lifting gear was not checked for any defects or damage prior to bringing them into use.

5. Occupational hazards: working outboard

A. Fill in the gaps with the words in the box.

illuminated	greases	slippery	rolling

The high percentage of occupational accidents onboard ship is not surprising, given the environment in which those who work aboard ship operate:

- a floating platform that is susceptible to pitching and ……. movements;
- wet and …… deck surfaces;
- cavernous (and often poorly ……..) compartments and tank spaces;
- high masts, funnels and bulkheads;
- moving objects such as cranes, derricks, davits and hatch covers;
- and the presence of a variety of oils and ……..... .

B. Read about the maritime accident and fill in the information in the table below.

Fall from height
What happened? The seaman started work on a catwalk outside the port bridge wing. After a while he fell approximately 24 meters onto the wharf below. He died as a result of the injuries sustained from the fall. He was an experienced seaman who had been inducted in the ship's management system and had done this task many times. ***Why did it happen?*** The harness was not properly attached to the grab rail when the seaman probably lost his footing and fell. The contributing factors to the incident include an inadequate safety harness, the design of the catwalk, an inadequate workplace risk assessment and procedures.

Type of accident: .....
Casualties: .....
Cause of accident: .....
Scene of accident on board: .....

C. The following picture shows two ***methods of working outboard.*** *What is shown by each arrow? Write 1, 2, or 3 in the appropriate box.*

1. Plank where the crewmember is provided with a safety harness, a safety line and is also supposed to wear a life jacket.
2. A specially constructed cage hanging in the ship's crane, where the sailor inside is also provided with an independent safety line to the ship.
3. A watchman on board is overlooking both.

6. Security threats

Read about the main points covered by the ***ISPS code*** and fill in the gaps.

smuggling	**armed**	**fines**	**refugees**	**ray**	**hostage**
hijackings	**collateral**	**seals**	**underway**	**circuit**	**arson**

ISPS: Maritime Security Threats

There are various maritime security threats, like:

- Piracy and _____ attack
- Terrorism
- Contraband _____
- Stoaways and _____
- There are _____ for landing a stowaway to different countries
- Cargo theft
- _____ damage (It can be caused when a nearby fire, explosion or attack to another ship or facility results in damages to your vessel or to the area close to your ship)

There are two types of pirate attack:

- Attack whilst vessel is at anchor

- Attack whilst vessel is _____
- It is usual for the crew to be taken _____ and the Master intimidated for cash.

The most common acts of terrorism are:

- Bombings
- _____
- Kidnappings
- _____ (i.e. set deliberate fire)
- Assassinations
- Hostage taking
- Ambushes

Security Equipment

Locks, _____, closed _____ television, metal detectors, explosive detectors, X- _____ devices.

Part Two: Terminology Work

A. Write up the missing words in the following first aid instructions.

FIRST AID: Burns

Cool the burn down. Pour large amounts of water for at least 10 minutes over the burn. Explain what you're doing to the casualty, r _ _ _ _ _ _ e them and make them comfortable. Remove any clothing around the burned area unless it is directly over the burn or stuck to the s _ _ n. Do not put any c _ _ _ _ s, oils or lotions onto the burn. Loosely cover the burn to protect it from i _ _ _ _ _ _ _ n; do not wrap the wound up t _ _ _ _ _ y, do not encircle the wound with the covering.

FIRST AID: Unconscious but breathing

Place victim on their side to protect their breathing. Do not move the victim if you suspect they've hurt their b _ _ k or neck, unless their breathing is noisy and their mouth is blocked with blood or v _ _ _ t. If you do so try to keep their head in alignment with their neck. When victim is on their side, check for signs of c _ _ _ _ _ _ _ _ _ n, i.e. coughing, movement and normal breathing. Check for a p _ _ _ e at the neck. If the victim is b _ _ _ _ _ _ g, press firmly on the wound. Continue to check that the victim is breathing normally every minute or so. This is the most important thing to remember.

B. Match the body part to the type of protective clothing. Draw arrows.

Feet	safety gloves
Head	safety goggles
Eyes	overalls
Hands	safety boots
Ears	ear defenders
Whole body	hard hat

C. Draw arrows to match the injury to the cause and the prevention.

Injury	*Cause*	*Prevention*
Back strain	Sharp machinery	Wear safety boots
Eye injuries	Wet and oily decks	Wear protective goggles
Hand cuts	Lifting heavy objects	Wear proper gloves
Broken arms and legs	Dust, spark, chemicals	Use hoists to lift properly

D. Write the missing first aid items next to their use.

Aluminium Splint / Aspirin / Triangular Bandage / Absorbent Gauze Compress / Eye Wash Solution / Antiseptic Swabs / Ammonia Inhalant

General Instructions for the Use of the Items in a vessel First-Aid Kit

Item	*Use*
	Adults take 2 tablets every 4 hours as needed for fever, muscle aches, headaches, and general discomfort.
Adhesive Bandage Compress	Apply as dressing over small wound.
	Use as a sling, tourniquet or to retain splints or dressings in place.
	Break one and inhale for faintness or fainting. DO NOT use on suspected heart attack victims.
	Break one and apply to cuts, scratches, etc., to prevent infection. DO NOT use in or around eyes.
	Use to cleanse irritated eye prior to applying eye pad.
Bandage Compress 5 cm (2 in.) and 10 cm (4 in.)	Apply as dressing over wound.
Burn Treatment Compound	Apply to minor burns and sunburn. DO NOT use in eyes.
Eye Dressing Packet	After washing eye, secure eye pad over eye using adhesive strips.
	Apply as dressing over large wound.
Gauze Roller Bandage	Use to secure bandages, splints, etc.
	Use to immobilize broken or fractured bones. Pad with gauze or cloth. Hold in place with roller bandage.

E. Read about the first stage of the bunkering procedure and write up the missing words. The first letter is provided.

The Bunkering Process[3]

The chief officer along with the crew should ensure that the barge is taken a_____ safely and a safe means of access is provided to the barge crew. Once the barge is safely alongside and the bunker man is in the Engine Control Room (ECR), the Chief Engineer and his assistant (say 3rd Engineer) should check important specifications and discuss the following things:

1. The r_____ of filling (not exceeding 300 t/hr)
2. The p_____ on the bunker line (generally not exceeding 3 bars)
3. The sampling procedure
4. Which oil to be taken first (In case of more than one grade of oil is to be taken)
5. Meaning of emergency stop s_____ (to be mutually well understood)

While this is being done, the other bunkering team on the deck is receiving the h_____ and connecting it to ship's flange. This operation is generally carried out with the first engineer (or 2nd/E) along with the fitter (or 5th engineer) actively participating.

F. Fill in the missing words.

notices	**validity**	**ventilated**	**confirmed**	**performing**
approved	**enclosed**	**duration**	**satisfied**	**good**

Permit-to-work

Work to be done _____ _____
Period of (1)…….. of permit _____
Location _____
Person in charge of the work _____
Persons (2)…… the work _____
Responsible officer (*signature*) _____
Date _____ Time _____
Master's signature _____
Date _____ Time _____

Entry into (3) ..... or confined spaces

_____ Space thoroughly (4) ……..
_____ Atmosphere tested and found safe
_____ Rescue and resuscitation equipment available at entrance
_____ Responsible person in attendance at entrance
_____ Communication arrangements made between person at entrance and those entering
_____ Access and illumination adequate

3. Text from www.marineinsight.com

_____ All equipment to be used is of a(n) (5)..... type
_____ When breathing apparatus is to be used:
(1) familiarity of user with apparatus is (6) .....
(2) apparatus has been tested and found to be satisfactory

Machinery or equipment

_____ Removed from service / isolated from sources of power or heat
_____ All relevant personnel informed
_____ Warning (7) ..... displayed

Hot work

_____ Area clear of dangerous material and gas free
_____ Ventilation adequate
_____ Equipment in (8) ..... order
_____ Fire appliances in good order

I am (9) ..... that all precautions have been taken and that safety arrangements will be maintained for the (10) ..... of the work.

Signature of person in charge: _____

G. The Chief Officer is checking with the Bosun if the ratings have completed the following tasks. Use the checklist below to ask about the duties and then answer yes if there is a tick (✓) or no if there is a cross (✕) in the list.

Maintenance check list

- Mop the floor in the messroom ✓
- Scrape the rust off the hatch covers ✓
- Paint the railings ✕
- Wash the deck ✓
- Check the mooring ropes for damage ✓
- Dress the wire ropes with grease ✕
- Crop the worn ends of mooring ropes ✓
- Clean the anchor chain ✕

e.g. *Have they mopped the floor in the messroom?*
Yes, they have.

H. Match to make full sentences.

1. Sound	☐ the tanks
2. Put fenders	☐ the crew
3. Connect	☐ warning signs
4. Decrease	☐ in position
5. Clean up	☐ barge hoses
6. Inform	☐ spill with SOPEP kit
7. Display	☐ precautions
8. Take	☐ pumping rate

I. Put the safety equipment in the correct list.

Oil dispersant	**Antiseptic ointment**	**Name badges**	**Alcohol wipes**
Sealing wire	**Alarm whistle**	**Shovel**	**Assorted gauze**
Sawdust	**Oil absorbent booms**	**Master key system**	**Band-aids**

Oil spill equipment	*ISPS equipment*	*First aid kit contents*

J. Write the verb for the following adjectives.

verb	***adjective***
1.	– absorbent
2.	– dispersant
3.	– abrasive
4.	– worn
5.	– disposable
6.	– approved

Part Three: Communications / SMCP

External VHF communications between vessel and shore station

A. Read the following dialogues and...

i. supply the correct type of distress for each VHF communication.
ii. fill in the missing words.

(Try this exercise first without the help of the box with the missing words; if it is too hard for you, then use the box that follows)

1. _____
   - MV Patience position 20° 32' N 040° 15' W. I am …….. .
   - What part of your vessel is aground?
   - I cannot …… which part is aground. I will jettison cargo to refloat.
   - When do you …….. to refloat?
   - I expect to refloat when draught decreases.

2. _____
   - MV Endurance, position 15° 34' N 061° 20' W. I have collided with unknown vessel.
   - …… damage.
   - I have damage below waterline.
   - What …… of assistance is required?
   - I require tug assistance.

3. _____
   - I have problems with propeller.
   - What problems do you have?
   - I am manoeuvring with …….. .
   - Can you proceed …….. assistance?
   - I try to proceed without assistance.

4. _____
   - I am …….. crude oil in position 15° 35' N 060° 20' W
   - Is there danger of pollution?
   - Yes, danger of pollution.
   - Can you stop spillage?
   - No, I cannot stop spillage.

5. _____
   - I require medical assistance.
   - What kind of assistance is required?
   - I require radio medical ……..…….. and immediate hospital …… . I have two crewmembers seriously injured after fall.
   - Stand by on VHF channel 22. I will …….. for radio medical advice on VHF channel 22. I will send boat to transfer casualties. Boat ETA …….. one hour.

Types of distress: *technical failure / collision / grounding / requesting medical assistance / reporting oil spill*
Missing words: *within / establish / transfer / aground / expect / kind / without / difficulty / spilling / advice / arrange / report*

Onboard Communications

B. OCCUPATIONAL ACCIDENT: The Chief Engineer is talking with the bridge. Write the missing sentences.

- There is an accident in the engine room.
- …….. .
- The number of injured persons is two.
- Provide first aid. What happened?
- Explosion in auxiliary boiler.
- …… and report.
- The dangerous area is secured.
- …….. ?
- Radio medical assistance is required.

C. OIL SPILL: The Chief Officer is talking with the bridge. Fill in the missing verbs.

cleaned up	is spilling	pumping	report	remove

- Leak at manifold connection!
- Stop ……..! Is oil escaping into the sea?
- No, oil ……..…….. on deck.

- How much is spilled?
- Spill about 2 tonnes.
- Has spillage stopped?
- Spillage stopped.
- Stand by oil clearance team and …….. .
- Oil clearance team standing by.
- Treat spill with absorbent materials. All crew assist to …….. the spill.
- Spill …….. with absorbent materials.
- Spill waste contained in buckets.

D. BUNKERING COMMUNICATIONS: The following is an exchange between the vessel and the bunker barge. Put the words in italics in the correct order to make full sentences.

- Are you ready to bunker?
- Yes, I am ready to bunker.

  ……..……
  [have / all / I / safety / prepared / measures]
- Connect barge hoses.
- Barge hoses are connected. What is the pumping pressure?
- The pumping pressure is 3 bars. Start pumping slowly.
- Are you receiving?
- Yes, I am receiving.

  ……..
  [not / a / do / pressure / exceed / of / of / bunker line / 3 bars]
- Pressure steady at 3 bars.
- ……
  [tank / we / reached / 90% of / have / capacity / a]
  Decrease pumping rate.
- I am decreasing pumping rate.
- 300 tones received – stop pumping. Disconnect the barge hoses.
- Barge hoses are disconnected.

E. Write a message marker for the following SMCPs.

1. ..... Containers with hazardous goods adrift at your wake.
2. ..... I require oil clearance assistance.
3. ..... Oil clearance operation in progress inside harbour waters.
4. ..... I intend to alter my course.
5. ..... The visibility is poor.
6. ..... The ship ahead of you is not under command.
7. ..... What is the depth in the outer fairway?
8. ..... The depth in the outer fairway is 20 meters.
9. ..... Reduce speed to five knots.
10. ..... The wind direction is NE force Beaufort 6.

UNIT 4

PLS ADV ASAP

1. *Telex at sea / Maritime communication systems*

2. *Understanding telex messages*
   - *I. Telex abbreviations / format*
   - *II. Producing telex messages*

3. *Requesting and giving advice*
   - *I. Language Awareness: 'should', asking for / offering advice*
   - *II. Request letter, memo, meeting agenda*

Round-up

1. Telex at sea / Maritime communication systems

Lead-in: Useful vocabulary
Write the verb for the following nouns.

Verb	*Noun*
	Transmission
	Receipt / receiver
	Communication
	Verification
	Provider
	Attachment
	Confirmation
	Delivery
	Subscriber / subscription
	Exchange
	Contact
	Coverage

A. ***Read the following two texts[1] and answer the questions.***

- What are the main areas of use for telex today?
- What makes telex special in comparison to fax or email?
- What does the acronym telex mean?

Ocean going vessels are still required to have a telex machine as a safety requirement.

1. What is telex?

Telex or Teleprinter exchange in its full title, is the original form of data transmission, developed during the Second World War and used as a secure and reliable long distance communication.

Unlike fax or email, Telex has full "legal document status" in every country of the world. It carries proof of RECEIPT as well as proof of sending due to its unique ***electronic handshake*** on each message. It remains a reliable communication tool with specific needs in Banking, Aviation and Maritime,

Telex is still common on merchant ships.

"Telex" is an international message-transfer service consisting of a network of teleprinters connected by a system of switched exchanges. Subscribers to a telex service can exchange textual communications and data directly and securely with one another.

1. Info from www.networktelex.com, www.britannica.com

although, it is still widely used in many secure environments including Embassies, Governments, Post Offices and Military organisations worldwide.

The internet today was based on many original telex ***functionalities*** for direct Inter-Country communication, desktop messaging and the Internet Chat type facility is the traditional telex "conversational" call.
Despite its age of service, the trusted and reliable global telex service is a requirement for today's and tomorrow's largest organisations.

2. Why do people still use telex?

For legally secure, ***guaranteed*** transmission, the telex service remains unique, from the transmission of banking «TT» (standing for telex transfer) to Maritime emergency calls, ships in distress, pirate threat to lifeboat launch, it is truly a mission critical communication platform. Billions of Dollars (USD) of financial transactions pass across the telex network every day ensuring its ***longevity*** for many years to come.

3. Is telex secure and reliable?

Security is ***paramount*** and the global traditional telex satellites continue to offer excellent service. Once a telex is sent it is basically ***irrevocable*** once the receiver's telex system has confirmed the receipt of the message. Telex lines carry their own unique ***encryption***, making it relatively impossible to "hack" into a traditional telex line or telex machine. International telex Country codes are also unique and differ from the normal Country telephone / fax codes; this dedicated numbering system is also part of the unique telex topography.

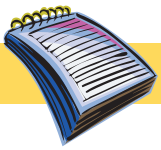
4. Are the latest Maritime vessels fitted with Inmarsat telex receivers?

All major vessels launched today are fitted with the latest telex satellite receivers, code red emergency calls remain a telex priority for the crews and International Maritime Organisation (IMO) ***directives*** remain in place and updated to ensure continual maritime needs are secured. The cost of sending a telex message to a vessel in any Ocean is often far less cost than by fax or maritime email.

Communication is opened by entering the assigned call number of the destination subscriber. This is done via the keyboard on telex terminals or on personal computers connected to the telex network. The destination subscriber responds with a code verifying its identity, and the communication line is opened. The typed message is converted to a low-bit-rate electrical signal, which is transmitted over the network—usually channels leased from the telephone system and routed by switching centres operated by the telex provider. When the message arrives at the destination, it is either printed immediately or stored for subsequent printing or display on a monitor.

Beginning in the 1980s, fax transmission led to a ***decline*** in the use of telex. Telex is still available as a data-transmission service for applications in which high transmission speeds are not necessary or for areas where more modern data equipment may not be available. Owing to the secure transmission lines and the verification protocols exchanged between telex senders and receivers, transmitted telex messages are considered to be ***legally valid*** documents. For this reason the service is still used by many financial institutions. Telex is also still common on merchant ships.

B. ***Complete the glossary with the words in the two texts highlighted in italics.***



Glossary

1. ..... more important than anything else
2. ..... the range of operations that an electronic system can perform
3. ..... provided with a formal assurance that certain conditions (relating to a service, transaction, product) will be fulfilled
4. ..... that cannot be changed or reversed; final
5. ..... converting (information or data) into a code, especially to prevent unauthorised access
6. ..... an exchange of standardized signals between devices in a (computer) network regulating the transfer of data; each telex machine is encoded with an automatic "answerback" code and there is a confirmation convention called "Who Are You" [WRU or ctrl-E] which tells you what machine you are connected to whenever you ask
7. ..... an official instruction (from an authority or organisation)
8. ..... acceptable in a court of law
9. ..... decrease
10. ..... lasting a long time, having a long existence

C. ***Look at the following instructions from a telecommunications company's user guide and fill in the following words.***

CONFIRMATION	ATTACHMENTS	MESSAGE

TO SEND A TELEX TO A VESSEL

FOR EXAMPLE VESSELS TLX NBR 442178821, YOU WOULD TYPE IN THE "TO" FIELD:- TLX.585442178821@xxxx.com AND SEND, ……..…….. CAN NOT BE SENT USING THE TELEX SERVICE, OUR SYSTEMS WILL AUTOMATICALLY SEARCH ALL OCEANS, DELIVER YOUR ……. AND REPLY WITH YOUR FREE DELIVERY …… .

D. ***Read the following information on how to send a telex to vessels at sea[2] and fill in the missing words.***

directory	combination	dialling	fitted

Contacting ships:

If there is an Inmarsat system (1)_____ on board the ship you want to contact, you can phone, fax, telex or email her just like a home or office on shore.
Here are the various ways you can contact a vessel:

2. From www.inmarsat.com

- ***Phone*** or ***fax*** - all ships with FleetBroadband, Fleet 33, 55 and 77, Inmarsat B, M or Mini M.
- ***Telex*** - all ships with Inmarsat B or C.
- ***Email*** - all ships with FleetBroadband, Fleet 33, 55 and 77, Inmarsat B, M, Mini M.

If you need to find the Inmarsat mobile number of the terminal aboard the ship you want to contact, you can search the comprehensive Inmarsat Ships (2)_____.

To phone, fax or telex

To contact an Inmarsat-equipped ship at sea by phone, fax or telex, is as simple as (3)_____ any international telephone number, providing you have the correct (4)_____ of codes.

To contact an Inmarsat terminal by phone, fax or telex, you need to dial:

- The international dialling code, +
- Inmarsat satellite code 870 +
- Inmarsat mobile number

E. *Fill in the words in the following advertisement of a GMDSS A3 Radio Station.*

subscriber	**replay**	**reliable**	**missed**	**tough**

- ***Inmarsat C:***

The Inmarsat Mini C (incl. LRIT) offers fast, (1)……. connections to any fax and data (2)…….. worldwide and/or directly to and from another Inmarsat Mini C unit. It supports all Inmarsat communication modes, including telex, X.25, e-mail, SMS and mobile-to-land fax services. The operation and control is done via the 10.4 inch message terminal / keyboard. Option: SSAS functionality kit.

- ***MF/HF Radio telephone:***

150 W, 250 W or 500 W MF/HF radio telephones for professional communication with voice, DSC and radio-telex (option for 150 W and 250 W) into one unit. The new MF/HF radio can store and (3)…….. incoming calls like the VHF radio up to 240 seconds. They have been designed and developed to cope with demands for reliable

communication equipment under the (4)..... conditions at sea.

- ***VHF Radio telephone:***

  The 6222 VHF DSC is a VHF DSC Class A for the professional maritime market. The VHF can store and replay incoming calls. Safety at sea is increased as a (5)..... message can simply be heard again. Alarm muting button, large tactile buttons and tactile knobs for volume are standard features of the GMDSS A3 Station.

F. *Maritime Communication Systems: Read the following text[3] and...*

i. answer the following questions:

- What type of communication systems are required on board? What set of rules regulate these requirements?
- Do satellites offer worldwide coverage, making the used satellite communication systems possible in all areas worldwide?

ii. fill in the missing phrases.

Communication systems

According to the GMDSS rules mandatory communication systems are installed on board, like:

- VHF short range
- MF/HF in medium and long range
- Sat C long & short range

The above systems are not capable of receiving and/or transmitting data commonly used nowadays (1)..... . An upcoming trend is the use of so called V-sat terminals offering high speed communications comparable with shore based telephone systems. Due to the various satellite providers and the fact that the V-sat beams are not covering most of the oceans, there is still (2)..... in the use of this system.

External communication systems

The required ship-shore communication is related to the selected (3)..... .

- A1 is the area close to shore, within reach of the VHF coastal stations.
- A2 is the next area in size, a greater distance from shore and limited crossings, for instance in the North Sea.
- A3 is worldwide, with the exception of the polar regions, i.e. between 70° North and 70° South. The A-3 area is covered by GMDSS satellites. Ships in "Unrestricted Service" basically means all ships which make long voyages and must fulfill A3 requirements.
- A4 Inmarsat satellites cover only the A-4 area between 70° North and 70° South. The polar regions not covered by satellites require a complete, old fashioned set of radio communication equipment operating independently of the satellites.

Global Maritime Distress and Safety Systems use Inmarsat (International Maritime Satellite), a system supported by many countries. These countries (4)..... and collect dues in proportion to use. The system enables automatic communication and can be interrupted (5)..... . Various communication standards are possible. The system is based on being used by ship's nautical officers, which means that no radio officers are needed on board.

Inmarsat is the pioneer of satellite communication (6)..... . It all started

3. From *Ship Knowledge*, pp. 178-9, 310.

with the introduction of the Inmarsat A system, followed by B, C and F. Now Inmarsat is offering Fleet broadband solutions with worldwide coverage and high speed services. Worldwide coverage is offered (7)..... the polar regions.
Due to the upward trend in providing high speed solutions to the marine industry, the vessels are becoming virtual offices worldwide linked to the main computer (8)..... of the shipping companies.

to the maritime industry	**like the high speed ADSL type ashore**	**operation area**
at the head office	**in case of emergency and distress messages**	**a limitation**
finance the system		**with the exception of**

2. Understanding telex messages

I. Telex abbreviations / format

a) Look at the telex below. Locate the following key information in the telex.

- Which arrow shows ***the message, the date and time, the sign off, the subject***? Write them in the appropriate space.
- Who wrote the telex?
- Where was the telex sent from?
- Which company is the telex for?
- Which person is the telex for?

Recipient telex number and answerback →

My message begins here →

..... →

..... →

End of message →

Sender answerback and telex number →

```
+
338975 SEAT UK
ROME X 219593

ZCZC 28 AUG 2012  10:01UTC

TLX NBR: 2209

FM: M/T ROMEO
TO: SEA TRANSPORT LTD
ATTN: MR PETER ROBERTS

SUB: N.O.R.
M/T ROMEO ARRIVED AND ANCHORED AT
BIGSTONE ANCHORAGE ON 18 JUNE 2012
AT 1300 HRS LT. VSL IN ALL RESPECTS
READY TO DISCHARGE C/GO CO.

BRGDS
MASTER
M/T ROMEO

NNNN

ROME X 219593
338975 SEAT UK
```

← Sender answerback and telex number

← .....

← .....

← Recipient telex and answerback

People who are involved in the maritime business have to learn the art of decoding texts (like documents, telexes, manuals), which convey information in a condensed form. There are no standardized conventions for telex messages but generally we note two points:

1. In telex messages we use many short forms of words (abbreviations or acronyms). Generally, here are some of the conventions used in the making of abbreviations:

• words without endings: CAPT – CAPTAIN	• missing vowels: ABT – ABOUT	• words commonly used: TKS – THANKS
• words written together: DDOCK – DRY DOCK	• documents: C/P – CHARTER PARTY	• maritime terms: VTS – VESSEL TRAFFIC SERVICE

b) Match the full forms to their abbreviations (you can first try to guess the abbreviations yourself, then match with the help of the list given in the box below).

1.	Telex number	18.	Advise
2.	Vessel	19.	Best regards
3.	Pilot station	20.	Destination
4.	With reference to your telex	21.	Automatic identification system
5.	In vicinity of	22.	Approximately
6.	Reference number	23.	As soon as possible
7.	Perishable cargo	24.	Dimensions
8.	Net weight	25.	Discharge
9.	Container	26.	Motor tanker
10.	Captain	27.	Motor vessel
11.	Bulk carrier	28.	Notice of readiness
12.	Documents	29.	For the attention of
13.	For your information	30.	Missing cargo
14.	For your reference	31.	Estimated time of departure
15.	Miscellaneous	32.	Estimated time of arrival
16.	From	33.	Reference
17.	Weather and safe navigation permitting	34.	Port of call

FM MISC. NT.WT. TLX NBR REF BLKCAR APPROX NOR WSNP FYR PS RF.NO. FYI ADV DIMS ASAP M/T ATTN DOCS CAPT MV VSL PER CTNR POC ETD BRGDS AIS DEST DISCH RYT INVOF MSCA ETA

c) What do the following abbreviations / acronyms mean? Try to guess, then use the box below for help.

1. PLS – .....
2. DIST – .....
3. HT – .....
4. MSG – .....
5. NO., NR, NBR – .....
6. NM – .....
7. TKS – .....
8. HR – .....
9. LT – .....
10. ABT – .....
11. DEP – .....
12. CG – .....
13. C/P – .....
14. SRY – .....
15. EST – .....
16. ARR – .....
17. TEMP – .....
18. A/S – .....
19. DEPT – .....
20. AMT – .....
21. FLGW – .....
22. YR – .....
23. OPS – .....
24. RVRT – .....

HOUR	LOCAL TIME	NUMBER	MESSAGE	DISTANCE	OPERATIONS
THANKS	CHARTER PARTY	DEPARTURE	ARRIVE	SORRY	DEPARTMENT
ESTIMATED	AMOUNT	PLEASE	ALONGSIDE	HIGH TIDE	REVERT
FOLLOWING	NAUTICAL MILES	YOUR	TEMPERATURE	ABOUT	COAST GUARD

d) Write the abbreviation yourself.

1. RECEIVED –
2. CERTIFICATE –
3. AROUND –
4. JANUARY –
5. NEW YORK –
6. LONGITUDE –
7. BETWEEN –
8. BILL OF LADING –
9. AVERAGE SPEED –
10. TOMORROW –
11. STARBOARD –
12. BAROMETER –

2. The message in a telex is very short and simple. Not only are ***words*** made shorter by using abbreviations, but also ***sentences*** are made shorter by using only important words. This means that certain types of words are missing.

Message in telex form:	*Full message:*
VSL IN ALL RESPECTS READY TO DISCH C/GO CO ➜	**THE** VESSEL **IS** IN ALL RESPECTS READY TO DISCHARGE **ITS** CARGO **OF** CRUDE OIL

As you can see in the example above, the types of words that are omitted include:

- THE; *articles (the, a, an)*
- ITS; *personal pronouns (I, you…)*
- IS; *verb "to be" (am, is, are)*

e.g. **~~I~~ suspect ~~a~~ serious injury → SUSPECT SERIOUS INJURY**

~~The~~ distance ~~is~~ 30 NM → DIST 30 NM

e) Write these sentences in telex form. Use only important words, short sentences and abbreviations where possible.

1. Thanks, your message has been received.
   .....
2. I will revert with the amount of missing cargo.
   .....
3. I am sorry for the delay. The documents will be delivered as soon as possible.
   .....
4. The ship's estimated time of arrival is at 3 o'clock in the afternoon local time on Saturday 23rd.
   .....
5. We estimate the delivery amount to be 700 tonnes.
   .....
6. Our departure time is at 8 o'clock in the evening.
   .....
7. The estimated distance travelled on Monday the 16th of Nov was 240 nautical miles.
   .....
8. Please advise us of the number of the berth.
   .....
9. There is a problem with the engine.
   .....
10. For your information, the following crew members requested repatriation from the discharging port of Rotterdam.
    .....

f) Turn the following telex messages into full messages.

1. 1 CTNR ON FIRE
   .....
   .....
2. TKS FOR YR TLX TODAY
   .....
   .....
3. ETA ESPERANCE PS 09 AUG 1200 HRS LT WSNP
   .....
   .....
4. FM: OPS DEPT
   .....
   .....

5. SOON WILL RVRT WITH AMT OF PROVISIONS TO BE DELIVERED AT NEXT POC

   .....

   .....

6. PLS SUPPLY FLWG NEW EDITIONS OF CHARTS AND PUBL

   .....

   .....

7. FLWG CREW MEMBER REQUESTED REPATRIATION FM DISPORT PHILADELPHIA WHERE ETA ABT 22 NOV: MAVRIDIS PARIS, CHMATE

   .....

   .....

g) Some possible problems in the transmission and reception of telex messages are marked with the following abbreviations. What do you think they stand for?

1. BUS – busy
2. CI – communication i _ _ _ _ _ _ _ _ e
3. ERR – e _ _ _ r
4. INV – i _ _ _ _ _ d
5. MOM – wait a m _ _ _ _ t
6. OOO – out of o _ _ _ r
7. RPT – r _ _ _ _ t
8. UNK – u _ _ _ _ _ n

II. Producing telex messages

a) The subject of the telex is noted as SUB (SUBJECT) or REF (REFERENCE). What is the subject of each message below? Choose from the following.

ETA, NOR, REPAIRS, NOON POSITION REPORT, ETD

1. **SUB:** ……
   VSL BERTHED DAMPIER 25 JUL NOON.
   ETD 26 JUL EARLY MORN.

2. **SUB:** ……
   MV VENOM ARRIVED AT ROTTERDAM NO.3 ANCHORAGE AND IS IN ALL RESPECTS READY TO DISCHARGE HER CARGO OF COAL 120,800 MT IN ACCORDANCE WITH TERMS, CONDITIONS AND EXCEPTIONS OF THE GOVERNING C/P.
   PLS ADVISE ALL PARTIES CONCERNED ACDGLY.

3. **SUB: ……**
   ETA PHILADELPHIA 09 JUN 16:00 LT.
   PLS ARRANGE TECHNICIANS TO BOARD VSL ON ARRIVAL TO EFFECT BRIDGE CONSOLE REPAIRS.

b) Report each of the previous messages orally in full.

c) Purpose of a telex: What is the purpose of the Master's telex below? Tick accordingly.

The master is

☐ asking for information ☐ asking for advice
☐ giving information ☐ giving advice

```
8947289 DRUM PR
OCEAN T 1248709

ZCZC 18 JAN 2012  08:00 UTC

TLX NBR: 1008

FM: MV OCEAN TRUCE
TO: DRUM SHIPPING, PIRAEUS
ATTN: FOTEINI FOTSI, MEDICAL CARE DPT
CC: DR MOORE

SUB: SERIOUS INJURY

BOSUN BADLY INJURED.
SUSPECT BROKEN LEG. INJURY RECD DURING UNMOORING
OPERATIONS TUES 17 JAN ABT 1200 LT.
BOSUN UNABLE TO MOVE AT ALL AND IN GREAT PAIN.
HAVE GIVEN MEDICATION.
PLS ADV ASAP.

RGDS
MASTER
OCEAN TRUCE

NNNN

OCEAN T 1248709
8947289 DRUM PR
```

d) This is the reply from Dr. Moore to the Master of the Ocean Truce. The doctor wrote his reply as a letter. What advice does he give the master?

The Master, Ocean Truce
18/01/2012

Dear sir,

Thank you for your telex regarding the Bosun which I received today. After careful consideration, I would advise you to alter course for Piraeus as soon as possible.

You should get the injured man ashore as soon as possible. He needs to have an X-ray and be examined by a doctor. In the meantime, I advise you to make the patient comfortable. He must not move. You should use a splint to immobilize the injured leg. You should also continue to give him painkillers until we see him.

I can meet you when the vessel is alongside in Piraeus. I will arrange for an ambulance to meet us for transfer to the nearest hospital.

Please advise the agent in Piraeus to contact me with the estimated time of arrival.

Best regards,
Dr. Moore

e) Change the doctor's letter into a telex. Make all the necessary changes (use abbreviations, omit words you think are not needed, etc.).

FM: ……
TO: ……

SUB: ……

……
DR. MOORE

f) What is the purpose of each of the following telex messages? What does each message do? Circle the correct choice (sometimes more than one is applicable).

1. PLS MEET SURVEYOR AT AIRPORT
   a. gives information *b. gives an instruction* *c. asks for information*

2. I HAVE CONFIRMED AGENTS WILL MEET SURVEYOR AT AIRPORT
   a. gives information *b. gives an instruction* *c. gives advice*

3. AGENTS WILL CONTACT YOU SHORTLY
   a. gives information *b. gives an instruction* *c. asks for information*

4. SUPERINTENDENT WILL ARRIVE ON MONDAY. ESSENTIAL YOU WAIT FOR SUPERINTENDENT AT SINGAPORE
   a. gives information *b. gives an instruction* *c. asks for advice*

5. WE RECEIVED CONSUMABLES MONDAY TKS
   a. gives information *b. gives advice* *c. makes a request*

6. PLS ARRANGE FOR PILOT
   a. gives information *b. gives advice* *c. makes a request*

7. MOST URGENT I RECEIVE YR REPORT TMR 17:00 UTC LATEST
   a. gives an instruction *b. gives advice* *c. asks for advice*

8. SHOULD GET BOSUN ASHORE
   a. gives information *b. gives advice* *c. asks for advice*

9. PLS ARRANGE DELIVERY OF STORES AND PROVISIONS
   a. gives an instruction *b. gives information* *c. asks for information*

10. REQUIRE ON ARRIVAL SOUTHAMPTON SURVEYOR OF CLASS TO CARRY OUT ANNUAL SURVEY OF CARGO GEAR. ETA SOUTHAMPTON 18 MAR 14:00 LT WSNP.
    a. gives information *b. makes a request* *c. asks for advice*

11. PLS KINDLY ADVISE THE AREA LIMITS BEYOND WHICH WE ARE NOT ALLOWED TO PUMP OUT ANY BALLAST
    a. asks for advice *b. gives advice* *c. gives an instruction*

12. MR D. GEORGIOU, 2ND ENGR, IS SUFFERING FROM FOOD POISONING WHICH TOOK PLACE ASHORE. PLS ADV ASAP
    a. asks for advice *b. gives information* *c. asks for information*

13. PLS REVERT WITH YOUR BUNKER REQUIREMENTS IN MANILA BASIS BUNKERING TO SAFELY REACH AUSTRALIA WITHOUT BUNKERING
    a. gives information *b. asks for information* *c. gives advice*

14. TURBOCHARGER DAMAGE. REQUIRE TECHNICIANS TO DISMANTLE TURBOCHARGER AND INSPECT
    a. gives information *b. makes a request* *c. asks for advice*

15. SHOULD ARRANGE FOR DOCS TO BE DELIVERED BY COURIER
    a. gives information *b. asks for information* *c. gives advice*

g) Put the following parts of the telex in their correct place. Write one in each box.

6783543 NSRA UK CRON X 098908

RGDS
NNNN CRON X 098908 6783543 NSRA UK

- TLX NR: 986
- TO: MANAGERS
- ATTN: MR. SMITH
- MASTER
- ~~RGDS~~
- FM: M/V CRONE
- CC: OPERATIONS DEPT
- SUB: FIRE AND EXPLOSION
- ZCZC 09-08-2012 11:01 UTC
- FIRE AND EXPLOSION FORECASTLE PAINT STOREROOM. LOST FORECASTLE WATERTIGHT DOOR STRBD SIDE. FIRE NOW EXTINGUISHED. PAINT LOST AT SEA. TWO NON SERIOUS INJURED. VESSEL SEAWORTHY. NO FURTHER ASSISTANCE REQUIRED.

h) The following telex is the answer from the managers. What do the managers want?

```
FM: MANAGERS
TO: MASTER M/V CRONE

RYT REGARDING FIRE AND EXPLOSION IN PAINT STORE ROOM PLS
ADV:
A/ CAUSE OF INCIDENT AND DETAILS ABT THE INJURIES
B/ FIRE EXTINGUISHER CHARGES TO BE REPLACED
C/ DETAILS REGARDING THE PAINT LOSS

RGDS
MR. SMITH
```

The following telex is the answer sent by the Master:

```
FM: M/V CRONE
TO: MANAGERS

INCIDENT CAUSED BY NON REPAIRED FLAME PROOF LIGHT
FOR TWO INJURED (A/B IVAN AND FITTER ILLYA) GIVEN MEDICAL ASSISTANCE, CONDITION GOOD. VESSEL SEAWORTHY. PROCEED TO ANTWERP FOR DISCHARGING.
3 CO2 CHARGES REQUIRED
EST LOSS AT SEA 320 LITRES OF PAINT. OUTFLOW NOW STOPPED.
COASTAL AUTHORITIES HAVE BEEN NOTIFIED.

BRGDS
MASTER
```

i) Write the Master's answer in a letter.

Dear Mr Smith,

In reply to your telex where you asked for details about the fire incident in the paint store room, I would like to inform you of the following: .....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Note: Here are some connecting phrases to help you with your letter:

Furthermore, ... / As regards... (in reference to..., in relation to...) / I would also like to note/stress that... / In connection to...

j) TELEX

Today, the vessel JASON is in position approximately 2 nautical miles north-east of Buoy B4, in the Dubai Fairway. One A/B, named Tabuno Tani, has cut his hand with the electric chipping hammer and has severe bleeding. Send a telex, on behalf of the Master, Captain John Landis, to the local agent (for the attention of Mr Tracy), and ask for assistance. Decide on the kind of assistance you will require and mention it in your telex. Also, mention your estimated time of arrival in Dubai.

3. Requesting and giving advice

A. Study the following VHF communication between a VTS Radio Station and a vessel and complete the missing words. Then practise saying the dialogue in pairs.

intention / permission / advice / closed / use / information

Vessel	*VTS Station*
REQUEST. Do I have ..... to enter the roadstead?	
	..... Route from roadstead to entrance of fairway suspended. Navigation ..... in the outer traffic lane.

QUESTION. What do you advise?	
	ADVICE. Advise you ……... the inshore traffic lane.
……. I will enter the inner fairway.	
	…….. Keep a track parallel with reference line.

B. ***Note the use of "the" in the dialogue. Are there any places in the dialogue where we could use "the" and it is omitted?***

Note: Remember, sometimes we omit "the" in the SMCPs.
e.g. I cannot control ~~the~~ flooding. I have problems with ~~the~~ engines.

I. Language Awareness: 'should', asking for / offering advice

Asking for / offering advice

PLS ADV ASAP: Please advise as soon as possible.

to *advise* is to offer advice, to counsel.
advise (verb): *Can you advise me please?* / advi**c**e (noun): *I need some advice*.

When you speak you can **ask for** advice in the following ways:
- What should I do?
- What do you think I should do?
- Can you advise me please?
- What do you suggest?
- What do you recommend?

Here are some ways you can **offer** advice:
- You should apply a splint to the injured leg.
- I think you should check the pressure.
- I would advise you to alter course.
- I suggest that you send him ashore.
- I recommend that you give him painkillers.

a) Write an answer offering advice. Use the words in brackets.

1. My stomach hurts, what do you think I should do?
……. (take some medicine)
2. Which tool should I use?
……. (use the spanner)
3. What route do you suggest?
……. (take the canal route)

4. Can you advise me on the best approach?
..... (approach from the southwest)

b) Listen to the following phrases and note how the stress falls on certain words. Repeat the sentences yourself.

▲ ▲ ▲ ▲ ▲ ▲ ▲
My stomach hurts, what do you think I should do? I think you should take some medicine.

▲ ▲ ▲ ▲
Which tool should I use? You should use the spanner.

Sentence stress: function words and content words

Content words give us the contents of our story; we want our listener to quickly grasp the main content of our story, so we make the content words easier to hear by bringing attention to them with added stress. ***Function words*** are the words we use to make our sentences grammatically correct. Generally we stress content words (we say them louder or longer) and function words remain unstressed in the background, since they don't give us the main information.

Function words: Prepositions (*at, in, of…*), pronouns (*he, they…*), determiners (*the, a, my…*), conjunctions (*and, or…*), auxiliary verbs (*is, are, do…*), modal verbs (*should…*)

Content words: nouns, adjectives, main verbs, adverbs

c) Look at the questions and answers below. Complete each conversation using the phrases for asking for and giving advice in the table on page 147.

3rd Engineer:	➜ ***Chief Engineer:***
There isn't enough pressure in the fuel line. Can ……., Chief?	I would ……. check the line for leaks.
What ……., Chief? The auxiliary generator isn't running smoothly.	You should ask the electrician to check it.

Deck cadet:	➜ ***Chief Officer:***
I don't know how to print out the telex messages. What do you think I should do?	Well, I .... look at the manual.
The Bosun told me to clean the old paint, but I don't know which tool to use. What ……?	I suggest you use the abrasive brush.

d) Read these situations and write your advice.

I strained my back yesterday and it hurts when I make certain movements. I have to go to work. What do you think I should do?	➜ I …..

Help! The Assistant Cook is lying on the galley floor! The air smells of smoke! What should I do?	➔ You…..
Careful! There's oil and grease on the floor of the engine room! What do you suggest?	➔ I …...
Captain, this is the bridge. The approaching vessel is asking us to alter course. What do you recommend?	➔ I …...

You can use 'should' to give advice or give an opinion.
- You should ask a lawyer.
- They should do something about the piracy attacks in the Gulf of Aden.

We often use 'should' with **I think / I don't think / Do you think…?**
- Do you think we should fax the company with the details?
- Do you think I should apply for this job? Yes, I think you should.
- I don't think you should work so hard.

Note: 'should' expresses a personal opinion or a recommendation, and is much weaker and more personal than 'must' or 'have to'.

e) Match each sentence with the appropriate advice.

1. I feel overworked.	☐ You shouldn't sleep so late.
2. I feel so sleepy in the morning, I find it hard to wake up.	☐ I think she should sign off now.
3. She's been on board for 7 months. She's completed her service.	☐ You should take some time off.
4. There are too many homeless people in the streets.	☐ I think the government should do more to help homeless people.
5. My salary is very low.	☐ I think you should look for another job.
6. I hate smoking, especially in restaurants.	☐ I think they should resign.
7. The government has made too many mistakes.	☐ I think they should ban smoking in restaurants.

f) In pairs, tell your problem and offer some good advice. What is the best advice for each problem?

Student A: I have (a)…	*Student B:* You should…
headache	take some medicine
stomachache	take some rest
backache	call the doctor
temperature	wash and put on a band-aid
runny nose	take some aspirin
cut	have some tea with honey and raki

g) Complete the sentences. Use should *and one of these verbs.*

get married – subscribe – speak – go – look for

1. You look tired. You …… to bed.
2. It's a great magazine. You …… to it.
3. That hotel is too expensive. We …… another one.
4. They're too young. I don't think they …… .
5. There shouldn't be a misunderstanding between you two. You ……..…… with him about it.

h) Make sentences with shouldn't …. so ….

1. (you smoke too much) You shouldn't smoke so much.
2. (you work too hard) You .....
3. (he eats too much) He .....
4. (she plays PC games too often) She .....
5. (you talk too much) You .....

i) You ask a colleague for advice. Write questions with Do you think I should…?

1. (get a new job?) Do you think .....?
2. (do an English course?) .....?
3. (take an English exam?) .....?
4. (inform the port authorities?) .....?
5. (ask for a raise?).....?

j) What do you think? Use "should" and tell us your personal opinion about….

- the merchant marine academy you are studying at
- maritime education in Greece

I think (the Ministry, the teachers, the shipping companies, etc.) should……..

II. Request letter, memo, meeting agenda

a) Listen to some advice on how to create a meeting agenda / letter of request / memo (memorandum) *and match the tips to each type of text.*

A.	B.	C.
• don't use a complimentary close • don't sign at the bottom • use headings, bullets or numbered lists so key points stand out and the document is easy to read	• tell the recipient why you are writing • explain what it is you want the reader to do • list your contact information • don't forget to identify any attachments • thank the person for their assistance	• include start / end time • include location • list topic headings • give the time each topic is expected to last • list which participants are expected to introduce each topic

b) Read the following three texts and check if they meet the standards mentioned above. Do they follow the tips? Use the list of tips and check ☑ each tip that is followed.

1.

25/07/2012
Dear Mr. Smith

Re: Request for an Interview

My name is ALKIS GEORGIOU and I am writing to request for an interview to discuss available positions in your company.

I am a graduate of AEN Syrou and I have 24 months of experience as a Second Officer. I am currently looking for new employment opportunities and I would like to have the chance to explore the possibility of serving in your company.

I will contact you by phone next week to set up a convenient time when I can discuss my request. If you have any questions or would like more information please feel free to contact me. I can be reached by e-mail at ageorgiou@xxx.com or by phone at 7000777700.

Attached you will find my c.v.
Thank you for taking the time to consider my request, and I will be in touch with you soon.

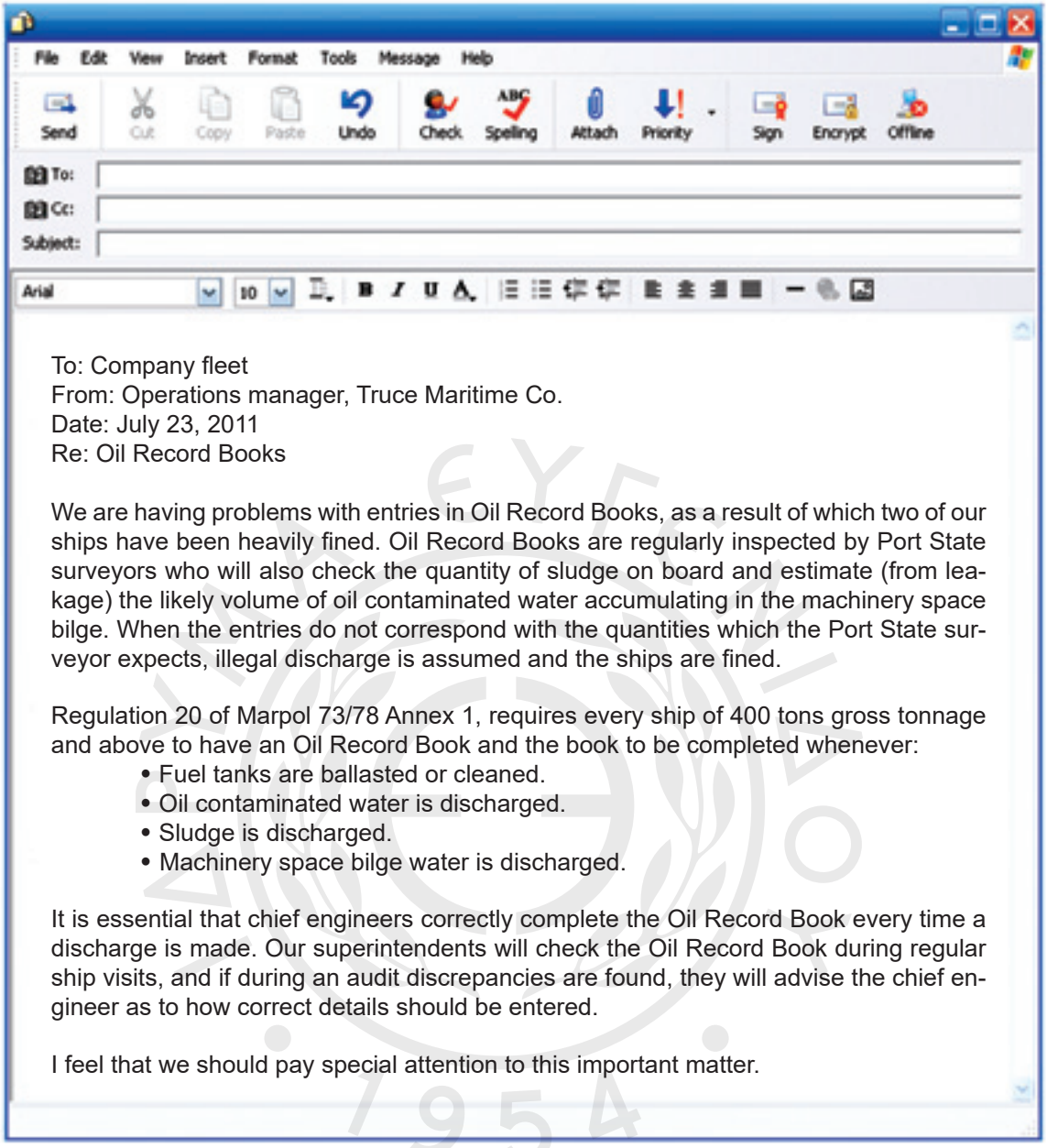
2.

MV Lucia
Safety meeting agenda
28 Aug 2012
Start at 17:10 in Ship's Office

Item	**Responsible**	**Time**
Debriefing: ABANDON SHIP DRILL Discussion: PERSONAL SURVIVAL TECHNIQUES Show Videotapes: LIFERAFTS	C/O	30 min
Discussion: ISPS regulations Show video: SECURITY TRAINING	2nd /O	20 min

End at 18:00

3.



To: Company fleet
From: Operations manager, Truce Maritime Co.
Date: July 23, 2011
Re: Oil Record Books

We are having problems with entries in Oil Record Books, as a result of which two of our ships have been heavily fined. Oil Record Books are regularly inspected by Port State surveyors who will also check the quantity of sludge on board and estimate (from leakage) the likely volume of oil contaminated water accumulating in the machinery space bilge. When the entries do not correspond with the quantities which the Port State surveyor expects, illegal discharge is assumed and the ships are fined.

Regulation 20 of Marpol 73/78 Annex 1, requires every ship of 400 tons gross tonnage and above to have an Oil Record Book and the book to be completed whenever:

- Fuel tanks are ballasted or cleaned.
- Oil contaminated water is discharged.
- Sludge is discharged.
- Machinery space bilge water is discharged.

It is essential that chief engineers correctly complete the Oil Record Book every time a discharge is made. Our superintendents will check the Oil Record Book during regular ship visits, and if during an audit discrepancies are found, they will advise the chief engineer as to how correct details should be entered.

I feel that we should pay special attention to this important matter.

Glossary

to fine	to make somebody pay money as an official punishment
likely	probable or expected
to accumulate	to gradually increase in number or quantity over a period of time – build up
to correspond with	to be the same, or match something
audit	an official examination of the quality or standard of something
discrepancy	a difference between two (or more) things that should be the same

c) Fill in the gaps with words from the glossary.

1. There is a(n) …… between my figures and yours. We should check again.
2. What do you think the …… outcome of the managers' meeting will be?
3. Debts began to …… after I lost my job.
4. The company was …… $20,000 for breaching safety regulations.

d) Study the memo and give some advice on completing the Oil Record Book. Use "should" and other ways of offering advice.

e.g. You should make an entry whenever…..

Audit – Survey – Inspection

Note the following ways in which we use these words in the maritime industry:

- Port State Control Inspection
- Marine / Ship Surveyor
- ISM Audit
- Classification Society Survey

Port State Control carries out regular *inspections*, official visits to vessels to check that standards are acceptable.

An ISM *audit* examines how shipping companies manage their safety through implementation procedures.

A classification society *survey* is carried out to make sure that ships are built and maintained according to the standards required for their class. A survey generally examines the condition of something, for instance, a *Pre-Charter Survey* is carried out by a private company to document the exact condition of a vessel, its machinery and equipment at the time it is taken on charter.

What is an audit?[4]

Auditors look at management processes and their effectiveness, both on board vessels and in offices. An audit therefore differs from a classification survey, which looks at the technical aspects of a ship's hull and associated equipment.

Some audit processes widely used in the maritime industry: all ships need an ISM audit (safety); all ships need an ISPS audit (security), shipping companies opt to achieve ISO 9000 (quality) and ISO 14000 (environmental) certification.

An important point to note is that an audit is not an inspection; it does not look at specific items of equipment but asks how ships and shipping companies manage their quality, safety, environmental and security business through implementation procedures.

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ ☐ Understand and use telex abbreviations
- ☐ ☐ Ask for and offer advice, in writing and in speech
- ☐ ☐ Turn abbreviated telex messages to full messages
- ☐ ☐ Turn full messages to telex form

4. From www.tankoperators.com

B. Class Project.

- Find out more about the history of ***telex*** (how it started, what purposes it served, etc.) and present to class.
- Find out more about the type of ***marine surveyors*** that exist, their tasks, their status, etc. and present to class.
- Find out more about ***Inmarsat*** and any new or possible future developments in the field of satellite communication for merchant vessels and present to class.

C. Match the words to their definitions.

directory – telex – dues – directive – aviation – trend

1. _____ : an official or authoritative instruction
2. _____ : teleprinter exchange
3. _____ : flying, operating aircraft
4. _____ : general direction in which a situation is changing or developing
5. _____ : charges
6. _____ : a book containing lists of information, in alphabetical order, e.g. telephone numbers

D. Match the words to form correct collocations.

1. Incoming	~~positions~~
2. Transmission	speed
3. Financial	transaction
4. Available …… positions	opportunities
5. Employment	discharge
6. Legally	inspector
7. Bilge water	valid
8. Port state control	call

E. Match the verbs to the nouns. Draw arrows.

to pay	a request
to fine	your dues
to make	an inspection
to have	someone for overspeeding
to carry out	the chance
to install	a communication system

F. Fill in the gaps with the following words.

cope with / audit / accumulates / worldwide / surveyor / suspended / revert / consideration

1. Dust soon _____ if a house is not cleaned regularly.
2. We require a _____ of class to make the annual survey.
3. I will _____ with the information you requested soon.
4. Our courier company offers _____ coverage.
5. After careful _____, I would advise you to make an insurance claim.
6. The route to the island is _____ until further notice.
7. The _____ will look at how the company implements international safety management regulations.
8. People sometimes find it hard to _____ the demands of modern life and show signs of depression.

UNIT 5

I read you good

1. *Accidents and radiotelephone communication at sea*

2. *IMO guidelines on the use of VHF at sea*

3. *VHF communication procedures: format and protocols*

4. *GMDSS and DSC*

5. *Reporting communications*
   - *I. Routine traffic*
   - *II. Language Awareness: Reported Speech*
   - *III. Language Awareness: "say" & "tell"*
   - *IV. Language Awareness: Past Continuous*
   - *V. What was happening at the time of the accident?*

Round-up

1. Accidents and radiotelephone communication at sea

A. *Read the two extracts below. What is the point they both demonstrate? Choose one of the following.*

a) The importance of adequate VHF communication between Pilot on board and VTS for avoiding collision accidents.
b) The importance of proper knowledge and use of the VHF communications procedure in an emergency.
c) The importance of using radiocommunications effectively for alerting SAR authorities and ships in the vicinity to a distress incident with the minimum of delay.

Faulty communications lead to disaster on the Mississippi.

In conditions of thick fog, a supply vessel tried to make contact with a container vessel on channel 67* to avoid collision, but the pilot on board the container vessel (who was using only his handheld radio to monitor all relevant transmissions) missed the calls. The supply vessel failed to switch to channel 16.

The small vessel could not make contact with the pilot on board the larger vessel until it was too late. Its crew of five was lost as a result of the collision. The supply vessel was sold for scrap. The accident halted traffic for five days, five cruise ships were trapped, causing the most serious disruption to shipping on the Mississippi.

Had the supply vessel's operator switched to channel 16 – the one used for emergency distress calls – when in such a close-quarters situation, someone else aboard the larger vessel would likely have heard his transmissions and taken action to avert the collision.

Pertinent Rule: The Master or person in charge to pilot the vessel must maintain a listening watch on the designated frequencies.

(from USCG Lessons Learned from Casualty Investigations, Spring 2011)

Note: In US waters, channel 67 is used for monitoring river traffic, channel 16 is for emergency distress calls and channel 9 is for pilot communications.

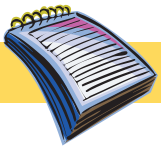
Crewmember lost in man overboard situation.

Poor use of emergency communications delayed the provision of assistance from the Coastguard. The Master did not transmit a "Mayday" call activating the DSC distress function, or using Channel 16 to discuss the man overboard situation, and so significantly reduced the possibility of early assistance from the coastguard and other shipping in the area.

(*from MAIB Accident Report, September 2011*)

B. *The following useful phrases come from the texts above. Match the words below to recreate them, then underline the phrases in the text to see if you are right.*

1. make contact	radio
2. handheld	with… (vessel) on… (channel)
3. miss	distress function
4. switch to	a call
5. designated	another channel
6. keep / maintain	radio traffic / transmissions
7. monitor	VHF frequency
8. activate the DSC	a listening watch



Glossary

close quarters	very near, a situation of being very close to something / someone
avert	prevent something bad or dangerous from happening
pertinent	relevant or appropriate to a particular situation
provision	the act of supplying somebody with something that they need or want

C. ***Fill in the gaps with the words in the glossary above.***

1. Talks are taking place in an attempt to _____ a strike.
2. Please keep your comments _____ to the topic under discussion.
3. The government is responsible for the _____ of health care.
4. A _____ situation occurred early this morning in the south-west bound lane of the Dover Strait traffic separation scheme.

D. ***The "Estonia" disaster (1994) demonstrates how communication problems (both on-board and external communication problems) can make an emergency situation become critical. Read about the case in the following text and answer the questions orally.***

1. How many nationalities were there on board?
2. What language was used to inform the passengers of the situation?
3. What was the problem with the VHF distress call? Why wasn't it effective?
4. Did the officer on the Estonia give the vessel's exact position?
5. How long did it take before salvage assistance arrived at the scene?

"Estonia, are you… calling MAYDAY?"

The sinking of the cruise ferry MS Estonia in the Baltic Sea in 1994 claimed 852 lives and was one of the deadliest maritime disasters in the late 20th century.

The Estonia disaster occurred on September 28 ,1994, between about 00:55 to 01:50 (UTC+2) as the ship was crossing the Baltic Sea, en route from Tallinn, Estonia, to Stockholm, Sweden. She was carrying 989 passengers and crew.

According to the final disaster report the weather was rough, with a wind of force 7–8 on the Beaufort scale and a significant wave height of 3 to 4 meters. The captain of MS Silja Europa who was appointed on scene commander for the subsequent rescue effort, described the weather as «normally bad», or like a typical autumn storm in the Baltic Sea. All scheduled passenger ferries were at sea.

The official report says that while the exact speed at the time of the accident is not known, Estonia had very regular voyage times, averaging 16–17 knots, perhaps implying she did not slow down for adverse conditions. The chief mate of the Viking Line cruise ferry MS Mariella tracked Estonia's speed by radar at approximately 14.2 knots before the first signs of distress, while the Silja Europa's officers estimated her speed at 14–15 knots at midnight.

The first sign of trouble onboard the Estonia was a strange sound of metal against metal heard around 01:00, when the ship was on the outskirts of the Turku archipelago; but an investigation of the bow visor showed no obvious damage. At about 01:15, the visor separated and the ship took on a heavy starboard list.

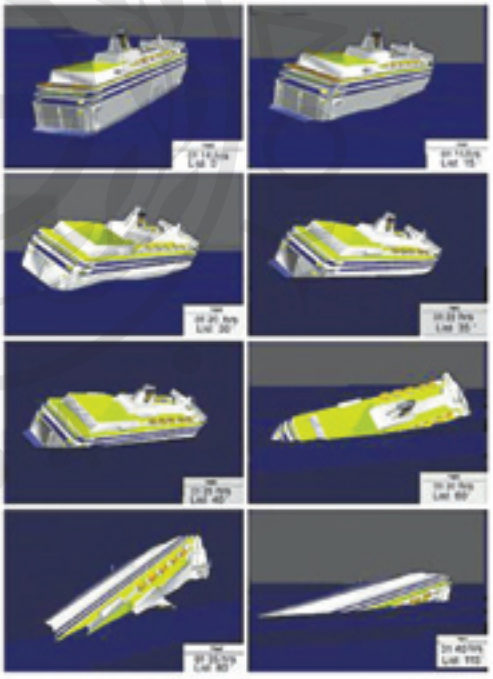
At about 01:20 a weak female voice called «*Häire, häire, laeval on häire*», the Estonian words for "Alarm, alarm, there is alarm on the ship", over the public address system. Just a moment later an internal alarm for the crew was transmitted over the public address system. Soon after this the general lifeboat alarm was given. Soon the vessel lurched some 30 to 40 degrees to starboard, making it practically impossible to move about safely inside the ship. Doors and hallways became deadly pits.

Those who were going to survive were already on deck by then. A Mayday was communicated by the ship's crew at 01:22, but did not follow international formats. Due to loss of power, the vessel could not give her position, which delayed rescue operations somewhat. The ship disappeared from the radar screens of other ships at around 01:50. Mariella arrived at the scene of the accident at 02:12; the first rescue helicopter arrived at 03:05. The vessel capsized and the wreck is now 22 nm from Uto island, Finland, at about 80 meters of water.

Out of a total of 989 passengers and crew on board, 137 were saved. The accident claimed 852 lives (501 Swedes, 280 Estonians, 23 Latvians, 10 Finns and 19 people of other nationalities), by drowning and hypothermia, (the water temperature was 10–11° C). 92 bodies were recovered.

After the Estonia disaster in 1994, the IMO codified English as the official language of seafarers in 1995 and adopted the Standard Marine Communication Phrases (SMCP) as a standardized code in 2001. The GMDSS was made a requirement in 1999, featuring DSC.

Bow visor of a ferry



Listing and capsizing of the Estonia

E. ***Match the words below to make collocations found in the text. Draw arrows.***

adverse	report
loss	(weather/sea) conditions
official	claimed many lives
appoint	of power
the disaster	an on-scene commander

F. ***Match the synonyms of the following words found in the text.***

1. hallway	☐ to some degree
2. pit	☐ the outer parts
3. somewhat	☐ corridor
4. outskirts	☐ make a sudden, unsteady movement forward or sideways, sway
5. lurch	☐ large deep hole

G. ***Listen to the actual Mayday call sent from Estonia. In what ways does it fail to follow international formats? Listen carefully and circle YES or NO for the following statements.***

YES	NO	The Mayday call is addressed to a particular ship only (Silja Europa).
YES	NO	The officer addresses and identifies several times to make contact.
YES	NO	The Mayday call contains the ship's call sign.
YES	NO	The Mayday call contains the ship's position.
YES	NO	The Mayday call contains the nature of distress.
YES	NO	The Mayday call contains the assistance required.
YES	NO	The officer cannot make the communication in English and reverts to another language.

H. ***(i) Why is it important to follow international conventions in sending VHF messages, especially distress messages? (ii) Have you used the equipment shown in the following two pictures? Where can you find it on board?***

VHF set and DSC on top

Handheld / portable marine VHF radio

2. IMO guidelines on the use of VHF at sea

Lead-in: VHF marine messages.

a) QUIZ: Check what you know. Choose the correct alternative of the options in italics.

1. To *address / identify* means to call the other ship's name.
2. You want to ask how well the other party is receiving you, what do you say?
   a. "How do you read me?"
   b. "How do you hear me?"
3. If you hear the following message: "I read you poor, with signal strength two", this means that the receiving station can hear your message:
   a. Well (it's a good signal).
   b. Not very well (it's a weak signal).
4. You hear the following message: "Advise you change to VHF channel 16." What does it mean?
   a. The other vessel is standing by on VHF channel 16.
   b. The other vessel recommends changing to VHF channel 16.
5. You hear the following message: "Say again"; this means:
   a. They will repeat their message.
   b. Your own message is not properly heard. They want you to repeat it.
6. When you think your message is very important and you need to make sure it is heard properly, you say: *"Repeat / Go again"* and you say your message again.
7. You made a mistake in your message, what can you say to correct it?
   a. Wrong. Right:…
   b. Mistake. Correction:…
8. My transmission has ended and I expect a response from you (turn-giving signal):
   OVER / STANDING BY
9. The following word is spoken three times at the beginning of a safety call:
   SECURITE / SAFETY

b) Check what you know. True or False?

1. …… A distress alert is sent by DSC and a distress call is made by radiotelephony (voice) starting with a distress signal MAYDAY.
2. …… The priority of messages is in the following order: *1. Urgency, 2. Distress, 3. Safety*
3. …… *"Stand by on VHF channel 12"* means I am asking you to remain on VHF channel 12 and wait for my reply.
4. …… DSC is transmitted and received on Channel 16.
5. …… You hear *"Message not understood"*. This means your message is not received properly.
6. …… *"This is …"* is used to identify a station, it means "I am calling from…"
7. …… I am terminating my transmission, the conversation is ended and no response is expected – *OUT*
8. …… Advise the calling station to proceed with the message – *GO AHEAD*

IMO GUIDELINES ON THE USE OF VHF AT SEA: Do the exercises below to have the completed guidelines that must be followed.

A. *KEYWORDS: Pick at least one and try to explain it to class.*

acknowledge receipt	**working channel**	**distress call/message**
continuous watch	**digital selective calling**	

B. *What channel is used in each of the following cases? Match.*

Channel 16	**A channel indicated by the coast station**	**Channel 13**

1. ..... is used for bridge-to-bridge communications.
2. ..... is used for distress, urgency and brief safety communications.
3. ..... is used for communication with a coast station.

C. *Match the two halves to form correct guidelines.*

1. Do not transmit…	☐ and pass it on to the Master.
2. Stop all other transmissions and keep a listening watch…	☐ and also on VHF channel 16; it is required under SOLAS 1974, as amended (Chapter IV, Radiocommunications).
3. Record any distress call/message in the ship's log…	☐ without correct identification (always identify your vessel, using "THIS IS").
4. Use the SMCP…	☐ of a distress message if you are in the vicinity.
5. Keep a continuous listening watch on VHF DSC channel 70…	☐ if you receive distress calls/messages; they have absolute priority over all other communications.
6. Immediately acknowledge receipt…	☐ whenever possible to resolve any language problems.

D. *Fill in the words or phrases in the following instructions / guidelines.*

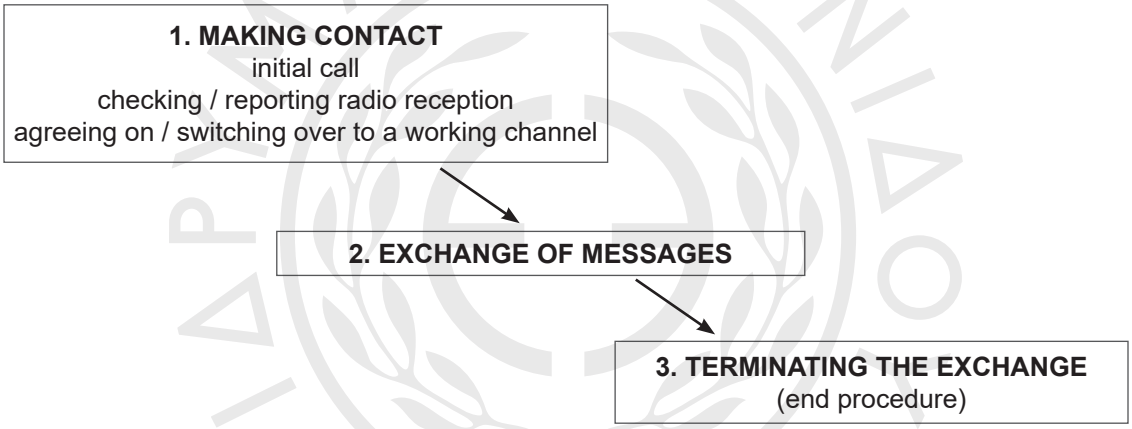
"all ships"	**"I will use the IMO SMCP"**	**"received, understood"**	**"out"**	**"this is"**
"received"	**"change to channel …"**	**"message not understood"**	**"over"**	**"say again"**

1. The word ..... indicates the end of a communication.
2. The word ..... invites a reply during the exchange of messages.
3. Say ..... if it is necessary to change to a different channel. Wait for acknowledgement before carrying out the change.
4. Say ..... if a message is received but not understood.
5. Say ..... to ask for a message to be repeated; the message is not properly received and you want it to be repeated.

6. Say …… when there are language difficulties and try to resolve them by use of the standard phrases.
7. Say …… where a message is received and acknowledgement of the correct message is required.
8. Say …… where a message is received and only acknowledgement of receipt is needed.
9. Address your call to …… when you are communicating with a ship whose name is unknown but its position is known.
10. You are calling a coast radio station or another ship; say the name of the other station once (twice in heavy radio traffic conditions), then the phrase …….. and your ship's name twice, indicating the channel in use.

3. VHF communication procedures: format and protocols

Structure: Stages of a VHF exchange procedure



A. ***Which stage does each of the following phrases belong to? Write 1, 2 or 3 next to each phrase.***

- This is…
- Out
- (Advise you) switch to VHF channel…
- Switching to VHF channel…
- Thank you for your cooperation. Have a good watch.
- Intention: I will proceed.
- How do you read me?
- I read you bad.

In Routine Messages...
i. you address the responding station or ship,
ii. you identify yourself (the station you are calling from) by giving name and call sign,
iii. the responding station acknowledges the reception using the same method.

If conditions for establishing contact are unknown or expected to be bad, the addressing and

identifying must be done three times; when conditions are good you can address / identify once or twice. Look at an example of an initial call and the information it contains:

	Calling station
SANTIAGO PORT CONTROL, SANTIAGO PORT CONTROL	← **Address** the station you are calling (2/3 times)
THIS IS DORIS LIMA ALFA GOLF PAPA FIVE, DORIS LAGP5	← **Identify** your own station
(CALLING) ON CHANNEL 16.	← State the **VHF channel** on which you are calling
OVER	← **Over** (turn-giving signal)

	Responding station
DORIS LAGP5 DORIS LAGP5	← **address**
THIS IS SANTIAGO PORT CONTROL, SANTIAGO	← **identify**
PORT CONTROL (ON VHF CHANNEL ONE-SIX)	← (channel)
GO AHEAD	← advise them to proceed
OVER	← **Over**

B. ***Student A is in the Calling Station and Student B is in the Responding Station. Make the initial call in order to make contact.***

Calling Station	*Responding Station*
SEALINK RGB6	ROTTERDAM VTS
GALINA ARX3	MALAGA PILOT STATION
PRIDE NSCK	SAN FRANCISCO COASTGUARD
JOY CHR9	SOLENT RADIO

General call; calling an unknown ship.

Calling station:

ALL SHIPS, ALL SHIPS, ALL SHIPS
IN SEA AREA SOUTHAMPTON WATER AND CENTRAL SOLENT,
CALLING UNKNOWN SHIP, TYPE: TANKER, HULL COLOUR: BLUE,
COURSE: 158 DEGREES, SPEED: 14 KNOTS.
THIS IS SOUTHAMPTON VTS SOUTHAMPTON VTS.
OVER

or

ALL STATIONS, ALL STATIONS, ALL STATIONS
IN SEA AREA NORTH SEA CANAL,
CALLING UNKNOWN SHIP IN POSITION:
BEARING: 1-8-5 DEGREES FROM BUOY C19 DISTANCE: 0.6 MILES.
THIS IS AMSTERDAM RADIO AMSTERDAM RADIO.
OVER

Responding station:

AMSTERDAM RADIO AMSTERDAM RADIO.
THIS IS SEA BREEZE NWF9P,
IN POSITION, BEARING: 1-8-5 DEGREES FROM BUOY C19,
DISTANCE: 0.6 MILES.
OVER

C. *Make the general call; the name of the ship is unknown. Student A is the Calling Station and Student B is the Responding Station.*

	CALLING Station	*RESPONDING Station*
1.	**NEWPORT PILOT STATION**	Newport Waterway; VLCC, yellow funnel; 145 degr 1.6 NM from Point Mike **(SEA BREEZE NWF9P)**
2.	**TRIESTE RADIO**	Container vessel, six miles from Bella Point, steering a course of 231°, at a speed of approximately 8 knots **(MARU HRL2U)**
3.	**SANTIAGO PORT CONTROL**	Gulf of Santiago, cruise ship, red funnels; 89 degrees from Cabo Holy Spirit, 2,5 nautical miles **(BONNITA NS4CK)**

Readability: This is what you say if the reception is good / bad:
How do you read me? I read you …. ***bad / one*** (with signal strength one, i.e. barely perceptible)
poor / two (with signal strength two, i.e. weak)
fair / three (with signal strength three, i.e. fairly good)
good / four (with signal strength four, i.e. good)
excellent / five (with signal strength five, i.e. very good)

Switching to a working channel: *Switch to (VHF channel) … / Change to … / Go to …*

Calling Station

PRIME, HR543
THIS IS TRIESTE RADIO.
SWITCH TO VHF CHANNEL 25.
OVER

Responding Station

TRIESTE RADIO
THIS IS PRIME, HR543.
AGREE: SWITCHING TO VHF CHANNEL 2-5.
OVER

D. *Use the readability code and follow the instructions below to make an exchange.*

Student A:	*Student B:*
Ask about the reception. Suggest using another channel.	Say the reception is poor. Agree and confirm.

Exchange of Messages: In the message exchange procedure the SMCP message markers can be used to introduce the content and purpose of the message.

E. ***Look at the following examples and write the appropriate message marker in front of each message: [ADVICE / WARNING / REQUEST / QUESTION / ANSWER / INFORMATION / INTENTION / INSTRUCTION].***

	Do you have passengers on board?
	No, no passengers on board.
	Buoy number one-five unlit.
	Please supply bunkers. Quantity: three thousand metric tonnes.
	I will reduce speed, new speed: eight knots.
	Steer course two - two - three degrees true. Repeat, to comply with traffic separation scheme steer course two - two - three degrees true.
	Advise you anchor clear of fairway.
	The fairway entrance is: position: bearing 1-3-7 degrees true from North Point Lighthouse, distance: 2 decimal 3 miles.

Also, make sure you use the SMCP in VHF communication. Here are some examples:

SMCP in VHF communication

1. Vessel is unmanoeuvrable.	***Warning: I am not under command.***
2. Vessel will continue its voyage.	***Intention: I will proceed.***
3. Water is not deep enough.	***Warning: depth of water not sufficient.***
4. Visibility is reduced by fog.	***Warning: visibility is restricted by fog.***
5. Buoy L2 is no longer in correct position.	***Warning: Buoy Lima – two is off station.***
6. No light on buoy H3 in position 44º 30' N, 042º 52' E.	***Warning: Buoy Hotel three in position 44º 30' N, 042º 52' E unlit.***
7. We have detected a shoal in position 69º 29' N, 042º 53' E that has not been charted yet.	***Warning: uncharted shoal reported in position 69º 29' N, 042º 53' E.***
8. Vessel needs pilot service.	***Request: I require pilot.***
9. MV Cullen is on its way from one berth to another.	***Information: MV Cullen is shifting berth.***
10. We are performing dangerous operation in position 69º 29' N, 042º 53' E. Traffic is requested to keep distance from us.	***Warning: Hazardous operation in position 69º 29' N, 042º 53' E. Wide berth requested.***

F. ***Write the appropriate SMCP for each of the following cases. Don't forget to introduce them with a message marker. For extra help (or to check your answers), choose from the list given below.***

	SMCP in VHF communication
1. Salvage operation in progress in position 69° 29' N, 042° 53' E. Vessels are requested to keep distance.	
2. Route from roadstead to entrance temporarily not to be used.	
3. Inshore traffic lane permanently closed for navigation.	
4. VTS wishes to know if the vessel has any defects.	
5. The vessel states that their SB ballast pump is not working.	
6. VTS wishes to know where the vessel is going to.	
7. VTS wishes to know what port the vessel is coming from.	
8. Vessel is advised to change course to port side.	
9. Vessel is allowed to enter traffic lane at 1200 hours UTC and proceed to berth no. 7B.	
10. Vessel's berth is not ready yet.	
11. She is instructed to set course to waiting area.	
12. Waiting time is 4 hours.	
13. Vessel's intention is to increase speed to 12 knots.	
14. Vessel's intention is to maintain course and speed.	
15. Danger, there is an underwater wreck ahead of unknown vessel's position.	

• Information: route from roadstead to entrance suspended.	• Information: navigation closed in inshore traffic lane.	• Advice: Advise you alter course to port.
• Question: Do you have any deficiencies?	• Answer: Starboard ballast pump inoperative.	• Information: salvage operations in position 69° 29' N, 042° 53' E. Wide berth requested.

• Question: What is your last port of call?	• Instruction: You must proceed to waiting area.	• Information: You have permission to enter traffic lane at 1200 hours UTC – traffic clearance granted; proceed to berth number seven – bravo.
• Question: What is your destination?	• Intention: I will increase my speed to one-two knots.	• Warning! You are running into danger! Submerged wreck ahead of you.
• Information: Berthing delayed for 4 hours.	• Intention: I will stand on.	• Information: Your berth is not clear.

G. *Imagine you are transmitting the following message on the VHF. What do you say?*

VTS-station to all vessels

VTS-station Palermo Radio to all vessels in vicinity of Capo Callo: Traffic movement information at 1325 hrs UTC; salvage operation is in progress in the NE traffic lane. Salvage vessel "Bravissimo" is hampered. Vessels are requested to keep distance.

End Procedure: The conversation can be terminated by saying "Nothing more" and by adding a polite greeting. Finally the closing phrase "Out" or "Over and out" is used. For example:

Calling station

Perth VTS. This is Aries. Message understood. Nothing more. Thank you. **Over.**

Responding station

Aries. This is Perth VTS.
Have a good watch. **Over and out**.

H. *Put the following messages in the correct order. Write the correct number (1-6) in the boxes provided and then work in pairs to act out the communication.*

- ☐ Delica, Southampton VTS. Advise you change to VHF channel 22. Over.
- ☐ Station calling on channel 16, this is Southampton VTS. Advise you try VHF channel 22. Repeat – change to VHF channel 22. Over.
- ☐ Southampton VTS, Delica. Changing to VHF channel 22. I am ready to receive your message. Over.
- ☐ Southampton VTS, this is Delica, Lima Oscar Tango Two on channel 16. Say again. Over.
- ☐ Southampton VTS, Delica. Message understood, instruction received: I will steer course two-two-three degrees true to comply with traffic separation scheme. Over and out.
- ☐ Delica, Southampton VTS. Alter course – repeat – alter course. You are not complying with traffic separation scheme. Instruction: Steer course two-two-three degrees. Over.

I. *Look at the following communication and pay attention to the procedure words in bold letters. Then fill in the missing words.*

A yacht, the Amaryllis, is crossing the Atlantic and contacts the tanker Doris. Amaryllis wants to make contact but cannot read the tanker's name. Imagine you are the deck officer of Doris.

Amaryllis	***Doris***
The yacht tries to contact you by VHF on channel 16: All ships, **this is** Amaryllis, Amaryllis. Calling northwest bound tanker with red. hull, do you read me? **Over.**	
	You keep listening watch on ch. 16; you answer: Station calling on channel 16. …… oil tanker Doris, Doris. …… your name and call sign? **Over.**
The answer on VHF channel 16: Doris, **this is** Amaryllis, call sign Zulu Golf Bravo Hotel Seven. Good afternoon. Could you please give me the latest weather forecast for this area? **Over.**	
	Still on ch. 16, you propose to switch to ch. 08: Amaryllis, **this is** Doris. …… to VHF channel zero eight. **Over.**
Amaryllis confirms the change of channel on channel 16, before making the change: Doris, **this is** Amaryllis. **Changing to** VHF channel 08. **Over.**	

	You continue on channel 08: Amaryllis, **this is** Doris. The weather forecast for the area at 12.00 is wind westerly force 5, sea state moderate, showers, moderate visibility. Do you need anything else? What is your destination? **Over.**
The yacht says goodbye on channel 08: Doris, **this is** Amaryllis. Thank you very much, nothing more. My destination is Gibraltar. **Over.**	
	Doris on channel 08: Amaryllis, Doris. Have a good trip. Fair winds. …… .

J. *Choose from the following procedure words / phrases and fill in the exchanges below.*

Over	Say again.	Mistake … correction.
Go ahead with your message.	Message understood.	Repeat
Nothing more.	That is correct.	Must
Stand by on VHF channel…		

1. Primavera, Papa Kilo November Sierra. This is Dover Coastguard, Dover Coastguard.
Instruction: You …….. reduce speed to eight knots.
……..: You must reduce speed to eight knots.
…… .

Dover Coastguard;
This is Primavera, Papa Kilo November Sierra.
…….. .
I ……. reduce speed to eight knots.
…….... . Out.

2. Helsinki Radio, Helsinki Radio;
This is Garland, Garland – Golf Foxtrot Charlie Charlie Two.
My draft aft is six decimal five metres.
……:
My draft is seven decimal five metres.
Over.

K. ***What is the appropriate response to each message? Write up the replies.***

1. Question. What is your present speed?	Answer. .....
2. Alter course – repeat – alter course to SE.	Message ..... . I ....
3. Advise you pass astern of me.	I .....
4. Your berth will be clear at 08.30 hours.	Received, understood. .....
5. Port Traffic, this is Sea Star, Sea Star, on channel 14.	Sea Star, ... Advise you .....… channel 12.
6. How do you read me?	I .....
7. Stand by on VHF channel 16.	Standing .....

L. ***To practise the correct structure and the use of procedure words in VHF marine communications, the following section provides role-play exercises to be simulated in class. In pairs, choose which role each student will act out; make sure you use SMCP as much as possible, like the phrases given in exercises E & F (p. 165-166).***

M/V Nord Power, call sign 9V810, IMO number: 9271626. Loaded 92.960 tons of iron ore at Port Hedland, Australia. The vessel is stopping at Shanghai for bunkering while heading for Kanmon Port, Japan.

i. Put the phrases in the correct place to recreate the following VHF communication at Shanghai. Then, in pairs, act it out. (some headings are given in the margins for help).

I read you signal strength four.	Wusong VTS – Wusong VTS – Wusong VTS	QUESTION: Must I take pilot?
On VHF-channel 13	Go ahead. OVER	How do you read me? OVER
~~Wusong VTS, this is Nord Power.~~	Nord Power, Nord Power	Nord Power, Wusong VTS
Call Pilot Station on channel 12 to arrange for pilot embarkation time.	Message understood. I will call Pilot Station on channel 12, and then call you back.	This is MV NORD POWER, 9V810 - MV NORD POWER - MV NORD POWER
Wusong VTS, this is Nord Power.	Then call us back to arrange for pilot embarkation point. OVER	OUT
This is Wusong VTS, Wusong VTS,	ANSWER: Yes, pilotage is compulsory.	

	M/V Nord Power	*Wusong VTS (Shanghai Port)*	
Address	**1.**		
Identify	**2.**		
	3.		
	4.		
		5.	*Address*
		6.	*Identify*
		7.	
		8.	
Message	**9.** Wusong VTS this is Nord Power		
	10.		
		11.	*A & I*
		12.	
		13.	
		14.	
A & I	**15.**		
	16.		
Ending of message	**17**		

ii. Simulate the following VHF communication in Shanghai. Write the vessel's part of the communication below and then, in pairs, act out the exchange.

M/V NORD POWER	WUSONG VTS (SHANGHAI PORT)
WUSONG VTS, this is NORD POWER.	
	NORD POWER, WUSONG VTS. Question. What is you cargo? Over.
	NORD POWER, WUSONG VTS. Question. What is amount of cargo in metric tons? Over.
	NORD POWER, WUSONG VTS. Question. What is your last port of call and your next port of call? Over.
	NORD POWER, WUSONG VTS. Say again your next port of call. Over.
	NORD POWER, WUSONG VTS. Message understood. Nothing more. Over and out.

iii. In Kanmon Port, Japan, the vessel had a collision accident. Follow the instructions given for each exchange and simulate the VHF communication between Kanmon MARTIS (Kanmon Port VTS, Japan) and M/V NORD POWER.

M/V Nord Power	***The VTS operator for Kanmon MARTIS***
Address Kanmon MARTIS, identify yourself.	
	Acknowledge the call.
Report vessel begins to leave the berth No4 via Tobata Passage.	
	Inform that there are many vessels navigating westward near lighted Buoys No.11-19.
Report your vessel has collided near Lighted Buoy No.11.	
	Ask for vessel's position.
Give your position; 33°57′N, 130°52.33′E.	
	Confirm the position of vessel. Ask vessel to stand by on channel 16. Call for the attention of all vessels in Kanmon Passage and broadcast the accident.

iv. Act out and record the communication (on your mobile); play it back to check how you sound.

VTS-station calling Vessel.

Role A: VTS-station Palermo Radio	Role B: M/V PORTAL (Call sign: WQYA8)

VTS station wishes to know vessel's course and speed (085 degr. True / 12kn.), where the vessel is going to (Rotterdam), what port the vessel is coming from (Singapore), what is the next port that the vessel will go to (Marseille) and if the vessel has any defects (radar not functioning).
Palermo Radio informs that PORTAL's berth is not ready yet. PORTAL is forbidden to anchor in present position. The vessel must set course to waiting area. Waiting time is 6 hrs.

or

Calling unknown vessel on ch. 16 – message on channel 13.

Role A: M/V CHASER – DEKL2	Role B: Unknown ship [Argos O7PRT, in posn. 085 degr from Rialto Lighthouse, dis. 7.5 miles]

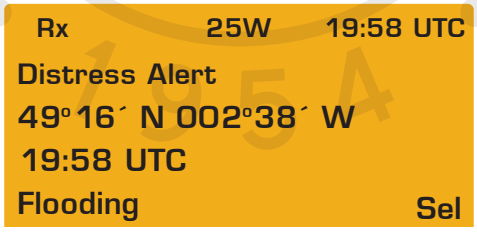
M/V CHASER calls unknown ship to indicate that it is approaching shoals that are not mentioned on the chart, and advises the vessel to change course to port. The "unknown ship" receives the message and will follow the advice.

v. In pairs follow the instructions and simulate the VHF communication using the SMCP.

Livorno VTS	*M/V MARCO (Call sign: WEU7E)*
	Inform the VTS that you are travelling in the south easterly direction of the TSS.
Warn the vessel is leaving the TSS and running into danger. Instruct the vessel to follow a Northern direction immediately.	
	You have received the message and will follow the instructions.
Ask about present speed.	
	Say present speed is 13 knots. You made a mistake. Your present speed is 15 knots. Make the correction.
Tell the vessel to stand on. Tell the vessel to stand on again, it is an important instruction that needs to be repeated.	
	You haven't received the message correctly. Ask for it to be repeated.
Tell the vessel to stand on.	
	You have received the message and will follow the instruction.

4. GMDSS and DSC

A. ***What is the nature of distress in the following DSC distress alert? What other information is displayed?***

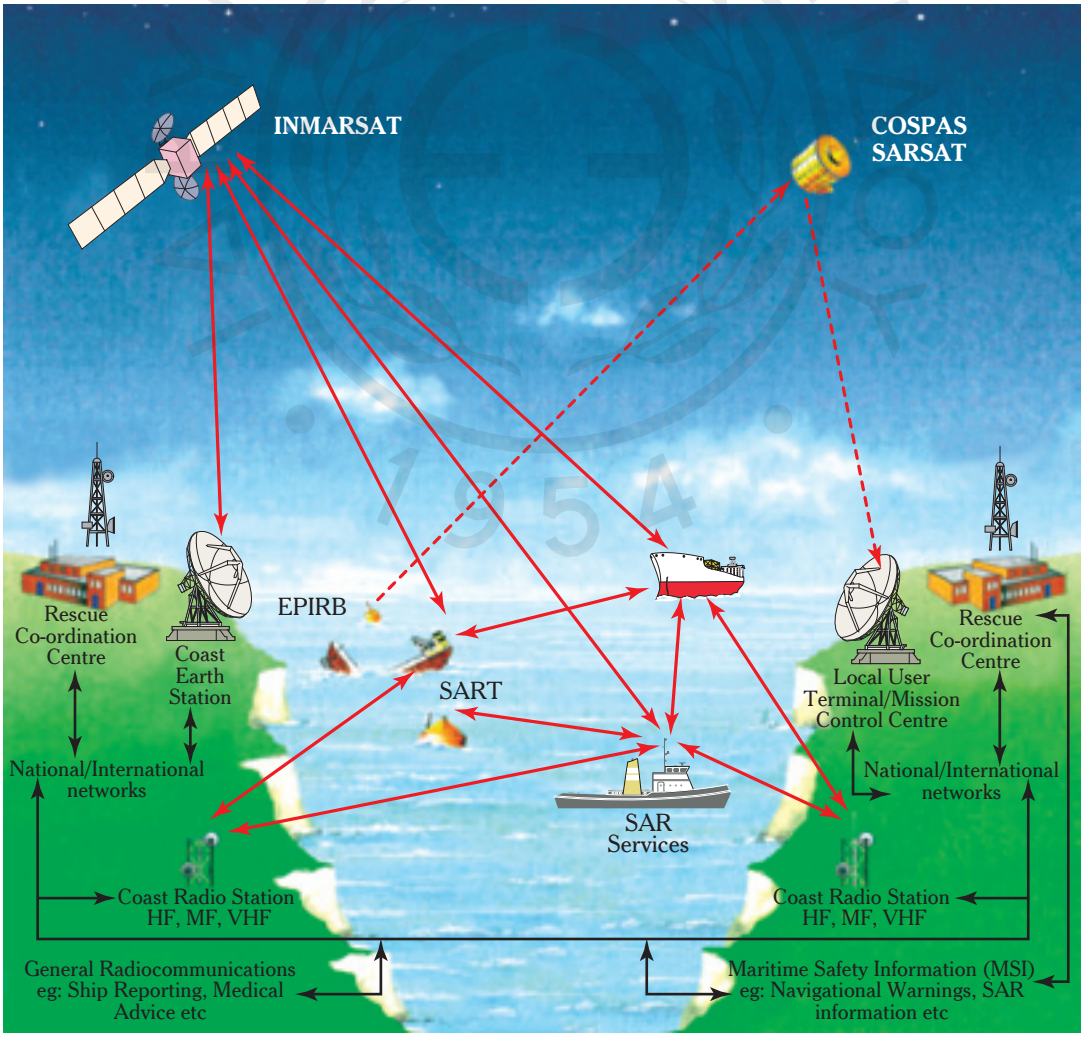


B. ***Read about GMDSS and DSC and fill in the missing phrases. Choose from the words in the box that follows.***

Ship radiocommunications entered a new era on 1 February 1999 with the (1)……..... of the Global Maritime Distress and Safety System (GMDSS); an integrated communications system using satellite and terrestrial radiocommunication systems. (2)…….. , all passenger ships and all cargo ships over 300 gross tonnage on international voyages have to carry (3)…… terrestrial and satellite radiocommunications equipment for sending and receiving distress alerts and maritime safety information, as well as for general communications.

DSC provides a simple and reliable means (4)…….. contact *prior to* starting voice communication. The DSC controller sends a digital signal that will ring other DSC radios by triggering an alarm and displaying details about the caller and the nature of the call. The digitally transmitted information (e.g. MMSI number, distress position) is displayed in writing. When a DSC call is received by another station, its VHF radio (5)…… and details of the call are displayed. Once a DSC call has been transmitted to a particular station or to all stations in the area, a voice message should be sent in the normal way.	*A Received DSC message contains the following:* ***From:*** MMSI number ***Nature of distress:*** explosion / fire, flooding, collision, grounding, listing, sinking, (6)…… , piracy, undesignated distress. UTC Lat, Long, bearing or range

disabled & adrift	**under GMDSS**	**full implementation**
starts ringing an alarm	**specified**	**of establishing**



VHF Marine Transceiver with DSC

URGENCY MESSAGE (GMDSS vessels)

i. Urgency announcement sent by DSC:

ii. The following calling sequence is transmitted by DSC:

Format specifier	Category	Self identifier	Frequency or channel	Subsequent communications
All ships	**URGENCY**	**259896000**	**Channel 16**	**radiotelephony**

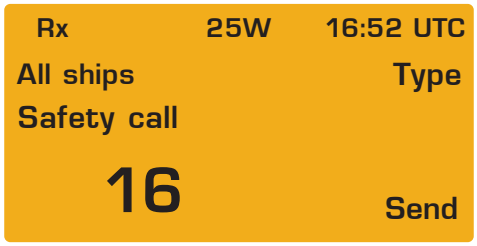
All ships urgency announcement by Doris (259896000).

iii. Urgency call and message by voice:

PAN PAN PAN PAN PAN PAN
ALL STATIONS ALL STATIONS ALL STATIONS
THIS IS TWO FIVE NINE EIGHT NINE SIX ZERO ZERO ZERO MOTOR TANKER DORIS
CALL SIGN LIMA ALFA GOLF PAPA FIVE
POSITION FOUR FIVE DEGREES FOUR SIX MINUTES NORTH ZERO ZERO ONE DEGREES THREE ZERO MINUTES WEST
I HAVE PROBLEMS WITH ENGINES, HEAVY FISHING NET HAS FOULED MY PROPELLER, I AM DRIFTING TOWARDS MILE ROCK DUE TO A CURRENT OF THREE DECIMAL FIVE KNOTS
OUT

SAFETY CALL BY A SHIP STATION

i. Initial contact by DSC:



ii. Subsequent voice communication on channel 16:

SECURITE SECURITE SECURITE
ALL SHIPS ALL SHIPS ALL SHIPS IN AREA GALVESTON BAY
THIS IS TWO FIVE NINE EIGHT NINE SIX ZERO ZERO ZERO MOTOR TANKER DORIS
CALL SIGN LIMA ALFA GOLF PAPA FIVE
INFORMATION: DRIFTING LOGS IN POSITION THREE NAUTICAL MILES FROM GALVESTON BAY ESTUARY – DANGER TO NAVIGATION
OUT

C. *Follow the international formats given in the examples above and make the following calls.*

Urgency

211 868 000 M/V "Christina – PKHA1" in posn. 56 degr. 29 min. N, 011 degr. 53 min. E, has transmitted a DSC urgency alert that has been acknowledged by RCC and now transmits an urgency message on VHF. The vessel has suffered damage below its waterline and requests tug assistance.

Safety

345 887 000 – Tanker "Vermont – YTBV", in posn. bearing 259 degr. from Guardian Angel Lighthouse, distance 2 miles, has transmitted a DSC safety alert that has been acknowledged by RCC and now transmits a safety message. The vessel has detected that buoy B2 in posn. 185 degr. from Guardian Angel Lighthouse, distance 3 miles, is unlit. Time: 0100 UTC (Sept. 14, 2012).

5. Reporting communications

I. Routine traffic

Listen to the following routine VHF communications[1] and do the exercises.

1. All communications are by courtesy of Piraeus Traffic VTS.

a) "Pacific Spirit to Piraeus Traffic"

i. Which of the following phrases can you hear in the communication? Listen and circle the phrases you can hear.

Over and Out	Standing by at 14 and 16
Do you read me?	TSS
Total amount of cargo	Northbound lane
Wait for pilot embarkation	Pilot Station

ii. What is the topic of the communication?

a) To arrange for pilot embarkation point.
b) To arrange exit from the fairway.
c) To arrange entry to the fairway.

iii. Accurately write down the details of the required action from the VHF communication. Imagine you are the deck officer on the Pacific Spirit. Keep notes as to the instructions given from Piraeus Traffic. Fill in the missing information:

- Call VTS at the ……. exit of the TSS.
- Call Pilot Station …….. nm distance from the yellow buoy.
- Call back VTS for further instructions.
- Wait for pilot embarkation …… nm dist. SW of yellow buoy.

iv. Orally report the communication to the Master. What did Piraeus Traffic instruct you to do? What must your next action be?

I contacted Piraeus Traffic as we were entering the northbound lane.....

Here are some expressions for help:
Piraeus Traffic ***instructed*** *us to...*
The VTS operator ***said*** *that we…*
Then, I ***informed / asked / told*** *the operator...*

b) "Station calling Piraeus Traffic"

i. Listen to a VHF communication between Piraeus Traffic and a yacht. What is the topic of the communication?

ii. Read the report of the communication. Choose the correct alternative of the underlined words.

The vessel (a yacht) reported to the VTS its intentions (they had left Zea Marina and were sailing for a shipyard / Crete). The VTS gave clearance to proceed, and advised them to pay attention to the South exit / main entrance of Piraeus. The yacht reported that they are standing by at the designated channels (13 and 14 / 12 and 14).

c) "Message received by Piraeus Traffic"

i. Listen to the VHF message. What is its topic? Why is the caller contacting Piraeus Traffic?

a) To ask for permission to enter the fairway.
b) To ask for traffic information in the area.
c) To ask for permission to lower rescue boat for testing.

ii. Listen more carefully and report the content of the communication. Write a short paragraph (like the one above), reporting what the vessel's request was and how the VTS responded to it.

The vessel asked .....
.....
.....
.....
.....
.....
.....

II. Language Awareness: Reported Speech

Direct Speech: "I like my studies in the Academy".

Reported Speech: **She** says **she** likes **her** studies in the Academy.

Note: To report someone's words, we use a reporting verb like *say* or *tell*. Note the example above: if this verb is in the present tense, we just introduce with "she says" and then add the sentence. We don't need to change the tense, but we do need to change the person from "I" to "she" and also words like "my" and "your".

Direct Speech: "The vessel is sailing for the Baltic Sea."

Reported Speech: He said the vessel **was sailing** for the Baltic Sea.

Note: If the reporting verb is in the past tense, then usually we change the tenses in the reported speech.

Tense	***Direct Speech***	***Reported Speech***
Present Simple	"The vessel **has** a list to port."	He said (that) the vessel **had** a list to port.
Present Continuous	"You **are running** into danger."	He said we **were running** into danger.
Past Simple	"I **cleaned** the messroom."	He said he **cleaned / had cleaned** the messroom.

Past Continuous	"I **was checking** the weather report."	She said she **was checking** / **had been checking** the weather report.
Present Perfect	"I **have repaired** the damaged pump."	She said she **had repaired** the damaged pump.
Will	"I **will** notify the authorities."	He said he **would** notify the authorities.
Can	"I **can** speak perfect Chinese."	She said she **could** speak perfect Chinese.
Must	"You **must** alter course."	He said we **must / had to** alter course.

Note:
I) In certain cases, like the *Past Perfect ("had taken"), would, could, should*, there is no tense change: "I had taken fire fighting classes before". → He said he had taken fire fighting classes before. "I could swim when I was three." → He said that he could swim when he was three.
II) Occasionally, we don't need to change the present tense into the past if the information in direct speech is still true (for general facts): "The sky is blue" → She said the sky is blue.
III) Other useful ***reporting verbs:*** *instructed / advised / warned…*

For some of the example sentences above we could use other introductory verbs, for instance:

Warn; He warned us we were running into danger.
Instruct; He instructed us to alter course.

Reported Questions

Direct Question	***Reported Question***
"Where is the damage?"	He asked where the damage was.
"What are you doing?"	He asked what I was doing.
"Do you have a pilot?"	The VTS operator asked if we had a pilot.
"Have you fixed the securing?"	The Chief Mate asked if I had fixed the securing.

Note: We introduce with "ask" and keep the question word ("where", "what", etc.) but we change the grammar to a normal positive sentence (we do not invert the subject and the verb, the new sentence is not a question any more). We don't use "do" or "does", and we change the verb tense (e.g. present simple → past simple). For "yes / no" questions, there is no question word so we use "if" instead.

Reported Orders

Orders are important in Maritime English; note the way they are reported with "told":

Direct Order	***Reported Order***
"Sound the alarm!"	She told him **to sound** the alarm.
"Don't use foam!"	He told me **not to use** foam.
"Be on time!"	He told me **to be** on time.
"Don't smoke here!"	She told us **not to smoke** there.

III. Language Awareness: "say" & "tell"

> The investigator **said** that the accident was caused by human error due to fatigue.
> Really? Did she say that to you?
> Yes, she **said to** me that the Chief Mate fell asleep during his watch. She **told me** to keep it a secret, though, until the official investigation report is released.

Say and *tell* are the two verbs most commonly used to report statements in English: ***She told me.../ she said...*** *Say* and *tell* have similar meanings. They both mean to communicate verbally with someone. But we often use them differently. Look at the examples for the use of *say* and *tell*:

You say something	***You tell someone something***
The Bosun said that he was tired.	***The Bosun told the Chief that he was tired***
• Capt. Ilya **says** you have a new job. • He **said** that he wanted to find a new job. (*"say" without a personal object*) • He **said to** me that he was tired. *("say **to** someone")* • The Chief **said to** me that I had done well.	• Capt. Ilya **tells** me you have a new job. • He **told** me that he wanted to find a new job. (*tell + personal object, the person we are speaking to*) • He **told** everybody that he had to leave.

Note the following:

We can use "say" with direct questions but we cannot use "tell":

- She said: "Do you like your new job?"
- The investigator said to the suspect, "Where were you at 12:00?"

When we quote *direct speech*, ***say*** is the most commonly used verb, as ***say*** refers to any kind of speech. ***Tell*** is used only with the meaning of "instruct" or "inform". Compare the following:

- "I feel really tired all the time and I get stressed at work", she said.
- "Eat properly and exercise regularly", I told her.

We cannot use "say" or "tell" in reported questions. We must use ***ask*** (or a similar verb):

- She asked if I had ever been there.
- They requested permission to enter the fairway.
- They asked if I wanted to contact my parents.

Orders, advice: *told + object + infinitive* for orders or advice:
(also *warned / ordered*, and other verbs suggesting commands or orders)

- The judge told him to sit down.
- They told me not to wait.
- Tell him to take some rest.
- I warned him not to stay out after dark in this area as it isn't safe.

We can use many other more informative verbs, instead of "said," to report statements and in quoting direct speech: verbs like *advise, remark, confess, inform, instruct, warn*… etc.

- The crew manager *explained / insisted* that I couldn't change my date of discharge. I had to sign off on 12 November and not sooner.

Told + object + about: We are *reporting a topic* and not the actual words:

- They told me all about the piracy incident in Suez. (Not "they said about…")

Fixed phrases with "tell" (we cannot use "say" with these phrases)

– Tell (someone) a story
– Tell (someone) a lie
– Tell (someone) the truth
– Tell the future (know what the future will bring)

a) Right or wrong? Which of the following sentences are correct? Correct those that are wrong.

1. Mike said Jacob to go away.
2. Pete said me that he was hungry.
3. Paul told me that he was coming.
4. She always says lies.
5. She asked if I wanted to come.
6. He told what I wanted to do.

b) Choose the correct verb.

1. Anthony ***said / told / asked*** that he was hungry.
2. Mike ***said / told / asked*** me that you were ill.
3. He ***said / told*** everybody that he is 22; he is actually 30.
4. The pumpman ***said / told*** to me that he was angry with the new Chief Engineer.
5. He ***said / told / asked*** that they had an argument.
6. She ***said / told / asked*** me that Athens was hot in August.
7. She ***said / told / asked*** if I had ever been there.
8. James ***said / told*** him to shut up.
9. They ***said / told / asked*** how I was doing.
10. ***Say / tell*** him to have a drink and relax.
11. He always ***says / tells / asks*** strange stories about the ports he's been to.
12. Some people just cannot ***say / tell*** the truth.
13. My boss ***said / told*** that she was happy with my performance.
14. The Master ***said / told*** him not to come back to the ship late.
15. Don't ask me if I know what will happen. I cannot ***say / tell*** the future!

c) What did each person actually say? Turn into direct speech.

1. He told me that he was going to Athens for a seminar. He said that he expected to stay in Athens for 2 weeks.
2. She said that it was raining, so they would have a delay in cargo operations.
3. She told me that she would call at 20:00.
4. He asked where I lived and if I wanted to go home.

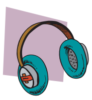
d) Listen to the VHF communication. What is its topic? Who are the two parties?

e) Imagine you are the deck officer on board 'Doris'. Report your VHF communication to the Master. The Master is asking you:

Did you request permission to enter the fairway?

IV. Language Awareness: Past Continuous

a) A crewmember is talking to a friend about a minor accident. What happened? Listen and fill in the sentence below.



⇨ He .... up a ladder when he lost his footing and ....

Was / were + verb-ing is the **Past Continuous** tense.

I **was** paint**ing** outside the accommodation.

This tense is used to talk about an activity that was in progress at a specific time in the past. The emphasis is on the duration of the activity in the past.

What were you doing between 14:00 and 16:00 yesterday? I was sleeping.

I / he / she / it	was	painting
You / we / they	were	
Question form: Were	you	sleeping?
Negative form: I	wasn't	sleeping.

What was he doing when the collision happened?
He **was** talk**ing** on the VHF, when it happen**ed**.

The **Past Continuous** tense is often used with the **Simple Past** in one sentence to show that one action was in progress when another action occurred and interrupted it. Notice how one action is already in progress when the other action happens:

PAST **He was talking on the VHF,** **NOW**

\- ✕ - - - - - - - - - ➔

when the collision happened.

So, we use the Past Continuous tense:

- to describe repeated or continuous actions in the past.
- to describe ongoing activities in the past which were interrupted by another event.

b) Look at the pictures and describe them. What were they doing?

a) 

b) 

.....
.....
.....

.....
.....
.....

c) 

d) 

.....
.....
.....

.....
.....
.....

e)

.....
.....
.....

c) Ask your study partner.

- What were you doing between 1200 and 1300 yesterday?
- What was happening in the Academy between 1030 and 1100?

d) At 12:12 on Wed 12/12/2012, M/V VENOM ran aground. What were these people doing when the ship grounded? Write the sentences using the Past Continuous.

1. Bosun / sleep → The Bosun was sleeping.
2. A.B. / clean the deck → .....
3. Second Officer / update logbooks → .....

4. Deck cadet / do stencil painting → .....
5. Chief Engineer / order spare parts → .....
6. O.S. / chip off rust from the railings →.....

e) Complete the following sentences with the first verb in the past continuous (for actions in progress) and the second in the past simple (for single actions).

1. The cruise ship ..... (cross) the North Atlantic when the passenger ..... (fall) overboard.
2. The vessel ..... (leave) the port when the storm ..... (begin).
3. The ratings ..... (eat) lunch when the alarm ..... (sound).
4. The chief engineer ..... (sleep) when the explosion ..... (happen).
5. The pirates ..... (shoot) with machine guns when the naval vessel ..... (arrive) on the scene.

Revision of routine tasks on board

f) Match the people to the appropriate activities (draw arrows) and then make full sentences using the Past Continuous.

The deck officers	clean the cabins
The steward	weld pipes
The fitter	paint deck railings
The engineers	attend a new radar installation
The O.S.	overhaul the main engine

g) Match the words below to make correct phrases that describe routine tasks on board.

1. drain	☐ the accommodation
2. lubricate	☐ a surface before painting
3. chart	☐ tanks
4. steer	☐ charts
5. correct	☐ the voyage
6. plan	☐ engine parts
7. lock	☐ the route
8. prime	☐ the vessel

h) "What were you doing at 10.00 yesterday morning?" What is each seafarer saying? In groups of three, take turns to practise the following.

Student A: Address a seafarer and ask him/her what they were doing. [choose from box 1]

Student B: Choose one activity. [combining verb-noun(s) from boxes 2 and 3]

Student C: Listen to what Student B said and report.

e.g. A: Second Officer, what were you doing at 10.00 yesterday morning?
B: I was plotting the voyage track.
C: The Second Officer said that he was plotting the voyage track.

1	2	3
The Chief Mate The Chief Cook The Master The Second Officer The Chief Engineer The Second Engineer The Bosun The A.B.	order calculate allocate plot log keep talk to supervise carry out / do inspect	maintenance duties food provisions new publications the rest hours duties in the Engine Room the voyage track fuel consumption overtime records port officials mooring operations bunkering the tanks repairs boiler water test

V. What was happening at the time of the accident?

Case study – Look at the following information regarding an accident:

The accident took place in the Great Belt Area, Denmark. It was twilight, very clear weather with good visibility. At 1907 hours K.D. collided with the Great Belt West Bridge, at a speed of 11.5 knots. It appears that a waypoint change wasn't made according to the passage plan. The ship's engine was at full speed ahead upon impact.

The vessel's damaged superstructure after the collision with the bridge

Great Belt bridge pillars with motorway section on the right and rail section on the left

a) Read what the crew members said to the investigator who interviewed them for the accident report. Underline the Past Continuous.

Master: I was on my way from the Officer's messroom to the wheelhouse. I was going up the stairway which led into the wheelhouse when I felt a severe impact to my upper body.

Second Officer: I was waiting in the crew mess room at 1905 when the master stopped briefly on his way to the wheelhouse to wish the crew a good evening. At around 1909 I heard a crash, the first out of four in succession. After the first impact, the ship rolled severely. I ran out on deck to see that the vessel was under the Bridge.

(continued on the next page)

Chief Engineer: I was in the engine room with the second engineer and one motorman. I felt the impact and realized something was seriously wrong. I was starting both auxiliary generators to prevent a "black out", when the 2nd officer entered the engine room and shouted for us to stop the Main Engine because the ship had collided with a bridge. I went to the wheelhouse and found the master in the stairwell badly injured. I helped the master to a comfortable position on the deck at the bottom of the wheelhouse stairway. The engines were still going at this time and the master instructed me to stop the engines. I ran to the engine room and ordered the emergency stop of the main engine. I then returned to the injured master who instructed me to transmit a "Mayday" call. I tried to enter the wheelhouse but came up against the underside of the West Bridge, there were rocks falling down into the ship at this time. I went to my cabin to get one of the handheld emergency VHFs (each officer had a handheld VHF in his cabin), I called "Mayday" on VHF Channel 16 advising that the "K. D." had hit the Great Belt Bridge.

b) Who said that?

"Stop the Main Engine. We have collided with a bridge!" ➔
"Start the auxiliary generators!" ➔
"Send a Mayday immediately!" ➔

c) Fill in the table with what each person was doing right before and immediately after the accident.

	Master	***Chief Engineer***	***Second Officer***
at around 1900			
at around 1907 and immediately afterwards			

d) Use the table above and answer these questions orally.

⇨ Where was the Master / Chief Engineer / Second Officer at the time of the impact?
⇨ What was he doing?

e) Imagine you are the investigator for the accident report. A member of the crew was injured during the evacuation. Read his testimony and report it in writing. How was he injured?

Cook: I was collecting some of the ship's documents to hand over to the police when the rescue boat arrived on the scene. We gathered on the port side of the main deck and we were evacuated by a coast guard vessel. I was boarding the rescue boat when I slipped on ice and damaged my eye against a window securing.

The cook was injured during the evacuation. He said that .....

.....

.....

.....

.....

f) What did the VTS operator say? Use the notes and report orally.

The VTS operator said that at 1900 he.....

VTS Operator

- 1900 hours; printing out the pilot lists
- 1909 hours; at the operator's desk, heard a «Mayday» call
- looked at the radar monitor; could not see the echo of the vessel
- heard the caller saying that the vessel was locked under the bridge
- activated the alarms
- ordered the guard vessel VTS3 to sail towards the bridge

VTS Great Belt alarm panel

g) Simulate the VHF distress communication after the accident.

Role A:

Second Officer of M/V K.D.
Send the "Mayday" message on the VHF.
[Call sign: D6SW4, IMO number: 9508070, Position: 55° 19'N - 010° 53'E].

Role B:

VTS operator for Great Belt VTS,
You need to know the nature of distress, exact position, number of casualties or injured persons.

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

☐ Understand the topic of a VHF communication
☐ Simulate VHF exchange procedures
☐ Report the message from a VHF communication
☐ Describe onboard activities (using the Past Continuous tense)

B. Class Project.

- Find out more about IMO COMSAR: Radiocommunications and Search and Rescue, in www.imo.org, and present your findings to class.

C. What is the correct order of the stages of a VHF procedure. Put them in order. Then say a procedure phrase for each stage.

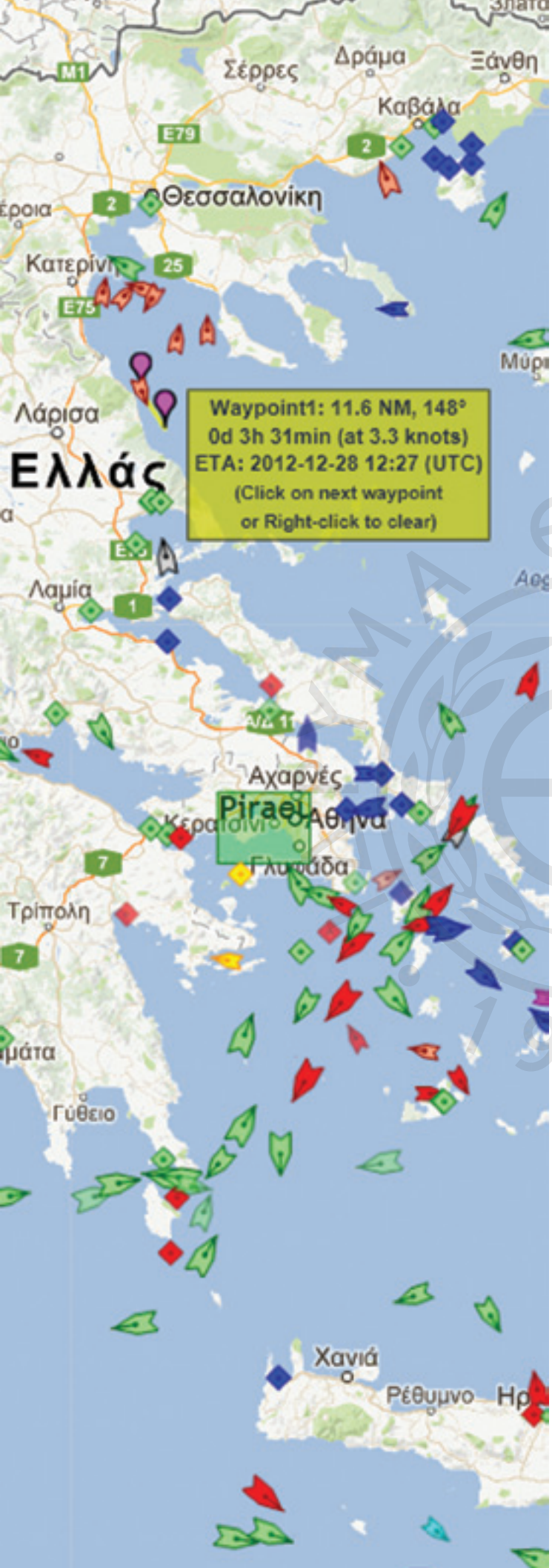
Switching over to a working channel / Checking radio reception / Making contact / Agreeing on a working channel / Exchanging messages / Terminating the exchange / Reporting radio reception

1.
2.
3.
4.
5.
6.
7.

D. Fill in the missing words.

stand by / close-quarters / claimed / activated / transmitted / on-scene / adverse

1. In a(n) …….. situation, vessels should follow the COLREGs as well as rely on VHF communications.
2. The Chief Mate …… the DSC and then made the emergency distress call.
3. How soon after the accident was a mayday call …… from the bridge?
4. The Titanic disaster ……. many lives.
5. The rescue operation took place in ……. weather conditions. A naval vessel in the vicinity was appointed ……. co-ordinator.
6. When you want to ask the receiving station on the VHF to wait for further information you say …… .



UNIT 6

My next voyage

1. *I am going to go to sea in a month's time.*
   Language Awareness: talking about the future

2. *A day ashore*

3. *Future plans*
   Postgraduate study

Round-up

1. I am going to go to sea in a month's time.

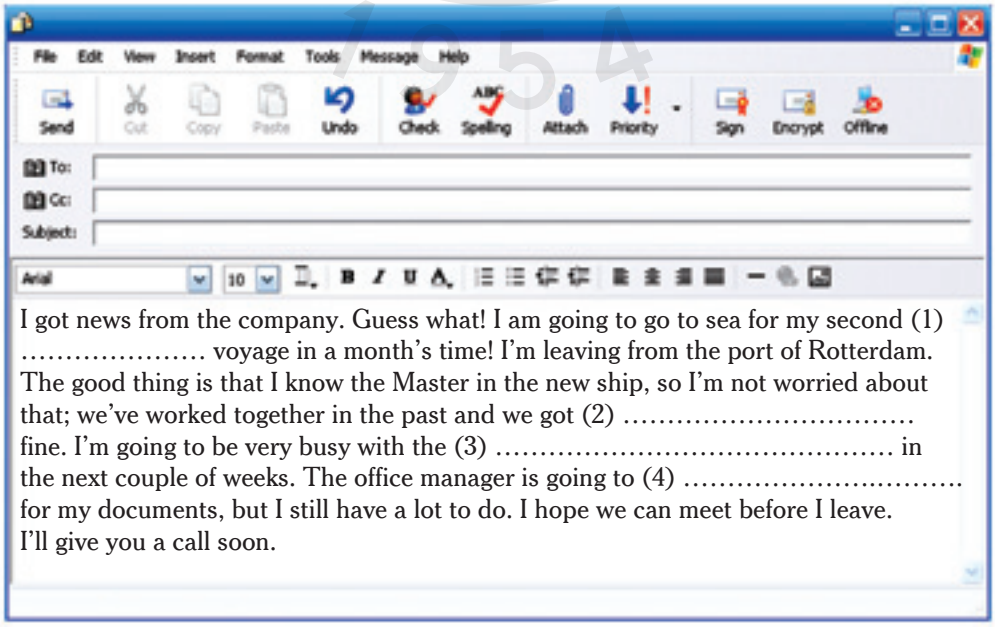
A. ***Theo is finishing the 3rd semester in the Academy soon. He is thinking about his next voyage. Look at the pictures and answer the questions.***

- Where is he going to go? (type of ship)
- When is he going to leave?
- Where is he going to join the ship? (port of embarkation)
- What route is he going to travel?

AUGUST						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23 / 30	24 / 31	25	26	27	28	29

B. ***Theo is writing an e-mail to a friend. Fill in the missing words.***

preparations **training** **arrange** **along**



C. ***Look at Theo's personal agenda. He is making a list of all the things to do before his voyage. Choose the correct alternative of the words in italics.***

- Visit the company to discuss the details
- Go through the ***prescribed / restricted*** medical tests
- Arrange with company for visa and other documents
- Take air tickets and a ***steady / fixed*** date for departure
- Visit friends and relatives for goodbyes
- Buy a new suitcase and pack my clothes
- ***Activate / Generate*** the roaming service on my mobile

D. ***Theo's friend is giving him a call after hearing the news. Say what the answers to the following questions would be (according to the information provided in the previous exercises) and simulate the dialogue.***

I didn't know you were leaving so soon! When are you going to leave exactly?	They haven't given me an exact date yet, but it's going to be early August.
So soon! Where are you going to go?	
How long are you going to be away?	
Apart from packing your things, what else do you need to do?	
Are you going to visit the company before you leave?	
What medical tests are you going to do?	
How am I going to communicate with you?	

E. ***Imagine you are preparing for your next voyage. Discuss with your study partner what documents you need to take with you. Here are some suggestions. Add to the list as you discuss.***

Seaman's book / Cadet's Onboard Training Record Book / .....

F. ***Imagine that you are going to sea. Write a paragraph answering the following questions.***

- *How are you going to travel?*
- *What are you going to take with you?*
- *What other arrangements / preparations are you going to make?*

The pictures that follow will help you.

I'm going to .....
.....
.....
.....

.....
.....
.....
.....

Language Awareness: talking about the future

Future plans/events – will & be going to

Compare:

"When are you going to take the IELTS test?"	*"I am going to take the test at 1100 tomorrow."*
"Where will you be in two months?"	*"I don't know. Maybe I will be on holidays or maybe I will be at sea."*

We can use both "be going to" and "will" to discuss future events / actions;

- ⇨ we can use **be going to** to describe future events that we have planned or arranged.
- ⇨ we can use **will** to describe future events that are uncertain.

The **Simple Future** (will + infinitive) is used for *offers, predictions, threats, requests,* etc.:

- *I'll help you fill in the application.*
- *Tomorrow, it will be cold and rainy.*
- *Put your hands up or I'll shoot.*
- *Will you take the garbage out, please?*

"be going to" is used:

1. for **future plans or intentions**
   - *He is going to join the Army next month.*
2. for **predictions based on evidence**
   - *Look! That vessel is listing heavily. It is going to capsize.*

Compare:

"The ink cartridge in the printer needs refilling." *"Does it? I'll refill it later."* [on-the-spot decision]	*The ink cartridge in the printer needs refilling."* *"I know. I am going to refill it later."* [something already decided / planned]

Generally, when talking about the future, we tend to use "be going to" when we know something because of the situation now:

- *"I feel terrible. I think I'm going to be sick."*

In other situations it's safer to use "will":

- *"I think she will like the present we bought for her."*

Note: The Simple Present and the Present Continuous can also be used to talk about the future.

- *Hurry up! The movie starts in a few minutes.*
- *We're going camping this weekend.*

Form:

"will" is used before verbs in the infinitive form:

I / you / he / she / we / they	will	go ashore

Sometimes we use the short form: **I will → I'll**

- *I'll see you tomorrow*. (instead of "I will see you")

In negative sentences, **will not → won't**:

- *He won't have time to go ashore tomorrow*. (instead of "He will not have time")
- *I won't see you again for six months*!

Yes / No questions:

Will	you / he / she / they…	come home early tonight?

Wh-questions:

What	will	you / he / she / they…	buy?

"be going to" is used before verbs in the infinitive form:

I / you / he / she / we / they	am / is / are going to	go to the bank tomorrow.

Yes / No questions

Are / is / am	you / he / she / we / they / I	going to	participate in the meeting tomorrow?

Wh-questions:

When	are / is / am	you / he / she / they / I...	going to	come back?

Note: Phrases used to refer to future points in time:
e.g. *Where will you be **in two months**?*

To talk about a time in the future, we can say:

two days / weeks / months / years from now

or

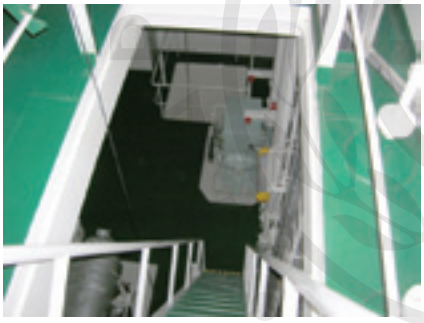
in two days / weeks / months / years / a month's time

Other future time expressions (generally used at the end of the sentence or question):

tomorrow, next week/month/year, the day after tomorrow

a) Use the appropriate verb and make a sentence with "be going to" for each picture.

launch / deliver / approach / repair / go down / enter / apply / disconnect / tow / land / sail / discharge



1. I …… the ladder to the pump room.

2. The tug boat …… the loading terminal area.

3. The engineers …… the cylinder liner.

4. They …… the final coating to the vessel in the dry dock.

5. The tanker ..... under the bridge.

6. The crew members ..... the cargo hoses.

7. The vessels ..... each other for an STS operation.

8. The helicopter ..... on the vessel.

9. They ..... the lifeboat.

10. The tugs ..... the vessel.

11. They ..... the containers.

12. They ..... the fenders.

b) Answer the following questions.

- Where will you be in two days? In two days I will be...
- Where will you be in one week?
- Where will you be two months from now?
- Where will you be one year from now?
- Where will you be in ten years?

c) Underline the correct alternative of the words in italics.

1. Tina *will probably arrive / is probably going to arrive* at about midnight. I'm not quite sure, though.
2. "George phoned while you were out." "OK. *I'll phone / I'm going to phone* him back."
   "George phoned while you were out." "Yes, I know. *I'll phone / I'm going to phone* him back."
3. "Let's go for a drink."
   "That's a great idea. *I'm going to phone / I'll phone* Jim, he might want to join us."
   One hour later,
   "We decided to go for a drink. We *are going to call / will call* Jim after work to see if he wants to come along."

d) Read the situations and complete the sentences using "will ('ll)" or "be going to".

1. *The phone rings and you answer it. Somebody wants to speak to Nick.*
   Caller: ***"Hello, can I speak to Nick please?"***
   You: ***"Just a moment.*** ..... ***him."*** (I/get)

2. *There was a job advertised in the paper recently. At first you were interested but then you decided not to apply.*
   Friend: ***"Have you decided what to do with that job that was advertised?"***
   You: ***"Yes,*** ..... ***for it."*** (I/not/apply)

3. *Maria has to go to the airport to catch a plane tomorrow morning.*
   M: ***"Vasso, I need somebody to take me to the airport tomorrow morning."***
   V: ***"That's no problem.*** ..... ***you."*** (I/take)
   "What time is your flight?"
   M: ***"10.50."***
   V: ***"OK.*** ..... ***at about 0900 then."*** (we/leave)
   Later that day, Kostas offers to take Maria to the airport.
   K: ***"Maria, do you want me to take you to the airport?"***
   M: ***"No thanks, Kostas.*** ..... ***me."*** (Vasso/take)

e) Complete the sentences using "will" or "be going to".

1. "Oh, I've just realized. I haven't got any money."
   "Don't worry. ..... you some." (I/lend)

2. "I've got a headache."
"Really? Wait there and …… an aspirin for you." (I/get)

3. "Why are you filling that bucket with water?"
"……. the messroom floor." (I/wash)

4. "Where are you going? Are you going to the bridge?"
"Yes, …….. the charts." (I/update)

5. "I don't know how to use this radar."
"It's quite easy. ……. you." (I/show)

6. "What would you like to drink?"
"……..…. a beer, please." (I/have)

7. "Did you pay my phone bill?"
"Oh, I'm sorry. I completely forgot. ……. it now." (I/do)

8. "Has your brother George decided what to do when he finishes school?"
"Yes, everything is planned. …….. a holiday for a few weeks and then ……..…… a computer programming course." (he/have, he/do)

2. A day ashore

A. ***Imagine that you are working on board and you are going to go ashore tomorrow. Look at your timetable, from your personal notebook. Answer the questions that follow.***

TIMETABLE - VISIT ASHORE - July 26th	
0800 breakfast on ship	1330 lunch at fast food restaurant
0830 meeting with Master	1600 visit shops
0900 leave the vessel	1900 dinner at local restaurant
0915 port bus leaves for city centre	2145 take the bus back to port
0930 arrive at city centre / go to café	2200 return to ship / report to the Master
1100 bus tour of city	

1. What is going to happen at 0800?
2. What time is the meeting going to start?
3. What time does the bus arrive at the city centre?
4. What are you going to do first in the city?
5. Where are you going to have lunch?
6. What are you going to do after lunch?
7. What are you going to do at 1900?
8. What are you going to do after you return to the ship?

B. ***Two cadets are preparing to leave the vessel for the day. They are going to see Southampton. They are talking about the places they want to visit. Listen and answer the following questions.***

i. Which one of the following sites are they going to visit?

Stonehenge prehistoric monument	Historic old town of the city	SeaCity museum
		

ii. What else are they going to do?

Sentence stress revision

C. ***Listen again to the following two sentences from the dialogue above and notice which words are stressed. Circle the sentence with the correct stress pattern (the stressed words are marked in bold).***

1. **Where** will we **go**? Where **will we** go?
2. **Where** will we **eat**? **Where will** we eat?

D. ***In pairs, see how well you can use and identify main sentence stress.***

Student A: Listen to your partner and underline the words where the main stress falls in the following statement:

We'll come back to the ship at eight.

Student B: Go to page 263. Say the sentence using the correct main stress.

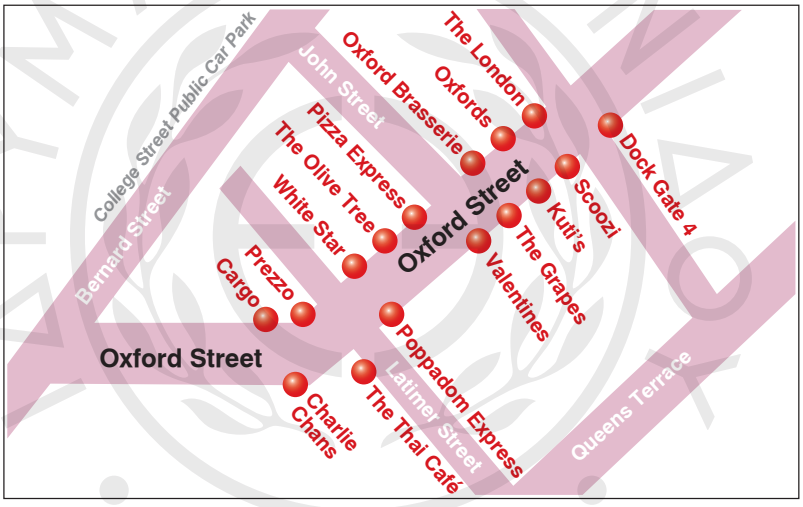
E. ***Listen to some suggestions for places to eat in Southampton. What type of food can you eat in the following restaurants? Match the restaurants to the cuisine they offer.***

Southampton's Friendly Restaurant Quarter

Modern European	Modern Indian (British-Indian)	Authentic Indian (Bangladeshi style)

Oxford Street – close to the Marinas	
White Start Tavern	Modern British
Poppadom Express	
Dock Gate 4	International
The Thai Café	Exotic Asian
Kuti's Brasserie	
Oxford's	

F. ***Look at the map of Oxford Street. In groups of three or four, discuss where you want to go and circle the restaurant you are going to visit on the map. Try to incorporate the wishes of everyone in your group.***



G. ***Imagine you are on board and you are writing to a friend about your next shore visit (It could be in Southampton or you can choose your own city). What are you going to do there?***

My next shore visit will be in _____. We will arrive in approximately 2 days. I am going to see the city, _____

_____

_____

_____

_____

_____

_____

_____

_____

3. Future plans

A. ***Listen to the plans the city council has for Southampton. They are making an investment for a development in the city called the "Cultural Quarter". What are they going to build[1]? Fill in the gaps as you listen.***

"The Cultural Quarter" – a cultural heart to the city

- The ..... Complex
- Guildhall square (open ..... for events)
- The ..... Museum
  (housing in one place cultural heritage so far scattered around the city)

B. ***What is there going to be in the Cultural Quarter? Use the notes above to talk about the developments.***

There is going to be a/an ....

C. ***Imagine you are taking part in a formal meeting where you discuss future development plans for your Academy. What are you going to build? What is there going to be? Choose one new facility to build and explain why it is a good choice.***

⇨ We are going to build a/an...

⇨ We are going to install a/an...

indoor swimming pool / new teachers' offices / new classrooms / ARPA simulator / Engine Control Room simulator / ..... GMDSS simulator /

Postgraduate study

Lead-in: check what you know.

Vocabulary focus: university education. Fill in the missing letters.

- A _ _ _ y to university.
- Study for a d _ _ _ _ e in physics.
- G _ _ _ _ _ _ e from university with a degree in computer science.
- Receive / Hold a m _ _ _ _ _ 's degree, a bachelor's degree, a PhD in mechanical engineering.
- Entry requirements, confidential r _ _ _ _ _ _ _ _ s (recommendations) from employers / professors, eligible candidate, q _ _ _ _ _ _ _ _ _ _ _ _ _ s.
- U _ _ _ _ _ _ _ _ _ _ _ e / postgraduate degree.
- Terms (of study), Optional / c _ _ _ _ _ _ _ y modules.

1. You can hear "*There's gonna be...*" in the presentation here. Note that, in speech, the informal contraction of "going to" is "gonna": e.g. *We're gonna win today*.

- Dissertation.
- Funding, f _ _ s, scholarship.
- Part-time, f _ _ l-time, distance learning course.

a) Listen to a Professor of City University, London, presenting their MSc on Maritime Operations and Management course.

i. Listen and answer the following questions:
- What type of job does this degree prepare you for?
- Can you enter the course if you are a serving seafarer?
- How many terms are there in the full-time course?

ii. Here is an outline of the presentation. Listen again and fill in the missing words.

- Full-time course – duration: 1 year
- Part-time course – duration: up to ..... years

You can come with an undergraduate degree in subjects like:
Law, Science, Engineering, Accountancy, Management

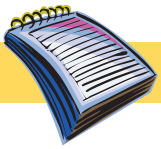
If you come from the sea, you need a ..... Certificate with some years of experience as Master or ..... .

1st term	*2nd term*	*Final term*
(compulsory modules) Operations, ..., Law, Management, Accountancy and Finance	(optional modules) Off-shore Engineering, Environment, Marketing, ..., Risk Management, Ship	....
Note: exams after Christmas		*Note:* viva

iii. Read a description of the course content and fill in the missing words.

offshore / technical / risk / advantage / operations

This course makes use of prestigious visiting speakers and takes (1) .... of the importance of London as an international maritime hub. Students will gain an understanding of maritime (2) ....., management, marine law, accountancy and technology and the related business environment in the maritime industry. The course will also provide (3) ..... knowledge of selected aspects of ship design and operation and related maritime land-based or (4) ..... structures, sub-sea engineering / mining, environment, marketing, security, (5) ..... management and port operations.



Glossary

modules	units of study that can be combined to form a course at university
viva	an oral examination for an academic qualification
hub	the effective centre of an activity or network; the central and most important part of a particular activity or place

b) Study the information on postgraduate studies in Southampton Solent University[2] and answer the following comprehension questions.

1. What is the duration of the course?
2. What must non-native speakers of English do to get into the course?
3. Imagine you choose to do the following course full time, how much will you pay?
4. Are there exams in order to finish the course? What type of assessment is used?
5. Are you eligible to apply after you finish the Academy? Do you meet the entry requirements?

MSc International Maritime Studies – Ship and Shipping Management

2013 – Course overview

This course is designed to provide a period of intensive study in a specialist maritime area. You will reflect on the latest research in safety management techniques in the maritime industry.

Course content

International Maritime Law (including offshore energy law).
Management of Shipping Operations: You will look at how ship and shore are linked to enhance the commercial, safety and environmental protection aims of the maritime venture.
Maritime Business and IT Strategy: This unit blends the complementary subjects of strategic management and IT strategy and considers the role of IT in the improvement of the maritime enterprise.
Safety and Enforcement: You will gain an appreciation of the role of key organisations associated with health, safety and maritime law enforcement in both the shipping and offshore industries.
Project Proposal: The aim of this unit is to enable you to produce an achievable research proposal for the master's-level project. It introduces you to the methodological options for data analysis.
Project: Maritime professionals need to be able to lead changes in policy or practices. For this unit you will identify, plan and implement a programme of research in an area relevant to your future career.
Assessment: Each taught unit is assessed by a combination of presentations, written coursework and/or an examination.
Course length: 12 months full-time (also available part-time, 24 months).
Fees (2013): **Full-time** EU students: £6,500, Overseas students: £11,000.

Entry level

An honours degree in maritime studies, environmental science, or in any appropriate subject area

2. The full information on the MSc in Maritime Studies course is available in Appendix IV, page 271.

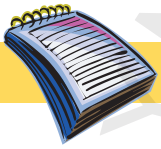
at 2.2 or above, OR, an ordinary degree or HND in a technical or business discipline, combined with an appropriate track record of achievement in a professional context.
Qualifications equivalent to the above may also be considered – contact the Faculty Officer for further information. If your first language is not English, you must have an IELTS score of 6.5 (6.0 writing) or equivalent.
In the case of professional mariners, the entry requirements are as follows:

- Deck Officer: Master's (Unlimited) Certificate + at least two years' experience as Chief Officer.
- Ship Engineer: Chief Engineer (Class 1) Certificate + at least two years' experience as Chief Engineer.
- For professional applicants, proof of prior learning and relevant work experience is necessary.

Career opportunities: Career paths include

- Ship and shipping company management.
- Marine accident investigation.

- Go to pages 271-273 where information is provided on two different postgraduate (Master of Science) courses. What is the difference in the mode of study between them?



Glossary*

IT	Information Technology (the use of electronic processes and equipment to store and send information of all kinds, including words, pictures, etc.)
HND	Higher National Diploma (a British university or college qualification, especially in a technical or scientific subject)
venture	a business project or activity, especially one that involves taking risks
faculty	a department (or group of related departments) in a college or university, e.g. *the Faculty of Law*. Also, all the teachers in a faculty.
expertise	expert knowledge or skill in a particular field (subject, activity or job)
diverse	showing a great deal of variety; very different
enhance	to increase or further improve the good quality, value or status of something
managerial	connected with the work of a manager
pose	to create a threat, problem, etc. that has to be dealt with; to present or constitute a problem or danger
discipline	a branch of knowledge, typically one studied in higher education
eligible	having the right to do or obtain something; satisfying the appropriate conditions (a person who is eligible for something has the right qualifications, is at the right age, etc.)
accredited	officially approved as being of an accepted quality or standard
complementary	different but together forming a useful or attractive combination (of skills, qualities, physical features, etc.)

* Vocabulary contained in Appendix IV (p. 271) is also included in the Glossary.

Vocabulary work

c) Fill in the gaps with words from the glossary.

1. ..... candidates must be under 26.
2. That is the building of the Arts ..... .
3. This is an opportunity to ..... the reputation of the company.
4. Does she have any ..... experience?
5. The tasks I have undertaken ..... no special problems.
6. They have different but ..... skills; they make a great team.
7. It's difficult to find staff with the level of ..... required for this job.
8. My interests are very ..... . They span from scuba diving to pottery.

d) Fill in the blanks with the following words.

assess / fees / intensive / qualifications / length

1. The ..... are very high for this course; I cannot afford to pay that much.
2. In this job, experience counts for more than paper ..... .
3. The ..... of the course is 12 months.
4. It is an ..... course; we have classes everyday for 4 hours per day.
5. You can come for an interview in order for us to ..... if you are a suitable candidate for this degree.

e) Look at the following uses/meanings of the verb "apply" we have encountered. Match the example sentences on the right to the different meanings of the word.

1. to make a formal request in writing for a job, a place at university, etc
2. to use something (or make something work) in a particular situation
3. to spread something such as paint or cream onto a surface
4. to be relevant, to concern or relate to somebody / something
5. to press hard on something (with your hand, etc.) to make something work or have an effect on something

- ☐ The glue should be **applied** to both surfaces.
- ☐ Special conditions **apply** if you are a professional seafarer.
- ☐ I **applied** to the company but I still haven't heard from them.
- ☐ Pressure **applied** to the wound will stop the bleeding.
- ☐ The new technology was **applied** to farming.

f) Fill in the missing derivatives in the table below.

Verb	*Noun*	*Adjective*
apply	.....	..... (e.g. ..... mathematics)
	[*person*] applicant	applicable (e.g. applicable rule)

g) Fill in the missing letters for the following collocations with a similar meaning.

Maritime
- B _ _ _ _ _ _ s
- E _ _ _ _ _ _ _ _ _ e
- V _ _ _ _ _ e
- I _ _ _ _ _ _ y

h) Occupations: Match the words (draw arrows).

Designated	Manager
Fleet	Person Ashore
Marine	Investigator
Marine	Superintendent
Marine Accident	Surveyor

i) What is the correct preposition? Match.

associated	on
proof	at
aimed	in
reflect	with
changes	of

j) What is the odd word out?

1. implement, put into effect, make use of
2. improve, obtain, enhance
3. assignment, task, arrangement
4. advance, run, manage

k) Match the adjectives to the nouns to form correct collocations. Draw arrows.

native	industry
full-time	speaker
offshore	candidate
eligible	course

l) Match the nouns to form collocations.

1. Data	☐ opportunities
2. Distance	☐ enforcement
3. Law	☐ analysis
4. Career	☐ of Competence
5. Certificate	☐ learning

m) Complete the tables with the missing derivatives.

Verb	***Noun***
	investigation
appreciate	
assess	
	attendance

Noun	***Adjective***
	motivated
environment	
	achievable

n) Choose the appropriate word (in the correct form) from the tables of the previous exercise and fill in the blanks.

1. I am interested in Marine Accident ..... .
2. ..... protection is high on the agenda for organizations like the IMO.
3. Do you think this project is ..... within a two-month period?
4. I spent two months on board and gained a(n) ..... of the living conditions of seafarers at sea.
5. We will ..... your progress in this course by a written examination.
6. ..... at the university is not obligatory.
7. Only really ..... candidates stand out in job interviews.

o) Write the noun for each of the following verbs.

improve → .....
require → .....
enforce → .....
employ → .....
→ [*person*] employer / .....

p) You are writing a letter to the University Faculty Officer, explaining what your current situation is and which course you are interested in. Complete the missing phrases.

as part of a sandwich course	**entry requirements**	**arrange for an individual visit**
I am currently at sea	**I am considering**	**Shipping Operations**

I am planning a visit at your University as (1)..... further education and training there. I am currently a cadet doing my training voyage (2)..... ..... in Marine Engineering.
I am interested in your postgraduate part-time or distant learning courses on Shipping Management or (3)..... . I would like to meet a member of your teaching or support staff who can advise me as to the (4)..... for these courses.
Unfortunately, I can't make it on any of your "open days" where you brief prospective students on the courses, since (5)....., but we will be staying in Southampton on July 26th and I was wondering if we could (6)..... ..... and a guided tour of the university, with emphasis on the maritime department.

q) Write an e-mail to the Faculty Officer requesting information on the distant learning course. Ask about the fees, how often classes take place during the week, the application procedure, and any other questions you might have.

r) Share your future career plans with your study partner. Look at what other students have said.

I am going to try to take on a job with the Hellenic Coastguard.

After finishing the course in the Academy I am planning to travel for a few years until I get my Certificate of Competency as Chief Officer. Then, I will look for a job in the port, perhaps working in a pilot boat or a tug boat.

After I get my Captain Class A' Certificate, in my early thirties, I am planning to apply for a postgraduate degree. I hear that the shipping company sometimes funds such courses. I am going to perfect my English and make sure I meet all the necessary entry requirements. With a postgraduate degree I will be ready to find a good shore-based job, perhaps as marine superintendent.

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

☐ Use "be going to" to discuss your future plans
☐ Talk about the preparations before going to sea (on a new voyage)
☐ Use "will" / "be going to" to plan a day ashore

B. Class Project.

Look for an English-speaking university abroad that offers maritime studies/ marine engineering studies at bachelor's or master's level. Find out (from their website or brochure) details about the applications procedure and present to class your findings on the following:

- When / how must you apply?
- Are there confidential references required with your application?
- What are the fees for the particular course?

- What funding is available?
- What are the entry requirements?
- What are the airport/train connections to the particular university?
- What type of accommodation is available?

C. Fill in the gaps with the following words.

hub / online / optional / applies / opportunities / gain / faculty

1. The special discount only ..... to students under 28.
2. Nine ..... modules must be taken to complete the degree.
3. Southampton is a maritime ..... .
4. There is a(n) ..... meeting tomorrow.
5. Doing a postgraduate degree will broaden your career ..... .
6. This program is offered fully ..... by distance learning.
7. No pain, no ..... .

D. Match the following words to form correct collocations.

1. entry	training
2. intensive	staff
3. higher	tour
4. teaching	rule
5. guided	education
6. applicable	qualifications

REVIEW 2

Units 4-6

Part One: Consolidation / Expansion

Topics:

1. Understanding mooring incidents

2. Accident case: Slippery when wet

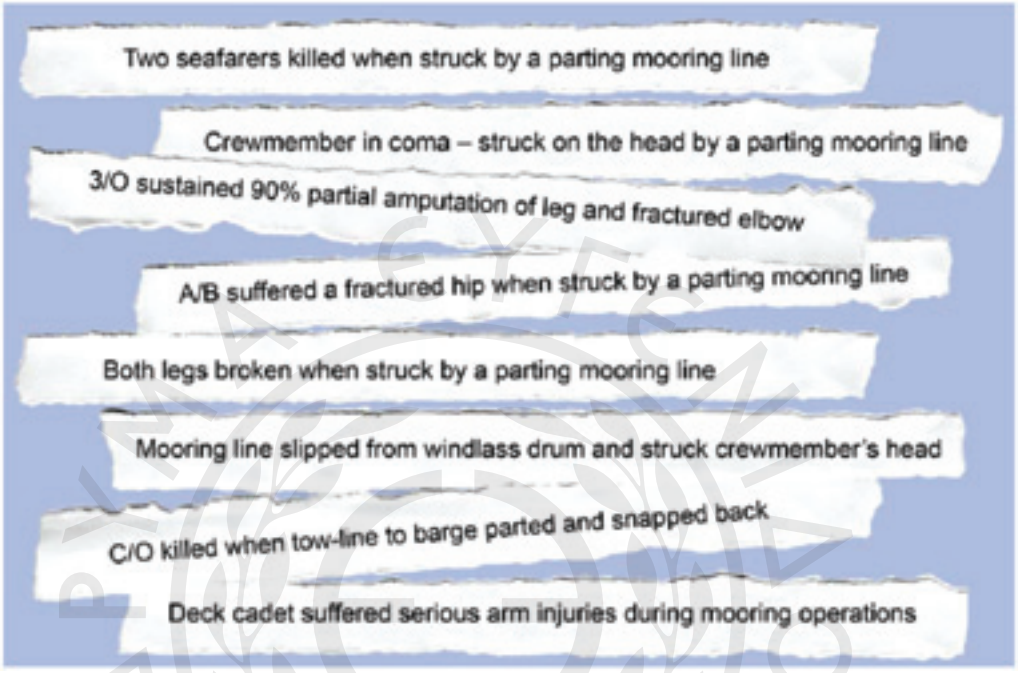
Part Two: Terminology Work

Part Three: VTS Standard Phrases (IMO SMCP: A1/6)

Part One: Consolidation / Expansion

1. Understanding mooring incidents

A. What type of accident do the following extracts / headings refer to?



B. Look at the extracts / headings above and fill in the missing verbs in the vocabulary usage table.

A mooring line can...	_____ _____ somebody (on the head) _____ back
The victim can...	_____ serious injuries _____ or break a hip / leg / arm, etc.

C. What is shown in the following pictures[1]? Match the sentences below to the pictures (there is one extra sentence you will not need to use).

- ☐ Mooring station with effective hazard markings.
- ☐ Ropes correctly stowed off deck.
- ☐ Mooring equipment that is severely wasted.

1. Text and pictures from "Understanding Mooring Incidents", UK P&I Club, *Loss Prevention News*, Jan. 2009.

☐ Ropes badly stored on wet deck.
☐ Well painted but poorly highlighted mooring station.

a) 

b) 

c) 

d) 

D. Read about the following incident and fill in the missing phrases.

efficient mooring arrangements		**a hard hat**
successful	**during cargo operations**	

Who is at the mooring station?

A vessel moored alongside (1)..... was fully laden with her deck level below the dock level. It was noticed from the quayside that the forward spring was caught under a padeye located on the ship's side. An attempt was made to free the line by slacking it on the windlass but was not (2)..... . The line was then heaved taut in the hope that it might jerk free. When the line did free itself, the tension it was under caused it to oscillate up and down, passing 5 feet inboard of the ship's rail and striking a young engineering apprentice in the head.

The engineering apprentice was not involved in the operation and nobody involved was aware of his presence until after the accident. He was also not wearing (3)..... . This incident highlights the need for control over people present at mooring stations, the wearing of PPE and (4)..... .....

Glossary

padeye	a fitting having an eye or ring to which a wire rope or line can be secured / attached
taut	stretched tightly or pulled back; not slack
jerk	move with a quick, sharp, sudden movement
oscillate	swing back and forth in a regular rhythm

2. Accident case: Slippery when wet

A. Read the case below and fill in the missing words in the summary sentences that follow.

Slippery When Wet[2]

Narrative

The duty AB had just come on duty in port when he was assigned to lashing/unlashing operations. This involved using a portable aluminium ladder to climb on top of containers to carry out the required task. The AB was alone and unassisted during this task.

The weather was overcast; in fact it had rained recently, leaving the decks wet and slippery.

The AB propped the portable ladder against the container and, without securing it, climbed up to lash the container. The ladder slipped from underneath him. The AB fell from the top of the container and landed on his feet, which resulted in a compound fracture to his left leg.

As he was working alone, there was nobody to assist him immediately. However, he was fortunate that his personal radio survived the fall and this enabled him to call for assistance. Being in port, he was also lucky to have immediate access to medical attention.

2. From MAIB Safety Digest 2007.

The Lessons

1. The Code of Safe Working Practices for Merchant Seamen stipulates that portable ladders should be properly secured against slipping or shifting, yet this was not practised.

2. If working at a height of more than 2 metres, a safety harness with a life line should be worn. However, as in this case, where this was not possible due to the nature of the work involved, consideration should be given so that at least two people are involved in this kind of operation.

1. The accident happened in ..... .
2. The duty of the AB was to ..... a container.
3. The AB fell off a ..... and broke his leg.
4. He used a portable ladder which he hadn't ..... .
5. The decks were wet and ..... due to prior rain.
6. He used his ..... to call for assistance.
7. The injured man was given ..... attention relatively quickly because the vessel was in port.
8. We was working at a significant height but a safety ..... could not be used in this particular case.
9. There are two things that should have been done: firstly, securing the ladder against slipping and secondly, ... two people to this operation / duty.

B. The following phrases come from the text. What do they mean? Choose the correct alternative.

1. "he was assigned"
   a. he was given some work (a task) to do
   b. he was relocated to another duty
2. "unassisted"
   a. isolated
   b. not helped by anyone
3. "propped (the ladder) against (the container)"
   a. attached (the ladder) to (the container)
   b. supported (the ladder) by leaning it against (the container)
4. "stipulates"
   a. analyzes in depth
   b. states clearly and firmly how something must be done
5. "consideration should be given"
   a. careful thought (when you are planning or deciding something) should be given
   b. priority (when you are planning or deciding something) should be given

C. Imagine you are calling the Port Authorities to ask for hospital transfer for the injured seafarer. They ask you about the type of injury and the type of medical assistance that is required. In pairs, act out the communication.

D. Imagine you are the Chief Officer on the particular vessel. An investigator from the Coast Guard is asking you what each member of the crew was doing at the time of the accident. In pairs, ask and answer about different members of the crew.

e.g. What was the Bosun doing at the time of the accident? He was.....

Part Two: Terminology Work

A. Audit, Inspection or Survey?

1. An ISM ..... examines how shipping companies manage their safety through implementation procedures.
2. A Classification Society ..... is carried out to make sure that ships are built and maintained according to the standards required for their class.
3. A Port State Control ..... is an official visit to the vessel to check that the standards are acceptable.

B. Say, tell or speak?

1. The Chief Engineer ***said / told*** that there were errors in the overtime records.
2. The Inspector ***said / told / spoke*** me to bring my Certificate of Competence.
3. The Master ***said / told / spoke*** me that the fire was under control.
4. The Crew Manager ***said / told*** she would not ***tell / speak*** to me ever again about this touchy issue.

C. Use direct speech to say the exact words from the previous exercise.

The Chief Engineer: "There ....."
The Inspector: "....."
The Master: " ....."
The Crew Manager: "....."

D. **VHF Routine Communication by VTS station.** *Act out the following communications.*

Role A: Palermo Radio Instruct MV SEA CRAVING to alter course to 186 degrees because vessel is obstructing other traffic and is not following the traffic regulations.	*Role B: SEA CRAVING – GHUP9* Answer that the instruction will be carried out.
Role A: Helsinki Radio Indicate that ANABEL must heave up anchor. The vessel is allowed to enter traffic lane at 1300 hours UTC and proceed to berth no 6. Inform that there is an underwater wreck on ANABEL's course. The vessel is advised to change course to 185 degrees.	*Role B: ANABEL – UTW8T* Answer that both instructions will be carried out.

VTS-station Helsinki Radio to all vessels in vicinity of TSS:

Traffic movement information at 1400 hrs UTC. Route from roadstead to entrance temporarily not to be used. Inshore traffic lane permanently closed for inbound vessels. Vessels underway to sea are requested to use the inshore traffic lane.

Role A: Helsinki Radio

Inform the vessel that the port of destination will be temporarily closed due to severe weather conditions.
Advise the vessel to proceed to an area of safe open water and wait for the port to reopen.

Role B: ANABEL – UTW8T

(on its way to a scheduled crossing in severe weather)

You have received the message and will follow the instructions.

E. What tools / objects can you see in the pictures below? Write their names. For extra help you can use the words in the box.

drill chuck bit hammer mallet bolt nut washer
spirit level head nail thread screw vice scissors file chisel
spanner or wrench ladder rung roller adjustable wrench or monkey wrench
stepladder step paintbrushes screwdriver hacksaw pliers

F. Fill in the correct tense (Past Continuous or Simple) of the verbs in brackets.

1. The pilot _____ (embark) the vessel when the pilot ladder _____ (collapse).
2. The pirates _____ (shoot) at the crew when the naval forces _____ (arrive) on the scene.
3. The officers _____ (eat) in the messroom when the fire _____ (break out).
4. The vessel _____ (leave) its berth when I _____ (realise) that a crewmember was missing.
5. We _____ (hear) a strange noise as we _____ (repair) the broken pipe.

G. The speaker explains why his cruise company (Carnival UK, including brand names P&O Cruises and Cunard) has chosen to be located in Southampton. Listen and tick the phrases you can hear.

☐ deep water ports	☐ superb facilities	☐ maritime hub
☐ international ports	☐ large liners	☐ professional services
☐ operating passenger ships	☐ experienced crew	☐ supply services

*H. Look at the following three pictures. What **is going to** happen?*

a) 

b) 

c) 

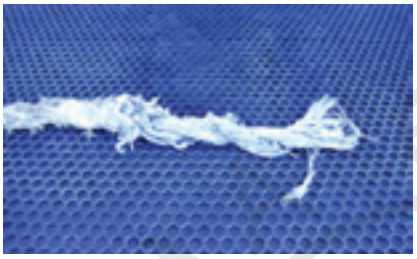
*I. Write a request to the ship's agents in a **telex**: you need consumables for the photocopier machine (paper, toner, ink cartridges).*

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

J. Match the words below to form correct collocations.

1. Scaffold	cutter
2. Drain	hammer
3. Parted	bucket
4. Oxygen	plank
5. Sand	line
6. Chipping	blasting

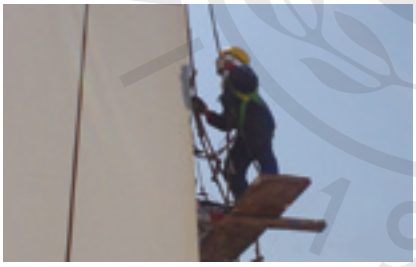
K. What can you see in the following pictures? Write the phrases you created in the previous exercise as legends under the pictures.

a) 

b) 

c) 

d) 

e) 

f) 

L. Choose one of the pictures above and talk about the type of accident / injury that can happen. What PPE must be worn for the work done?

Part Three: VTS Standard Phrases (IMO SMCP: A1/6)

A. Match the questions to the answers. Draw arrows.

- Are you on even keel?
- Are you underway?
- Do you have any deficiencies?

No, I am anchored.
Yes, I am constrained by draught.
No, I am trimmed by the head.

B. Say the following using the SMCPs.

Student A: Rephrase the sentences according to the SMCPs. Don't forget the message marker.

Student B: Look at the list of phrases on page 263 to check if your study partner says them correctly. Put a tick ☑ for all the correct standard phrases s/he is using. Help your partner find the exact phrases by suggesting ways to correct them.

⇨ Ask the direction they are approaching from.
⇨ Ask which port they are going to.
⇨ Inform them that you are going inside the fairway.
⇨ Tell them they should keep their course as it is.
⇨ Tell them you need two tugs.
⇨ Warn them that there is a reef whose position is not charted on the charts in area around buoy 18.

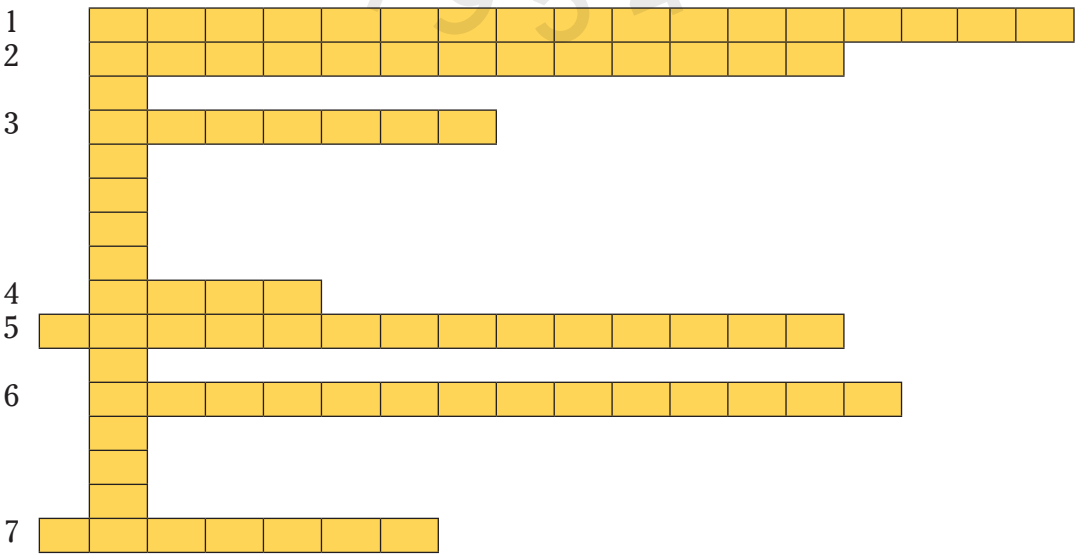
C. **VTS special terms:** *Make sure you know the VTS special terms in the word puzzle.*

(Across)

1. TSS: _____ _____ Scheme; a routeing measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes. (2 words)
2. It is displayed on the radar screen in electronic navigation charts and VTS centres and separates the fairway for inbound and outbound vessels so that they can safely pass each other. (2 words)
3. Navigable part of a waterway.
4. Traffic _____: an area within defined limits in which one-way traffic is established.
5. A mark or position at which a vessel is required to report to the local VTS to establish its position. (2 words)
6. A mark or place at which a vessel comes under obligatory entry, transit, or escort procedure. (2 words)
7. VTS: Vessel Traffic _____ (designed to improve the safety and efficiency of vessel traffic and to protect the environment).

(Down)

VTS authorization for a vessel to proceed under conditions specified. (2 words)



D. Use words from the word puzzle to fill in the gaps below.

1. Do not enter the inshore _____ _____.
2. You are off course. Your track is diverging from the _____ _____.
3. You have permission to enter the _____ at 1800 – _____ _____ granted.
4. Do not pass your next _____ _____. Remain there until you receive further traffic information.
5. Icebreaker will escort you. Wait for icebreaker at _____ _____ near Buoy no. 22.

E. Match the words to form correct collocations.

1. Fairway	gear
2. Submerged	~~speed~~
3. Shallow.....	wreck
4. Tug	water
5. Slack	services
6. Fishing	approach
7. Transit .... speed	tide

F. The following SMCP phrases are normally transmitted from the shore. Put them under the correct heading.

Navigational warnings	***Traffic information***	***Hydrographic information***	***Meteorological information***
Course	***Enforcement***	***Berthing***	***Canal & lock operations***

- Wind is veering and increasing.
- You will join convoy at 1350 hours UTC. Your place in convoy is number 3.
- Unlit derelict vessel adrift in vicinity of buoy C8.
- You are not keeping to the correct traffic lane. Your actions will be reported to the Authorities.
- Large vessel is crossing west traffic lane.
- Your track is parallel with the reference line.
- Your vessel is in position – make fast.
- A tide of 2 metres above datum is expected in your position.

G. Match the halves to make full sentences.

1. Charted depth has increased....	☐ is required before entering.
2. Traffic clearance....	☐ by 3 metres due to sea state.
3. Report....	☐ are not visible.
4. Visibility....	☐ to get underway.
5. Your navigation lights....	☐ at the next waypoint at 1700 hours UTC.
6. Be ready....	☐ the fairway.
7. You are obstructing....	☐ is reduced by rain.

H. Fill in the gaps with the words in the box.

embark	**heaving**	**issued**	**steering**
sufficient	**lost**	**expected**	**reach**

1. I have _____ radar contact.
2. I require navigational assistance to _____ the traffic lane.
3. Gale warning was _____ at 1500 hours UTC starting at 1700 hours UTC.
4. You are _____ a dangerous course.
5. Abnormally high tides are _____ in your position at 1200 hours UTC.
6. Have your crew on stand-by for _____ up anchor when the pilot embarks.
7. The depth of water is not _____ in your position.
8. The pilot cannot _____ due to poor visibility.

I. Fill in the missing prepositions.

back	**with**	**of**	**at**	**for**	**from**
to	**on**	**on**	**on**	**below**	**into**

1. You are not complying _____ traffic regulations.
2. I am approaching _____ SE.
3. Say again your position. I cannot locate you _____ my radar screen.
4. You are running _____ danger. Bridge is defective.
5. The tide is 2 meters _____ prediction.
6. Vessel _____ opposite course is passing _____ the West of you.
7. You must drop _____ from the vessel ahead _____ you.
8. You are _____ anchor in a wrong position.
9. MV Pride is _____ fire in position 44° 30' N, 042° 52' E. Stand by _____ assistance.

J. Explain the following key words found in COLREGs and then use them to fill in the gaps.

cross	**on opposite course**	**ingoing vessel**
overtake	**stand on**	**outgoing vessel**

1. Warning. MV Dante is entering the fairway and is not under command. I repeat. _____ vessel not under command.
2. Instruction. _____ as you are approaching the limit of the fairway. _____ vessel will _____ to the west of you.
3. Do not _____ the fairway.
4. Disabled vessel _____ from you. Pass NW of disabled vessel.

K. Anchoring instructions. Try to guess the missing words.

1. You must anchor clear of fairway. Anchoring is p _ _ _ _ _ _ _ _ d inside the fairway.
2. You must h _ _ _ e up anchor.
3. Are you d _ _ _ _ _ _ g anchor? *(two possible answers)*

*L. Match to create **warnings / instructions.***

1. Keep _____ .		overtake
2. Navigate _____ .		clear
3. Avoid _____ .		with caution
4. Do not _____ .		this area
5. Get _____ .		underway

M. Fill in the correct derivatives.

1. _____ prediction for area BA21 is as follows: ... [TIDE]
2. Proceed to the emergency _____ . [ANCHOR]
3. _____ mine adrift in vicinity of your position. [HAZARD]
4. Dangerous _____ reported in your position marked by yellow and black buoy. [OBSTRUCT]
5. Warning. _____ object in position 44° 30' N, 042° 52' E. Navigate with caution. [KNOW]
6. Oil _____ operations near MT STATE in position 44° 30'N, 042° 52' E. Wide berth requested. [CLEAR]

Note the meaning and use of the following useful phrases:

Wide berth requested.
(= keep a safe distance) e.g. Pipeline is leaking gas in position... Wide berth requested.

Do you have any deficiencies?

(= a failure or shortcoming)

e.g. "Do you have any deficiencies?"
"Yes, I have the following deficiency: I am constrained by draught."

Also, ***"Do you have any restrictions?"***
(= a limiting condition or measure, especially a legal one)

N. Do you know what the following verbs mean? Look at the example phrases and match the verbs in bold to their meanings.

- Your track is **diverging** from the reference line.
- Stand on, you are now **converging** to the agreed route.
- Do you require a pilot?
  No, I do not require a pilot – I am holder of Pilotage Exemption Certificate.
  You are **exempted** from pilotage. You have permission to proceed by yourself.
- Tug services have been **suspended** until 1200 hours UTC.
- Tug services have been **resumed**. How many tugs do you require?
- Buoy A2 in position 44° 30' N, 042° 52' E **discontinued**.

1. _____ to separate and go in different directions
2. _____ to come from different directions and meet at a point
3. _____ to stop something for a time; temporarily prevent from continuing, defer or delay (a service, an operation, etc)
4. _____ an activity begins again or continues after an interruption
5. _____ to stop providing some service that was provided on a regular basis
6. _____ to give/get official permission not to do something (that you would normally have to do)

O. Berthing instructions: Try to guess the missing words.

1. Your o _ _ _ _ s are to berth on berth 77.
2. You have p _ _ _ _ _ _ _ _ n to proceed at 1900 hours UTC.
3. Berthing has been d _ _ _ _ _ d by 2 hours. Your berth will be c _ _ _ r at 2000 hours UTC.

P. Canal and lock operations: Choose the correct alternative.

1. You must ***close up / close down*** on the vessel ahead of you.
2. You must wait for lock ***permission / clearance*** at 1200 hours UTC. You will enter lock at 1230 hours UTC.
3. ***Transit / Transfer*** will begin at 1800 hours UTC. ***Convoy / Ship-line*** must moor at position clear of the canal entrance.

Q. Choose the correct alternative of the words in bold.

1. According to my radar, your course does not ***fulfil / comply with*** rule 10 of the COLREGs.
2. Have all navigational instruments ***in operation / in service*** before entering this area.
3. Your present course is too close to ***ingoing / entering*** vessel.
4. ***Recover / Recall*** your fishing gear. You are fishing in the fairway.
5. You are ***approaching / advancing*** a prohibited fishing area.
6. GPS Satellite 4 unusable from 1300 to 1500 hours UTC. Cancel one hour after time of ***restoration / return***. *[= this warning will not be in effect one hour after the system is operational]*
7. Uncharted reef ***depicted / located*** in position 44° 30' N, 042° 52' E.
8. Navigation ***closed / shut*** in area South Estuary.
9. Salvage operations in position 44° 33' N, 042° 53' E. Wide ***space / berth*** requested. Contact via VHF channel 14.
10. Stand by on VHF channel 12 until pilot ***transfer / transport*** is completed.
11. Pilotage has been ***suspended / postponed*** until 1300 hours local time.
12. Pilotage has been ***restarted / resumed***. You have permission to wait for the pilot at Buoy no. 17.

R. Avoiding dangerous situations: Fill in the missing words.

approach	**remain**	**progress**	**proceeding**
caution	**roadstead**	**wide**	**danger**
overtaking	**deviating**	**cross**	**leaving**

1. It is dangerous to _____ in your present position.
2. Large vessel is leaving the fairway – keep clear of the fairway _____.
3. Nets without buoys in this area – navigate with _____.
4. Vessels must keep clear of this area. Search and rescue in _____.
5. Your present course is too close to the vessel that you are _____.
6. Your course is _____ from the radar reference line.
7. You are running into _____; shallow water to the SE of you.
8. You are _____ at a dangerous speed. You must stay clear of the fairway.
9. You must wait for MV TRINIDAD to _____ ahead of you.
10. You must wait for MV TRINIDAD to clear before _____ the berth.
11. Cable operations by MV GROAN in vicinity of your position. _____ berth requested.
12. Small fishing boats in area around _____ – navigate with caution.

S. Pilot request: Write the questions.

1. .....?
   Yes, you must take a pilot – pilotage is compulsory.

2. ..... ?
   My ETA at Piraeus Pilot Station is 1200 hours local time.
3. ..... ?
   My distance from Piraeus Pilot Station is 3 nautical miles.
4. ..... ?
   No, the pilot boat is not on station. The pilot boat will be on station at 1200 hours UTC.
5. ..... ?
   You can take the pilot in your present position.
6. ..... ?
   The pilot will embark at 1200 hours local time.

APPENDIX I
English for Marine Engineers

1. Fuels

Introduction: Bunkering procedure

A. Explain what the following keywords mean.

- ⇨ Secure alongside
- ⇨ Bunker hose
- ⇨ Fenders
- ⇨ Manifold
- ⇨ Drip sampling
- ⇨ Pumping
- ⇨ Supply tanker/barge

B. High Seas Bunkering: Listen to the steps of a high seas bunkering procedure (as described by a bunker supply company).

i. Put the procedure steps in the correct order. Write the appropriate number (1-7) in the space provided. Two numbers are given for help.

_____ Connecting bunker hose to manifold.
_____ Using the ship's crane to hoist the bunker hose.
__3__ Vessel's deck crew opening the manifold.
__5__ Attaching bottle for drip sampling in the supply tanker.
_____ Securing supply tanker alongside the vessel.
_____ Pumping starts.
_____ Vessel drip sampling for quality control.

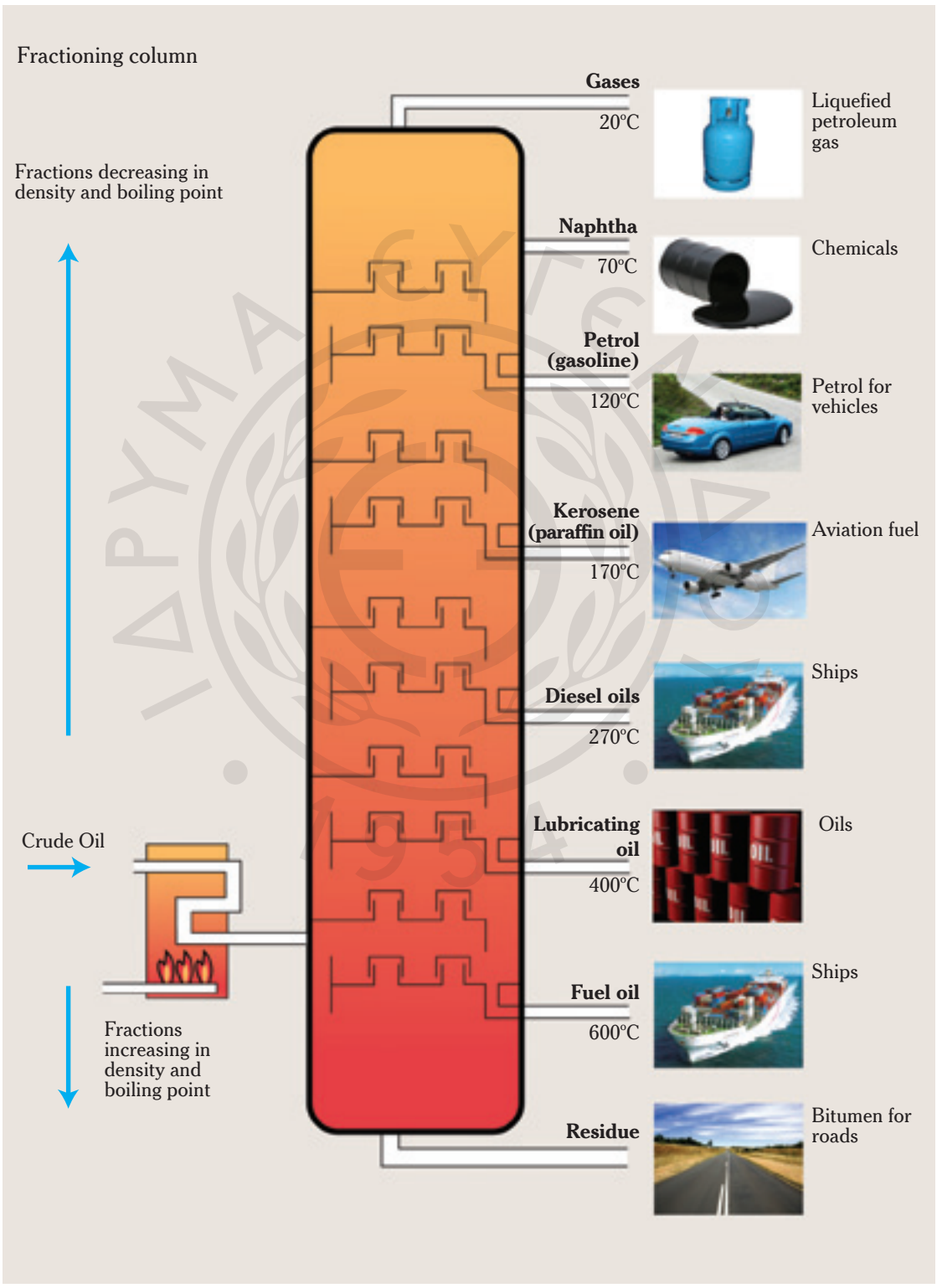
ii. Listen again to fill in the gaps with the correct words / phrases in the following sentences.

1. An adequate number of Yokohama _____ are placed on the supply tanker depending on weather conditions.
2. After the manifold is opened, the supplier hands over the _____ button to the vessel.
3. Samples are sealed for later verification of supplied product quality in case a _____ _____ arises.
4. The _____ is up to 600 m^3/h.
5. There is _____ between the crews about pumping speed.
6. The supply tankers are _____-hulled, state of the art tankers.

I. HFO / MDO

Lead-in:

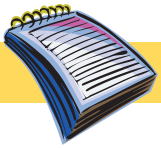
A. What is going on in this tower (column)?



Fractional distillation is the process through which the products (fractions) of crude oil are obtained at different points of the distilling tower (column), according to their boiling temperatures.

B. Useful vocabulary: Write the following words in the glossary below.

distillate / treatment / crude oil / viscosity / sludge / distil / residue



Glossary

.....	the oil as it is obtained from an oilfield
.....	refine
.....	product of distillation
.....	process for improving quality
.....	what remains left over
.....	mud, dirt
.....	property of a liquid showing how easily it flows

C. Quiz. Answer the following questions. For extra help, choose the answers from the list that follows.

1. What do marine fuels come from?
2. Through what process are they obtained?
3. Which fuels are mainly used in marine diesel engines?
4. How do we call the fuels that are refined petroleum products?
5. How do we call the fuels that come from the residues of petroleum distillation?
6. The quality of a fuel is expressed by this word, which basically indicates how well a fuel will burn in the cylinders. Which word is it?
7. Which fuel is a low-grade oil and has a high viscosity?
8. Which fuel is a high-grade oil of lower viscosity than HFO (which means that it is thinner than HFO, and therefore it will flow more easily)?
9. How do we call any fuel whose grade lies between HFO and DO?

• residual fuels, e.g. Heavy Fuel Oil (HFO)	• crude oil	• Heavy Fuel Oil (HFO)
• fractional distillation	• Marine Diesel Oil (MDO/DO)	• distillates, e.g. gasoline (petrol)
• Intermediate Fuel Oil (IFO)	• grade	• Marine Diesel Oil (MDO) & Heavy Fuel Oil (HFO)

D. Work with your partner to compare the two types of marine fuels in terms of use and properties by putting the characteristics of each type of fuel in the correct list below.

no special treatment needed	produces sludge	expensive	it needs treatment (heating & purifying) due to its higher viscosity
cheaper	used in manoeuvring	less dirty	produces dirtier exhaust gas

MDO	HFO
.....	.....
.....	.....
.....	.....
.....	.....

E. Read the text below to check your answers. Do you agree with the writer? Underline the properties of the fuel in the text.

Fuel is an important criterion for the choice of the engine, since more than 50% of the total running cost of the ship is due to fuel consumption. Marine diesel oil is best because it produces less dirt and does not need special treatment, but it is expensive. It may be used when the vessel is manoeuvring. Heavy fuel oil is much cheaper but it produces sludge and dirtier exhaust gases. It contains more sulphur than diesel and, having a higher viscosity, it cannot be pressed through injectors without treatment. It needs heating to decrease viscosity and purifying to eliminate water and dirt particles, too big to pass through the injector. Heating is done in fuel heaters mostly by electric heating, and cleaning is done in separators, centrifuges, where water and heavy particles are separated from the oil.

Do you agree with the following statement? Discuss in class.

"Nowadays diesel oil is no more used in marine diesel engines (due to its high cost). Heavy fuel oil is used in all cases (with a slight addition of diesel)."

F. When assessing the quality of a fuel, we must take into consideration a large number of standard properties of fuels that will determine its grade. The following list of terms includes the most important parameters of fuel oils for Diesel engines. In pairs, match the terms with the appropriate explanation.

cetane number, viscosity, specific gravity, pour point, flash point, sulphur, carbon residue, ash content, water and sediment, heating value

1.
2.

1. The lowest temperature at which the oil will flow.
2. Chemical element(s) which can be very injurious to engine parts during combustion because it/they change(s) into acid.

3.	3. The temperature (approx. 150° F) at which the fuel vapors produce a flash (ignite) when a flame is applied to it.
4.	4. Unburned carbon (C) during combustion which can deposit on engine parts.
5.	5. The measure of the resistance of the fuel to movement. The higher it is, the more difficult for the fuel to flow.
6.	6. Non-combustible solid material in the fuel which scratches the rubbing surfaces it comes in contact with.
7.	7. The amount of heat (e.g. B.t.u.) given off on complete combustion of one pound of fuel (also called "specific energy").
8.	8. A measure of the density or weight of the fuel. It also serves as a rough check on viscosity, carbon content and other qualities.
9.	9. An indication of the quality of the ignition of the fuel.
10.	10. Content in water and solid particles. The higher it is, the more possible it is to cause erratic combustion and corrosion.

G. Are the following statements True or False? Discuss with your study partner.

1. The higher the viscosity of a fuel oil, the more heating it needs to reduce it.
2. Around the pour point the fuel can hardly be pumped and needs heating.
3. Sulphur is extremely harmful to metal surfaces when it turns into sulphuric acid.
4. Heavy fuel oils form more carbon deposits because they have a lower carbon residue figure.
5. Carbon deposits can be formed in every part of the engine.
6. The cetane number of a fuel oil should be proportional to the engine speed.
7. High water content in the fuel does not affect combustion whatsoever.
8. High specific gravity does not necessarily imply highly viscous fuel.
9. Sediment is formed when suspending solid particles in the fuel coagulate and sink down.
10. Heating value is the amount of heat given off on complete combustion of one litre of fuel.

Note: Remember the following comparative structure: ***the more..., the more...***
"The higher the viscosity of a fuel, the more heating is needed to reduce it."
"The higher the r.p.m. of the engine, the higher the required cetane number."

II. Marine Fuel Oil Standards

The international ISO-standard is used in order to be able to assess the quality of marine fuels. The following table[1] displays the latest standards for marine distillate fuels and marine residual fuels.

Marine Distillate Fuels

Parameter	*Unit*	*Limit*	*DMX*	*DMA*	*DMZ*	*DMB*
Viscosity at 40°C	mm^2/s	Max	5.500	6.000	6.000	11.00
Viscosity at 40°C	mm^2/s	Min	1.400	2.000	3.000	2.000
Micro Carbon Residue at 10% Residue	% m/m	Max	0.30	0.30	0.30	-
Density at 15°C	kg/m^3	Max	-	890.0	890.0	900.0
Micro Carbon Residue	% m/m	Max	-	-	-	0.30
Sulphur[a]	% m/m	Max	1.00	1.50	1.50	2.00
Water	% V/V	Max	-	-	-	0.30[b]
Total sediment by hot filtration	% m/m	Max	-	-	-	0.10[b]
Ash	% m/m	Max	0.010	0.010	0.010	0.010
Flash point	0°C	Min	43.0	60.0	60.0	60.0
Pour point, Summer	0°C	Max	-	0	0	6
Pour point, Winter	°C	Max	-	-6	-6	0
Cloud point	°C	Max	-16	-	-	-
Calculated Cetane Index		Min	45	40	40	35
Acid Number	mgKOH/g	Max	0.5	0.5	0.5	0.5
Oxidation stability	g/m^3	Max	25	25	25	25[c]
Lubricity, corrected wear scar diameter (wsd 1.4 at 60°C[d])	um	Max	520	520	520	520[c]
Hydrogen sulphide[e]	mg/kg	Max	2.00	2.00	2.00	2.00
Appearance			Clear & Bright[f]			[b, c]

a. A sulphur limit of 1.00% m/m applies in the Emission Control Areas designated by the International Maritime Organization. As there may be local variations, the purchaser shall define the maximum sulphur content according to the relevant statutory requirements, notwithstanding the limits given in this table.
b. If the sample is not clear and bright, total sediment by hot filtration and water test shall be required.
c. Oxidation stability and lubricity tests are not applicable if the sample is not clear and bright.
d. Applicable if sulphur is less than 0.050% m/m.
e. Effective only from 1 July 2012.
f. If the sample is dyed and not transparent, water test shall be required. The water content shall not exceed 200 mg/kg (0.02% m/m).

1. ISO 8217 Fourth Edition 2010, Source: DNV (Det Norske Veritas) Managing Risk, www.dnv.com

Marine Residual Fuels

Parameter	***Unit***	***Limit***	***RMA***[a]	***RMB***	***RMD***	***RME***	***RMG***				***RMK***		
			10	***30***	***80***	***180***	***180***	***380***	***500***	***700***	***380***	***500***	***700***
Viscosity at 50°C	mm^2/s	Max	10.00	30.00	80.00	180.0	180.0	380.0	500.0	700.0	380.0	500.0	700.0
Density at 15°C	kg/m^3	Max	920.0	960.0	975.0	991.0	991.0				1010.0		
Micro Carbon Residue	% m/m	Max	2.50	10.00	14.00	15.00	18.00				20.00		
Aluminium + Silicon	mg/kg	Max	25	40		50	60						
Sodium	mg/kg	Max	50	100		50	100						
Ash	% m/m	Max	0.040	0.070			0.100				0.150		
Vanadium	mg/kg	Max	50	150			350				450		
CCAI	-	Max	850	860			870						
Water	% V/V	Max	0.30	0.50									
Pour point (upper)[b], Summer	°C	Max	6				30						
Pour point (upper)[b], Winter	°C	Max	0				30						
Flash point	°C	Min	60.0										
Sulphur[c]	% m/m	Max	Statutory requirements										
Total Sediment, aged	% m/m	Max	0.10										
Acid Number[e]	mgKOH/g	Max	2.5										
Used lubricating oils (ULO): Calcium and Zinc; or Calcium and Phosphorus	mg/kg	-	The fuel shall be free from ULO, and shall be considered to contain ULO when either one of the following conditions is met: Calcium > 30 and zinc >15; or Calcium > 30 and phosphorus > 15.										
Hydrogen sulphide[d]	mg/kg	Max	2.00										

a. This residual marine fuel grade is formerly DMC distillate under ISO 8217:2005.
b. Purchasers shall ensure that this pour point is suitable for the equipment on board, especially in cold climates.
c. The purchaser shall define the maximum sulphur content according to the relevant statutory requirements.
d. Effective only from 1 July 2012.
e. Strong acids are not acceptable, even at levels not detectable by the standard test methods for SAN. As acid numbers below the values stated in the table do not guarantee that the fuels are free from problems associated with the presence of acidic compounds, it is the responsibility of the supplier and the purchaser to agree upon an acceptable acid number.

A. Study the tables and answer the following questions.

1. Which parameters of the fuels have not been mentioned so far? Underline them on the tables.
2. How do they affect combustion or engine parts?
3. CCAI in residual fuels stands for *Calculated Carbon Aromaticity Index*. What does it affect? How?
4. Which parameters (new specifications) came into force on 1 July 2012?

B. What do the following words mean? Match them to the definitions below.

emission, applicable, effective, ~~statutory~~, purchaser, corrosion, eliminate, content, inadmissible, fuel grade

1. type of fuel .....
2. able to be applied and to be done .....
3. unacceptable, beyond the limit .....
4. get rid of, expel, remove .....
5. discharge of gases, smoke, etc. .....
6. oxidization leading to rust .....
7. what is included, contained .....
8. brought into force, valid .....
9. the person who buys something .....
10. laid down by law, legislated statutory

C. Circle the odd word out.

1. refine, purify, prepare, clean, distil
2. deposit, residue, sludge, froth, sediment
3. adjust, regulate, compare, control, check
4. corrosion, wear, rust, scoring, grinding
5. define, include, contain, enclose, comprise

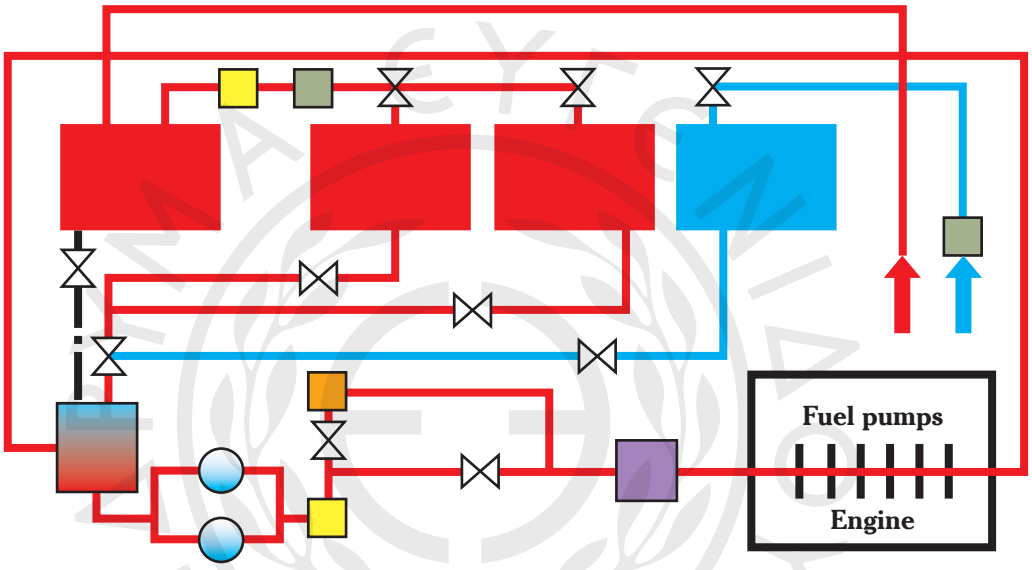
III. Fuel Oil System

A. Quiz. Answer the following questions. For extra help, choose the answers from the list that follows.

1. Where are the fuels (heavy or diesel) stored?
2. When is the engine run on diesel oil?
3. How is the fuel cleaned?
4. What is the function of the settling tank?
5. What is the function of the buffer tank? How else is this tank called?
6. What does the booster pump do?
7. What does the viscosity regulator do?
8. How is the change over from diesel to heavy fuel oil done?

• for manoeuvring	• it allows the used oil from the engine to be mixed with a new charge / mixing, balancing, venting tank	• with a three-way valve
• in the double bottom tanks	• it allows water and thick particles to sink down	• it raises the pressure of fuel
• by centrifuge	• it adjusts the temperature of the fuel	

B. The following is a simplified diagram of the fuel oil system of a diesel engine. Work with your partner to show the parts in the diagram (put arrows and write the names of the parts; some of the terms are used twice).



settling tank, DO tank, HFO service tank, buffer tank, booster pumps, viscosity regulator, strainer (fine filter), centrifuge (separator), heater, drain valve of the settling tank

⇨ Describe the circulation of HFO / DO.

C. Trace the circulation of heavy fuel oil on the diagram, mark it and explain it in simple sentences. Your study partner will do the same with the circulation of diesel oil.

D. The following sentences describe the circulation of HFO/DO. Look at the diagrams below. They show different stages of the circulation (marked with a darker colour). Which sentence describes what is shown in each diagram? Write the correct sentence (1-8 or a-d) under each picture.

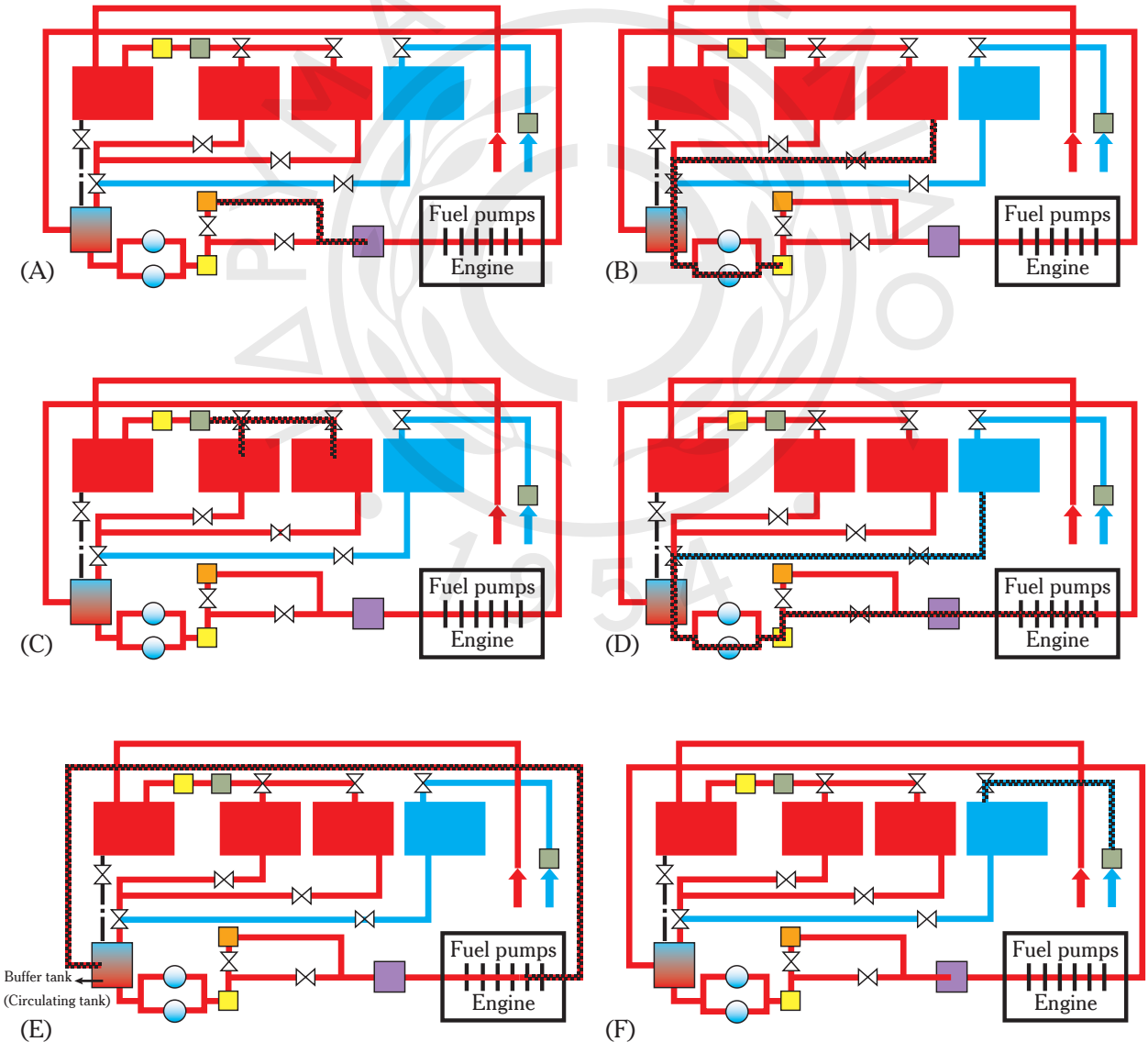
HFO

1. From the HFO bunker tank the preheated fuel is led to the settling tank.
2. From the settling tank the fuel passes through a heater to preheat the fuel.

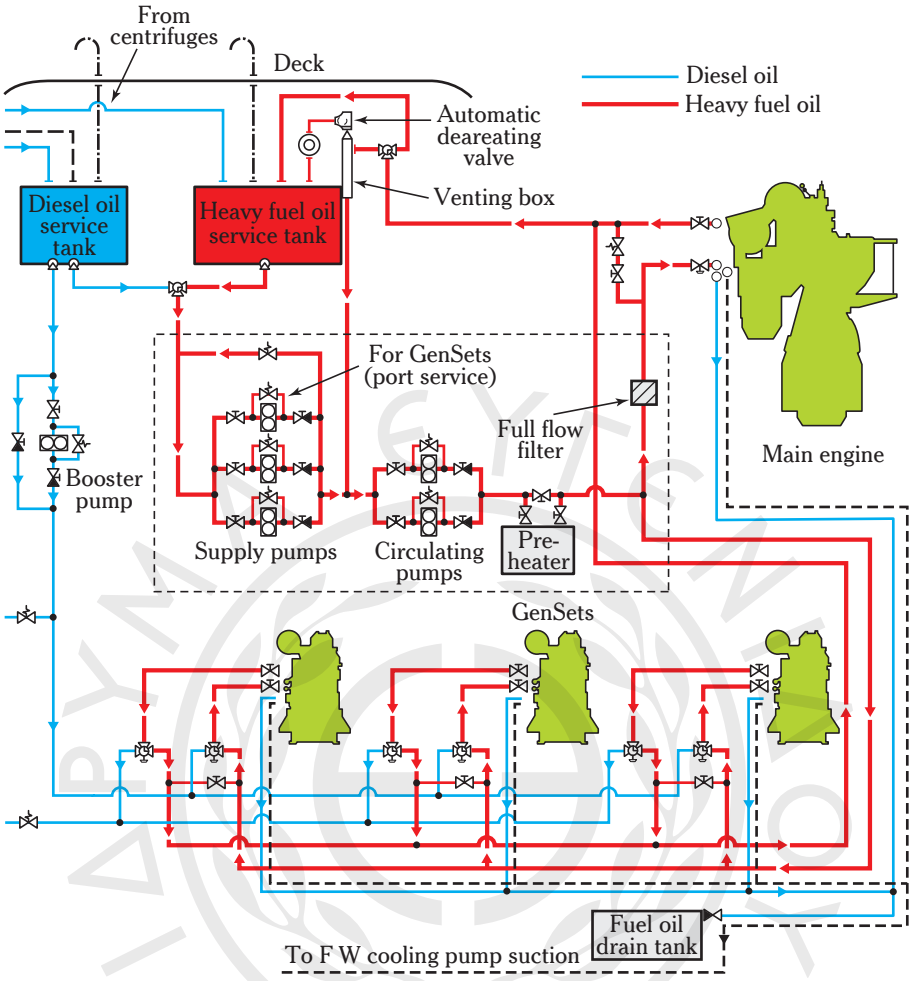
3. From the heater the fuel is led through a separator (purifier/clarifier) to purify the fuel.
4. From the separator the fuel enters the daily service tank.
5. From the daily service tank the fuel is pumped to a heater by the low pressure fuel pump.
6. From the heater the HFO passes through a viscosity regulator.
7. From the viscosity regulator the fuel passes through a strainer, which filters the fuel.
8. From the strainer the oil is led to the fuel pumps in the engine.

MDO

a) From the DO tank the fuel passes through a purifier.
b) From the purifier the DO enters the DO storage tank.
c) From the DO service tank the fuel is led to the high-pressure fuel pumps in the engine.
d) In some cases, a mixing tank is used for the gradual transition from HFO to DO. The mixing tank, or "buffer tank", can hold a quantity of fuel which will be circulated and led to the engine.



E. Read the text on a typical fuel oil system and complete the words / phrases that are missing. The diagram and the previous exercises will help you.



The fuel is stored on board, in tanks, the bunkers; in cargo ships, often in the (1)..... ..... tanks. From there the heavy oil is pumped into a (2)..... where water and heavy dirt sink down. Then it is fed through a (3)..... and next through a (4)..... where the oil is (5)..... from all heavy particles. Water and dirt go to the sludge tank.

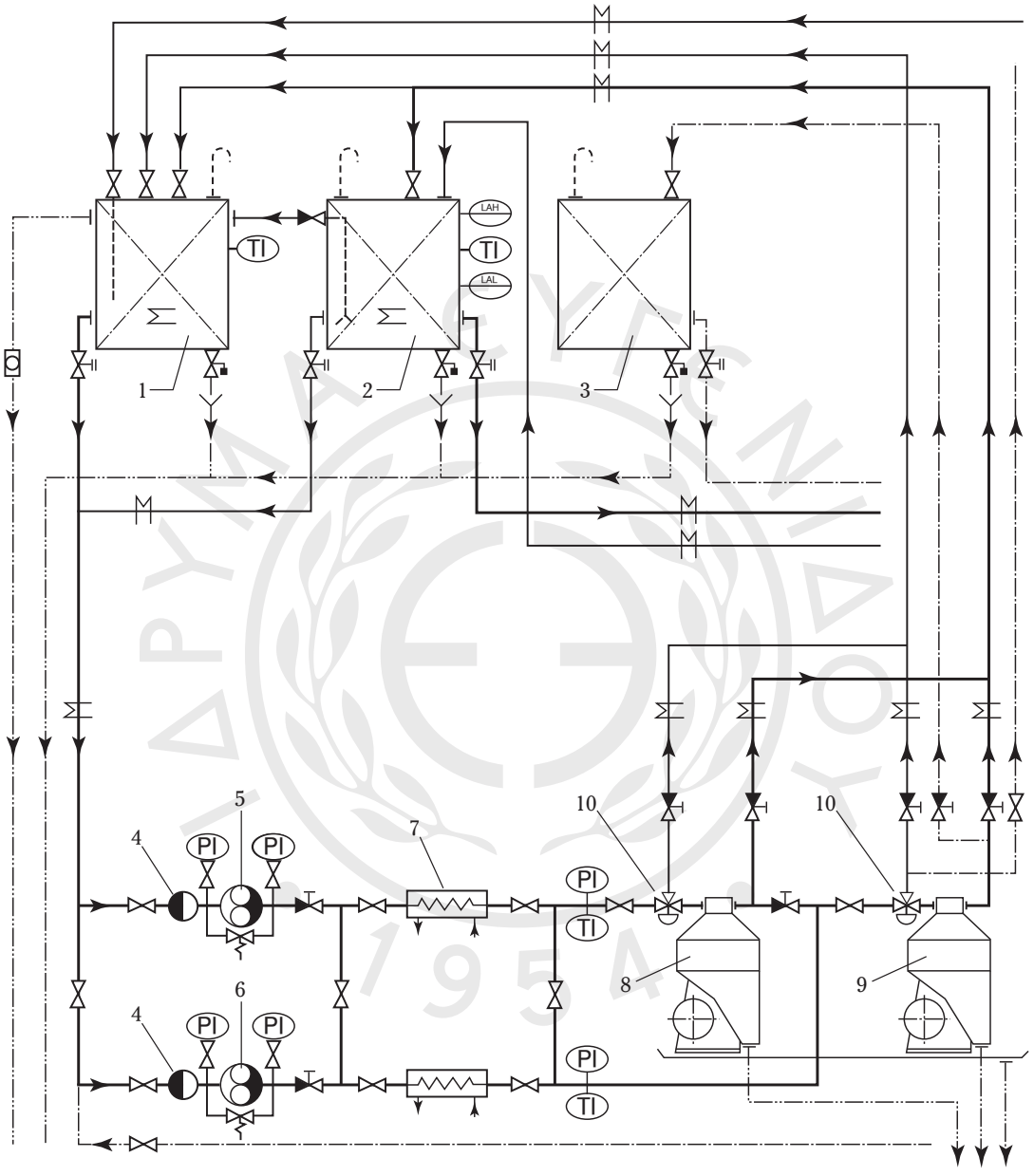
Then the clean oil is pumped into the heavy oil (6)..... which are in duplicate, as one is in use, while the other is being (7)..... . From there the oil, after passing through the (8)..... tank, is pumped by (9)..... ..... or high pressure pumps into a heater and right after into a (10)..... ....., which automatically (11)..... the temperature of the oil.

Finally, the oil is discharged through a fine (12)..... to the main engine fuel pump suctions. A (13)..... regulating valve is also fitted in the system, and the surplus of oil returns to the heavy oil service tank or to the buffer tank.

A three-way valve or a change-over valve allows us to operate the engine on diesel oil. The diesel is a (14)..... oil and does not pass through a settling tank. So, after it has been pumped from the storage tank, it (15)..... through a centrifuge for purification and enters the diesel oil tank.

The fuel-oil system can be a ***closed feed system*** or an ***open feed system*** where all the parts of the system are outside the engine. The following two diagrams comprise the ***initial*** and ***final*** part of an ***open feed fuel oil system***.

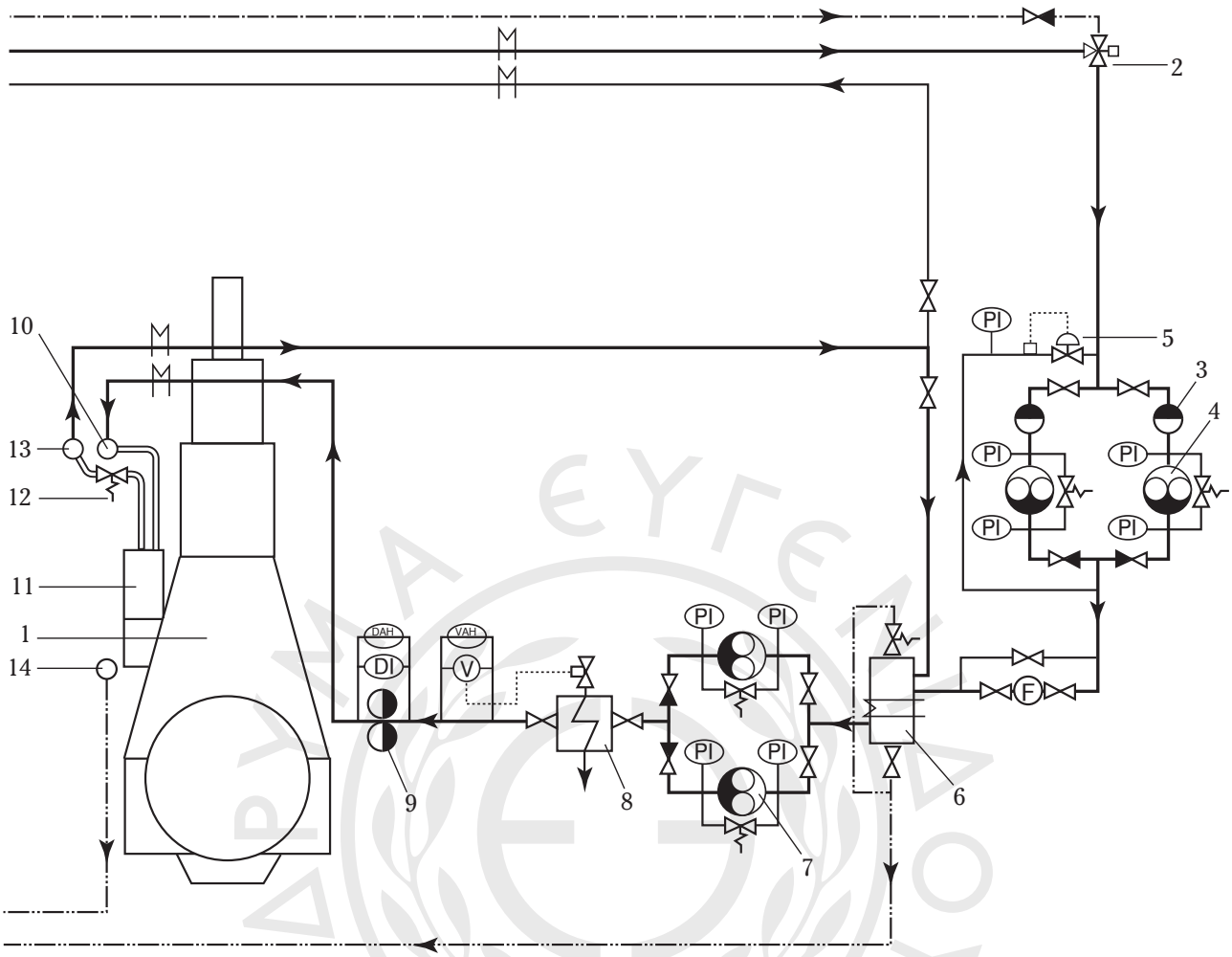
F. Fill in the missing terms in the diagrams.



Initial part of open feed heavy fuel oil system

1. _____
2. HFO daily tank, heated and insulated
3. _____
4. Suction filter
5. HFO separator supply pump
6. HFO/MDO separator supply pump
7. _____
8. _____
9. Clarifier – self-cleaning HFO/MDO separator
10. _____

Three-way valve	**MDO daily tank**	**HFO settling tank**	**Purifier (HFO separator)**	**HFO pre-heater**



Final part of open feed heavy fuel oil system

1. _____
2. Three-way valve, manually or remotely operated
3. Suction filter, heated – trace heating acceptable
4. Low pressure feed pump _____
5. _____
6. _____
7. _____
8. Fuel oil endheater
9. Fuel oil filter, heated – trace heating acceptable
10. Fuel oil inlet
11. Fuel injection pump
12. Pressure retaining valve
13. Fuel oil outlet
14. Fuel oil leakage from fuel pump

Pressure regulating valve	**High pressure booster pumps**	**Main engine**	**Mixing unit**

G. Choose one of the diagrams and describe it orally.

Useful verbs:
is pumped / is led / passes / goes through / is stored / is filtered

H. Match the terms to their definitions.

1. to insulate	☐ balancing tank, mixing tank
2. buffer tank	☐ to go down, sink
3. pressure retaining valve	☐ to increase, push up, enhance
4. sludge	☐ to disperse through outward movement
5. to settle down	☐ excess
6. to centrifuge	☐ to lag, to wrap up, to protect against heat dispersal
7. to boost	☐ to control, adjust
8. to regulate	☐ pressure reducing valve
9. to purify	☐ to remove impurities, to clean
10. surplus	☐ mud, deposits of fuel

I. Fill in the letters for the various tanks (some letters are already provided).

1. st _ _ _ _ e tank (= b _ _ _ _ r tank)
2. d _ _ _ _ e-b _ _ _ _ m tank
3. s _ _ _ _ _ _ g tank
4. d _ _ _ y tank (= se _ _ _ _ e tank)
5. b _ _ _ _ r tank (= m _ _ _ _ g tank)
6. sl _ _ _ e tank
7. fuel oil d _ _ _ n tank

J. What would the following properties of fuels cause to the fuel system and the parts of the engine? Discuss in groups of four (the first one has been done for you).

1. A fuel with a very low cetane number ….would cause delay in ignition of the fuel. This subsequently would lead to "knocking" of the engine and mechanical wear of its parts.
2. A highly viscous fuel _____
3. A fuel with high sulphur content _____
4. A fuel with high ash content _____
5. A fuel with high carbon residue _____
6. A fuel with high water and sediment content _____

IV. Fuel Injection

A. Read the text below and fill in the missing words.

hydraulically, injection, multi-atomizer, insufficient

The last stage of the fuel oil system is the (1) ……..…… …….. of the fuel in the combustion chamber. This is done by the fuel injectors which are fitted on the cylinder head. Their main function is to inject and *disperse* in a form of spray a certain amount of fuel in the combustion chamber.

The normal burning of the fuel and the efficient running of the engine depend on the *precise* and *timely* operation of the fuel injectors. Incorrect injection timing can cause the engine not to start or to be hard to start. It can also cause lack of power or cause the engine to produce white smoke as there is (2) ……..……. temperature to properly burn the fuel. A faulty injection pump can be the *culprit* behind a *stalling* engine or a rough running engine. Fuel injectors are distinguished into single *atomizer* and (3) ……..…… injectors. Most injectors are operated (4) …… . In 4-stroke diesel engines, besides the main fuel injector, there may be a *piloting* injector as well, fitted at the side of the cylinder cover.

B. Which words in the passage above mean the following? (they are marked with italics for help)

1. to spread all over
2. secondary, subordinate
3. opening through which fuel is spayed
4. exact
5. at the right time
6. reduction of revolutions, eventual stopping of the engine
7. reason

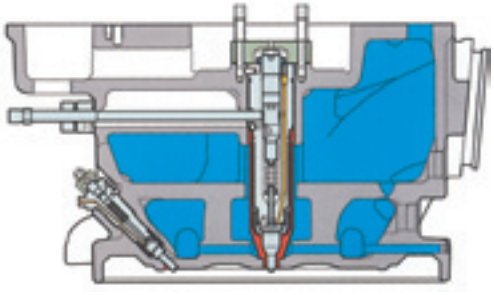
C. Read the text below and do exercises (i) and (ii) that follow.

A fuel injector consists of three main parts; the injector holder, the needle with its stem and return spring and the nozzle assembly.

Inside the cylindrical holder there is a centrally formed cylindrical case where the needle stem and its return spring are fitted. Parallel to this runs the fuel inlet pipe.

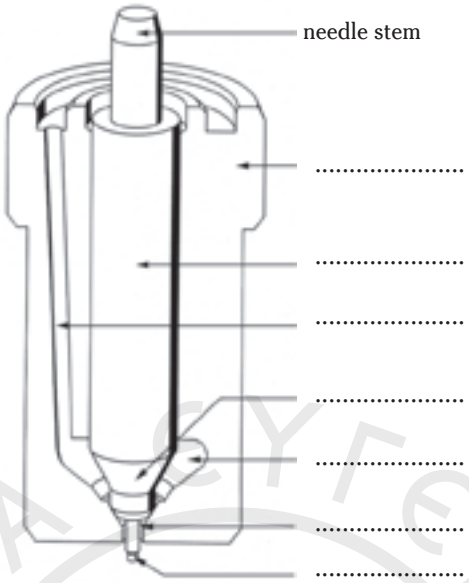
The nozzle assembly is screwed at the bottom of the injector holder. It has one or more atomizers through which the fuel is sprayed into the combustion chamber. The pressure chamber is a hollow space inside the assembly which ends to a tapered seat where the injector needle ends too.

Fuel injectors (a) main, (b) piloting (on a different size scale)



Piloting and main injector in Diesel engine cylinder head

i. Which part of the injector does the following picture show?



ii. Fill in the missing terms in the picture above.

needle tip	**atomizer**	**tapered pressure seat**	**pressure chamber**
~~**needle stem**~~	**nozzle assembly**	**needle**	**fuel inlet pipe**

Vocabulary consolidation

A. Underline the correct word or phrase.

1. The element which causes oxidation to the engine is …… .
   a. silicon b. carbon c. sulphur
2. The time of ignition of the fuel is directly influenced by …….. .
   a. the cetane number b. the water content c. the ash content of the fuel
3. The fuel needs heating when it is close to its …….. .
   a. flash point b. pour point c. injection point
4. The fuel resists to flowing when its viscosity is …….. .
   a. low b. high c. at a medium rate
5. Heavy fuel oil is …….. diesel oil.
   a. more viscous than b. less viscous than c. as viscous as
6. The used fuel is mixed with a new charge in the …….. .
   a. service tank b. settling tank c. balancing tank
7. The fuel is sprayed into the cylinder by the ……..…….. valve.
   a. inlet b. ignition c. injection
8. The lowest part of the fuel injection valve is the …….. .
   a. nozzle assembly b. injector holder c. needle

9. The acronym CCAI stands for …… .
   a. calculated calcium aroma indication
   b. cracked carbon atom index
   c. calculated carbon aromaticity index

10. The ..... the CCAI, the later the ignition takes place.
   a. higher b. lower c. clearer

11. The ……. pump increases the pressure of the fuel just before it is delivered to the engine.
   a. transfer b. booster c. circulating

12. The heating value of a fuel is commonly expressed in …… .
   a. r.p.m b. b.t.u c. p.p.m

13. Thick particles sink down in the …… .
   a. service tank b. settling tank c. buffer tank

14. Most fuel injectors are operated …… .
   a. hydraulically b. mechanically c. manually

15. The needle stem and its return spring of fuel injector are fitted in …… .
   a. the nozzle assembly b. the injector holder c. the tapered pressure seat

B. Put the following vocabulary under the correct heading.

service tank	distillate	atomizer	carbon content	balancing tank
pressure chamber	CCAI	purifier	viscosity	3-way valve
specific gravity	residual	nozzle	ash content	viscosity regulator
	needle	filter	pressure retaining valve	

Fuels & their properties	***Fuel oil system***	***Fuel injector***

C. Read the following information on the fuel oil system and fill in the gaps with the words in the box.

filtered	**gravity**	**capacity**	**lower**	**drained off**	**draws**	**checks**

1. In the settling tanks the fuel is constantly heated to ……..…….. the viscosity-grade and thus quicken the separation of fuel from water and impurities.
2. Before the fuel is passed to the Daily Service Tanks, the water and impurities are …… ..... from the settling tank, after which the process of preheating and separation is

continued by a heater, a purifier and often a clarifier. (The purifier separates water and impurities from the fuel; the clarifier separates impurities from the fuel).

3. In most fuel systems the settling tanks and daily service tanks are also called …….. ..... tanks.
4. Usually two daily service tanks are installed, so that one tank can be filled while the other is being used. Each tank has the ……. to provide the engine with fuel for 24 hours.
5. The low-pressure fuel pump (or "booster pump") …….. the HFO from the daily service tank and passes it to the high-pressure fuel pumps in the engine.
6. Between the booster pump and the high-pressure fuel pumps the fuel is first preheated and …… by a strainer.
7. A viscosity controller, or viscosity regulator, …….. the viscosity of the fuel. When the viscosity is too high, the fuel will have to be heated, so that it will become thinner and thus suitable to be injected into the engine.

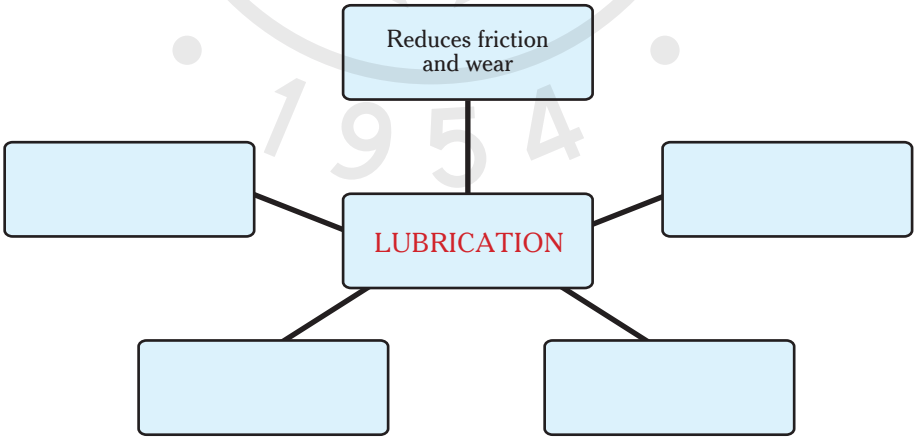
2. Lubrication

I. Lubricating Oils

Lead-in: Discuss the following questions in class.

- What does lubrication do?
- Why is it important?
- What lubricating oils ("lube oils") are used in diesel engines?

A. Listen to a lecture on the objectives of lubrication and insert these objectives (the points made by the speaker) in the cycle below.



B. Now read the lecture and find in it the words which have the following meaning (they are marked in italics for help).

1. improve, intensify, magnify: .....
2. sticking property, adhesion: .....
3. fighting dirt: .....

4. not enough, insufficient: .....
5. duty, function: .....
6. rubbing between two metal surfaces: .....
7. takes in, sucks up: .....
8. mechanical wear due to acids, rust: .....
9. major damage of bearings due to insufficient lubricating: .....
10. strengthened, reinforced: .....

The main *task* of lubrication is to reduce *friction* between the moving parts of an engine. In this way we ensure better performance of the engine and reduction of wear due to friction. Lubrication also acts as a cooling means of the metal surfaces because it *absorbs* a considerable amount of heat which is released from friction.

Furthermore, it assists the piston rings in sealing the combustion chamber.

Moreover, it protects the surfaces from *corrosion*, even when the engine is out of running, thanks to the good *tenacity* lubricants have on metals.

Finally, it keeps the metal surfaces clean due to the *antifouling* property of lubricating oil.

Correct lubrication of the engine is of great importance because *inadequate* lubrication would lead to the *seizing* of bearings and sticking of the engine.

The correct choice of lubricating oil is essential too and we should always consult the engine constructor's manual as to the recommended type of oil for the particular engine.

The types of lubricating oils used in marine diesel engines are generally mineral oils, coming from the residues (base stock) of crude oil after its distillation. These mineral oils are *fortified* with chemicals (additives) which *enhance* their functional properties that the engine requires.

C. Read the following passage on the properties of lube oils and underline the correct alternative.

The properties of lubricating oils are ***similar to / different from*** those of fuel oils. Viscosity is the ***least / most*** important property of lube oils. The Society of Automotive ***Engines / Engineers*** SAE has ***classified / divided*** oil viscosity from SAE 10 to SAE 250.
SAE 10 to SAE 20 oils are very ***thin / thick*** and are suitable for ***low / high*** temperatures.
SAE 30 to SAE 50 oils having a medium to high viscosity are ***unsuitable / suitable*** for Diesel Engines. The viscosity index, VI, of the oil is of equal importance because it indicates how stable the oil is to variations of temperature. Chemical stability is an important specification of lube oil too.
The ***acid / base*** neutralizing capacity of oil is ***represented / replaced*** by its total base num-

ber (TNB) value, which indicates the oils ***acid / alkaline*** reserve. The ***higher / lower*** the TNB is, the more acid neutralizing capacity the oil has.

D. The following is a list of additives which are added to lubricating oils to enhance their functional properties. Match them to the reasons for their use below.

disperants / detergents / corrosion inhibitors / wear preventers / antioxidants / pour point depressants / VI improvers / anti-foamants

Additive	***Reason for use***
	Keep the engine parts clean of deposits, especially carbon deposits
	Prevent the corrosion of metal surfaces by forming a tenacious oil film on them
	Prevent the oxidation of oil which destroys its lubricating properties
	Lower the freezing point of oil thus having free flow at lower temperatures
	Keep sludge, carbon and other deposits suspended in the oil
	Reduce foam in the crankcase
	Limit the wear due to friction
	Increase the VI of the oil

E. What do the following terms mean? Underline the most appropriate meaning according to how they are used in the previous exercises to describe the lube oil additives.

1. to fortify ⇨ support, strengthen, encourage
2. to enhance ⇨ intensify, multiply, expand
3. to neutralize ⇨ defuse, eliminate, exclude
4. to inhibit ⇨ restrain, stop, hold back
5. tenacious ⇨ strong, clinging tightly, firm
6. to disperse ⇨ dissipate, scatter, dissolve
7. inadequate ⇨ insufficient, inefficient, enough
8. to suspend ⇨ hang up, lay off, float around
9. to depress ⇨ reduce, cause melancholy, cause economical crisis
10. antifoamant ⇨ chemical which prevents the formation of bubbles, froth, lather

F. Match the words to form correct collocations.

1. Flash ..... improver
2. Corrosion ..... preventers
3. Pour point ..... inhibitor
4. Pour ..... tank
5. Water and ..... point
6. Wear ..... sediment
7. Sump ..... depressants
8. VI ..... point

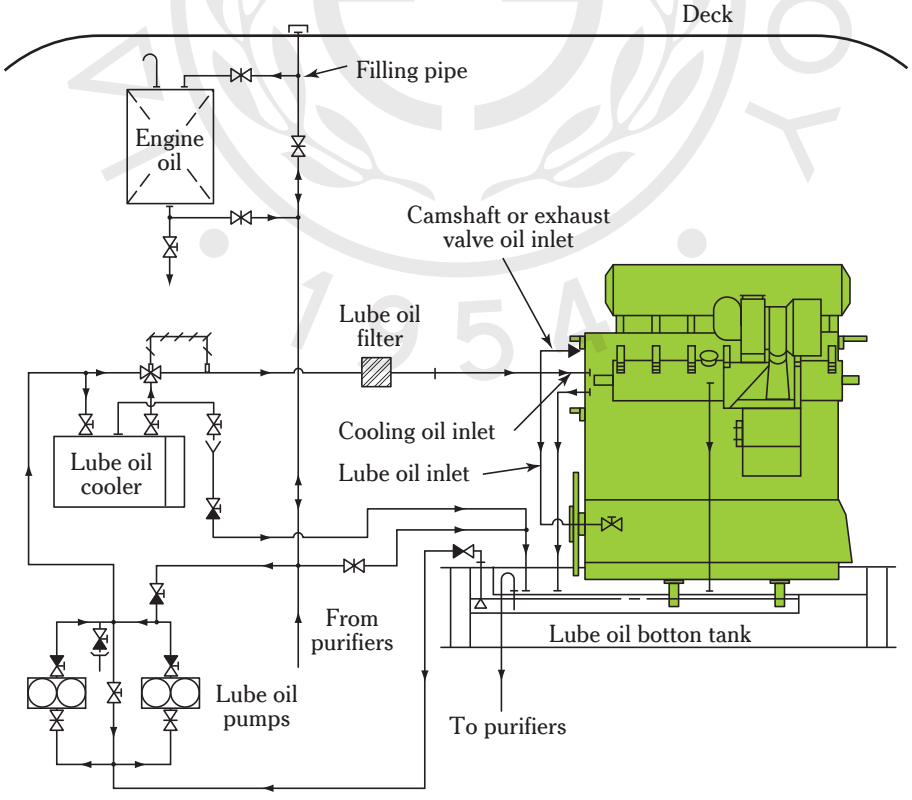
G. State the lubricant additive which would help with the problem.

Problem	*Appropriate additive(s)*
• major accumulation of deposits on piston crown and cylinder liner	
• difficulty in pumping the lube oil at low temperatures	
• scored, scratched cylinder line surface	
• fouled surfaces	
• signs of corrosion on metal surfaces	

II. Lubrication of Diesel Engine / Lubricating Oil System

Lead-in:

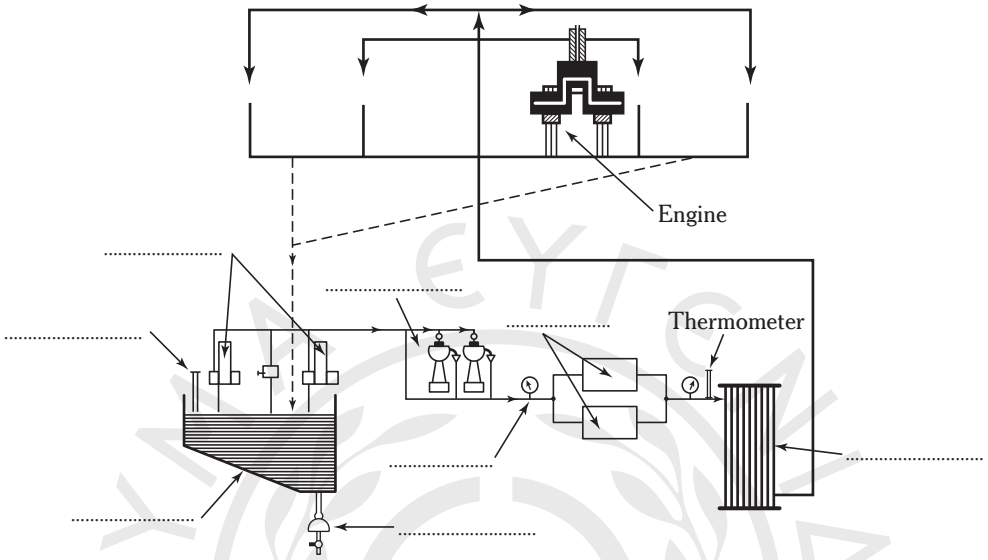
1. Is a lubricating oil system similar to a fuel oil system?
2. Look at the diagram of a lube oil system below. Identify the parts it consists of and answer the following questions.
   i. Where is lube oil pumped from and what does it pass through before being discharged to the engine?
   ii. Where does it drain after use?



Uni-lube oil system, without booster pumps

A. Look at the following simplified lube oil diagram of a 4-stroke Diesel Engine. Fill in the missing terms using the parts of the system given in the box below, and study how it works.

pumps	oil drain tank (or sump tank)	cooler	pressure indicators	filters
purifier	drain cock	sounding or venting pipe		



B. The following sentences describe the system and the circulation of lube oil. Put them in the correct order using the table below. The first two are given for help.

1. The oil is drawn from the sump tank by pressure pumps.
2. A parallel line distributes the oil to the cylinder for lubrication and cooling of the pistons. From there the used oil drains in the tank.
3. The oil is supplied to the engine at a pressure of about 4 bars.
4. It passes through a centrifugal separator, fine filters and a cooler before entering the engine.
5. It lubricates the main crankshaft bearing first.
6. Finally it is led up through the connecting rod to the gudgeon pin before returning to the crankcase.
7. Drillings in the crankshaft, then, take the oil to the crankpin or bottom end bearings.
8. In the sump tank there is a sounding pipe which serves as a vent too. There is also a drain cock for the removal of water and dirt.

Correct order:

1	8						

C. Read the following text and identify which subsystems are shown in the diagrams below.

The lubricating-oil system of marine diesel engines is a bit complicated because different types of lube oils are required for different parts of the engine. A lubricating oil system of a slow speed 2-stroke Diesel engine, for example, may include three types of lube oil for the main engine.

That is, one for the circulating lube oil for the main engine, one for the cylinder oil and one for the turbocharger.

Thus a complete lube oil system may comprise the following subsystems:

- Lubrication of main engine with circulating lube oil. This type of oil lubricates the bearings, pins, valves, camshaft, rocker arm, crosshead, and guides.
- Lubricating of main engine with cylinder oil. This one lubricates the piston, piston rings and cylinder liner.
- Lubrication of turbocharger with turbine oil. Nowadays however, the turbocharger is lubricated with the circulating lube oil.

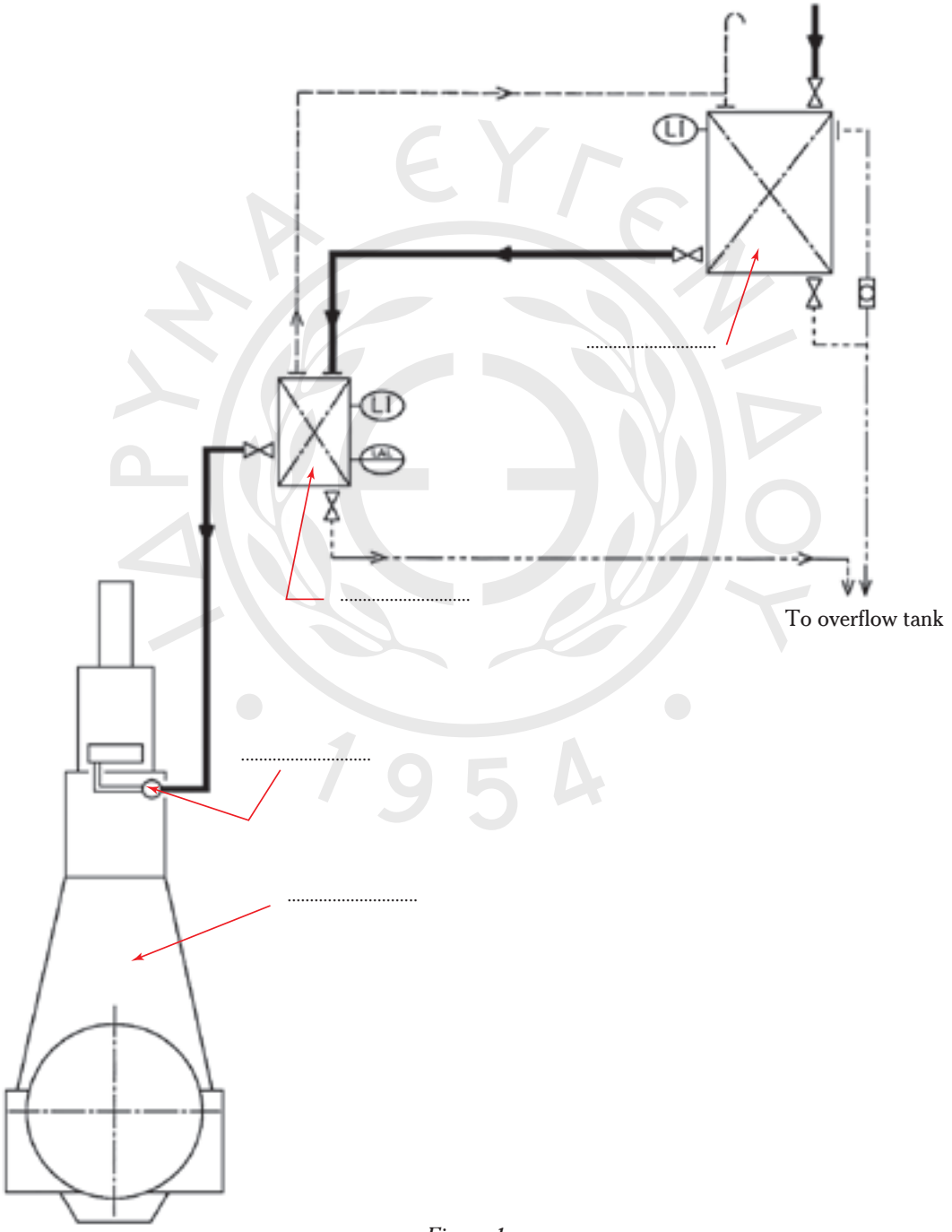


Figure 1

Figure 2

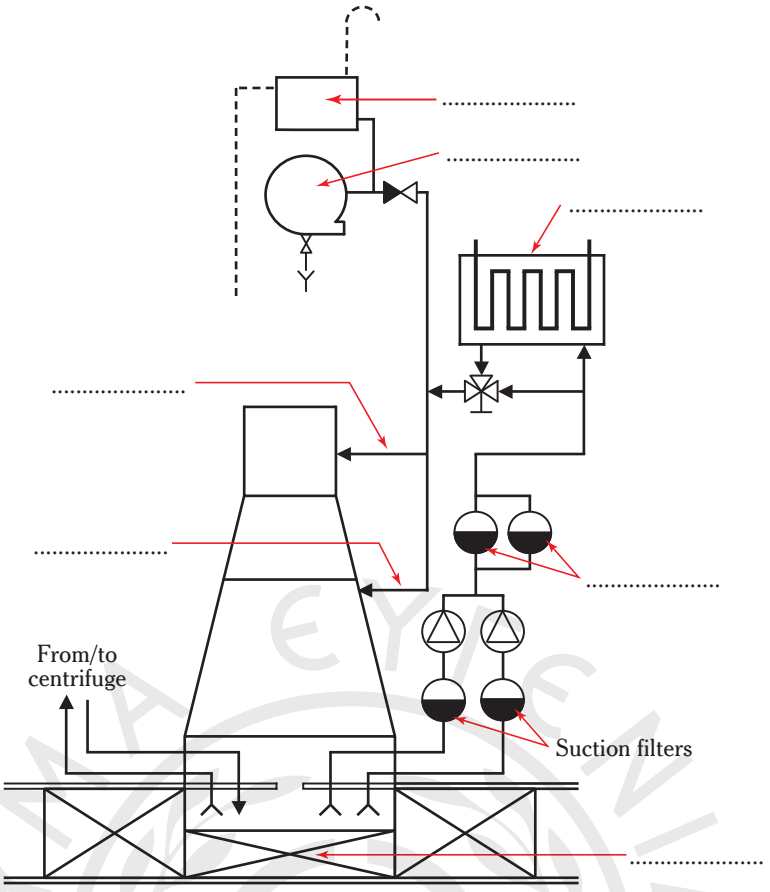
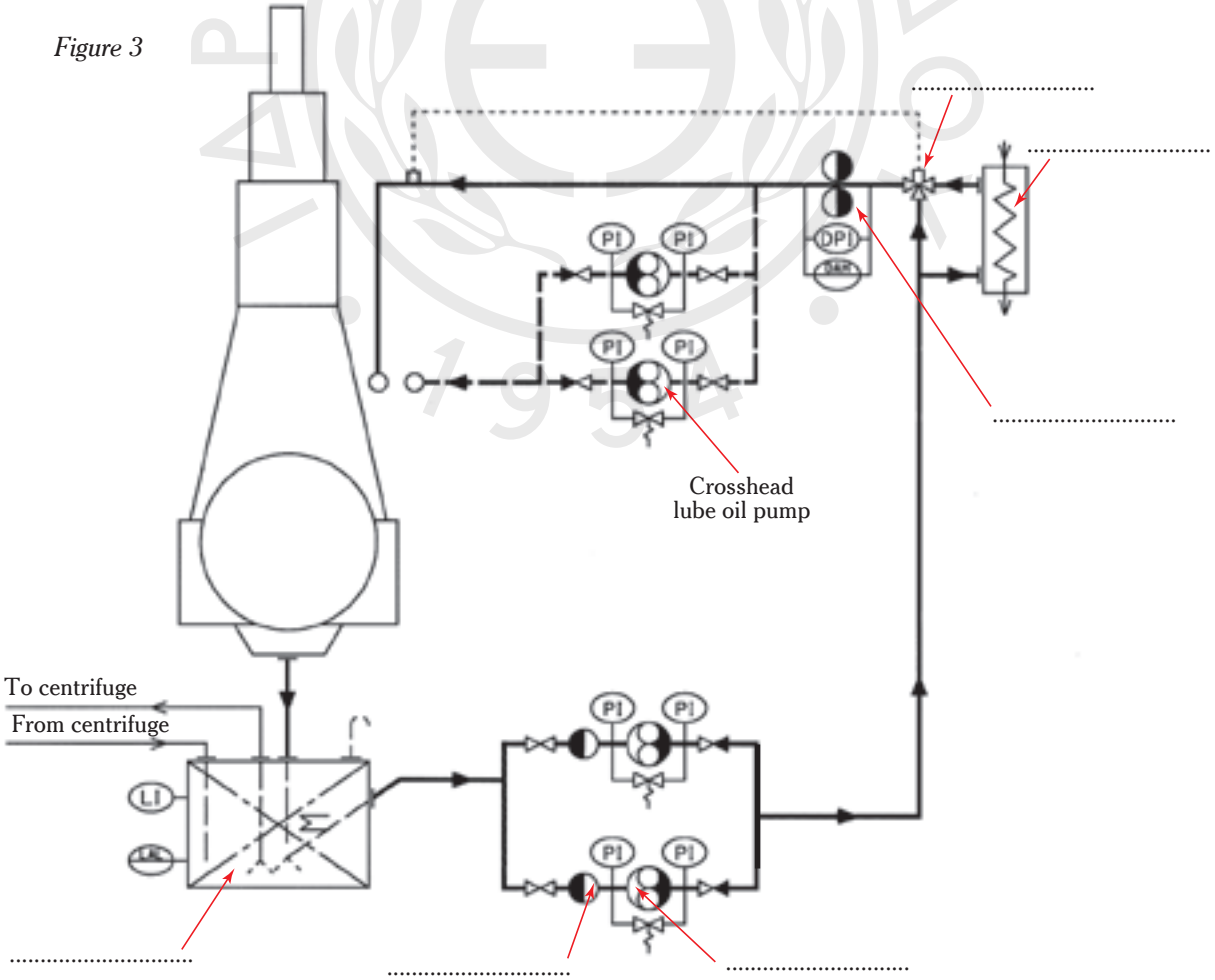


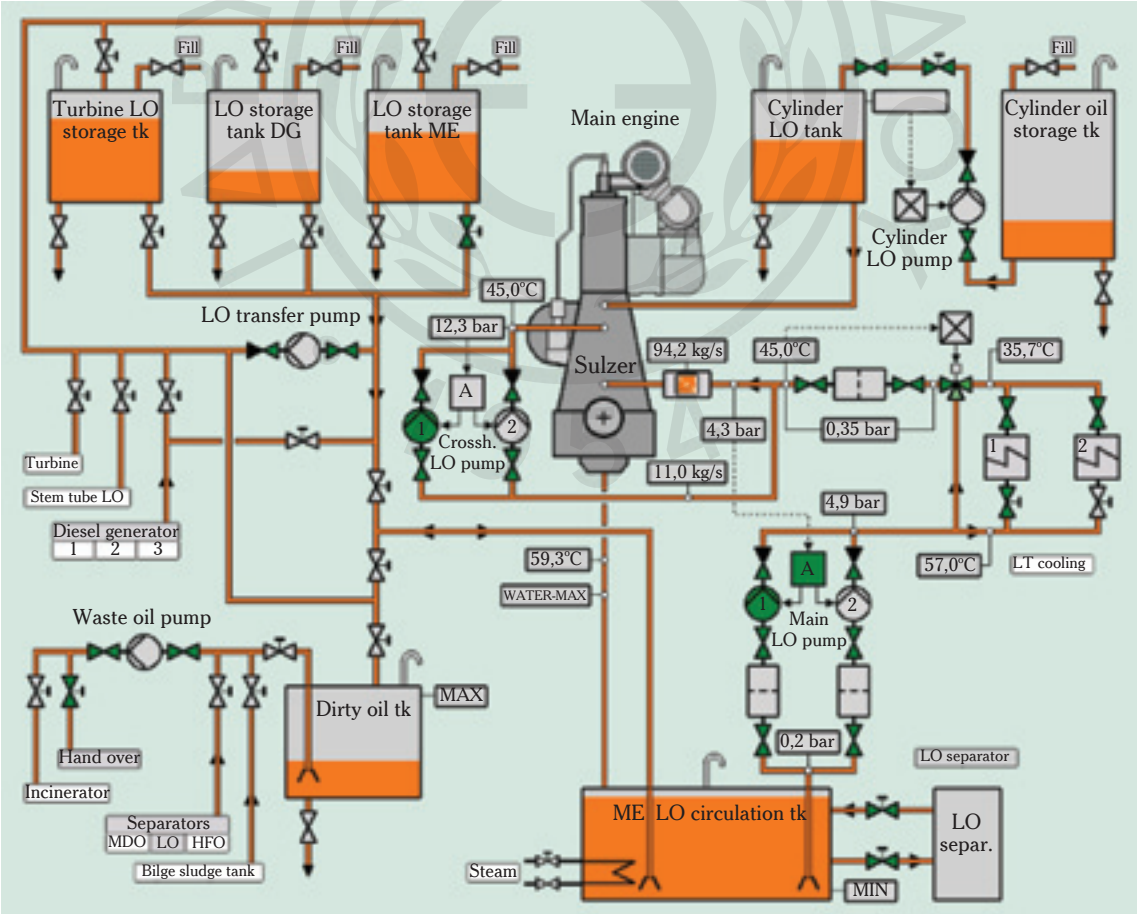
Figure 3



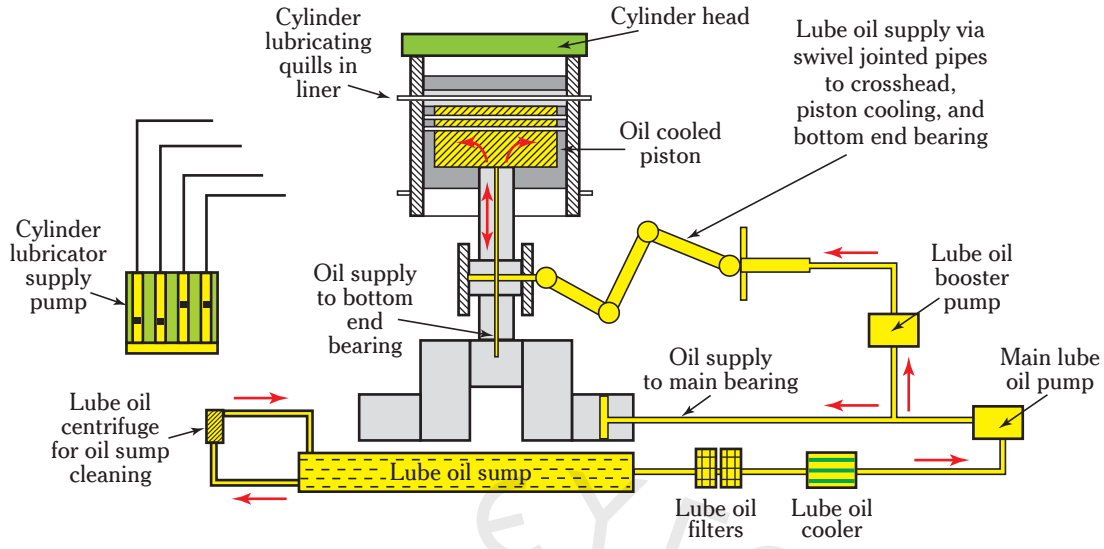
D. Write the correct legend under each subsystem. Then use the words below to show the parts and also where certain lines lead in each subsystem. Some are given for help.

ME and turbocharger lubrication with circulating oil	*Cylinder lubrication with cylinder oil*	*ME lubrication with circulating oil*
• ~~From/to centrifuge~~ • Drain tank • To bearings • To governor • Discharge filters • ~~Suction filters~~ • Circulating lube oil pumps • Cooler • Turbocharger • Gravity tank	• Cylinder-oil daily service tank • Cylinder-oil storage tank • ~~To overflow tank~~ • Lube oil inlet to lubricators • Main Engine	• Drain tank • Suction filter • ~~Crosshead lube oil pump~~ • Temperature control valve • Cooler • Lube oil pumps • Lube oil discharge filters

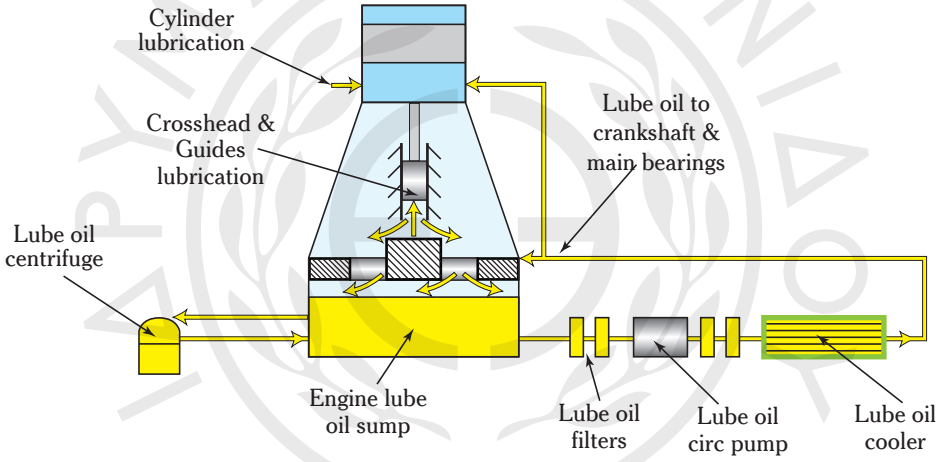
E. Look at a Marine Diesel ME lube oil system and work with your partner to identify the subsystems it comprises.



Lube oil system



Typical lube oil flow diagram for a two-stroke marine engine



Marine diesel main engine lube oil system

F. Choose one of the following subsystems and describe how it works.

1. Lubrication of the main engine with circulating lube oil.
2. Lubrication of the main engine with cylinder oil.
3. Lubrication of turbocharger and diesel generators.
4. Disposal of dirty oil from the dirty oil tank.

G. Now read the passage which describes the diagram of the lube oil system and fill in the missing terms.

bearings / pressure / exhaust / twelve / particles / pumps / drains / piston / autoclean / cooler / separator

In the first system the oil is taken from the ME LO circulating tank through filters by screw type (1) ..... . It passes through a (2) ..... and a(n) (3) ..... filter and ends in the main engine at a pressure of about four bars. It lubricates the main crankshaft (4) ....., the crankshaft

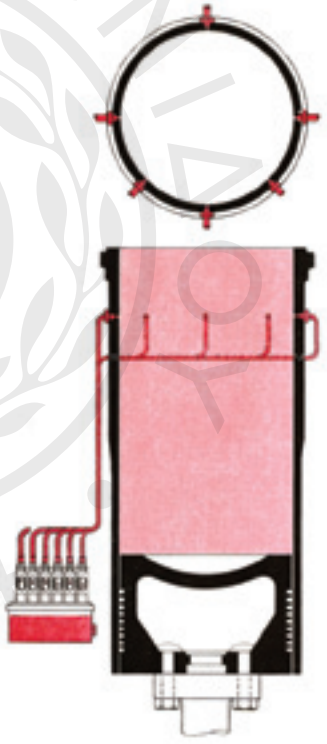
and camshaft drive. A separate supply is led to the crosshead by high (5) ..... pumps at a pressure of about (6) ..... bars. It lubricates the crosshead and the guides. Some of the oil travels back through the piston rod and cools the (7) .... The rest is led down a drilling in the connecting rod and lubricates the bottom end bearings. This oil is also used to operate the hydraulic (8) ..... valve and the hydraulic reversing gear of the engine. The used oil (9) ..... into the circulating tank or sump tank. The oil in the circulating tank is constantly centrifuged through a (10) ..... to remove any water and foreign (11) .... which may be in it.

The lubrication of the turbocharger and the diesel generators of the engine in the diagram is connected to the circulation system of the main engine, thus using the same type of oil. In some cases, however, the turbocharger has its own lubricating system where a special turbine oil is used.

H. The following text refers to cylinder lubrication. Read it and underline the correct alternative. The previous diagrams and the picture below will help you.

The lubrication of the cylinder is very important too, first because it forms an oil film between piston rings and cylinder liner, thus reducing friction, and secondly because it ***neutralizes / enhances*** the acid products of combustion and ***increases / reduces*** cylinder wear considerably.

The cylinder oil has ***high / low*** viscosity and a ***high / low*** TBN value. It is drawn from the cylinder oil ***sump / storage*** tank to a ***small / big*** service tank by separate pumps. From there, the oil is supplied to lubricators by gravity and is led through drillings (quills) onto the liner surface where grooves ***distribute / attribute*** it circumferentially around the liner, and the piston ***rings / rod*** spread it up and down the surface of the liner. There is not return of the used oil because it is finally burnt with the fuel.



Cylinder Lubrication

Vocabulary consolidation

I. Underline the correct word or phrase.

1. Detergents are ..... additives in the lubricating oils.
   a. cleaning b. antifoaming c. antioxidizing
2. In order to have free flow of the lubricating oil at low temperatures we add ..... .
   a. pour point dispersants b. flash point depressants c. pour point depressants

3. We use ..... to keep impurities suspended in the lube oil.
   a. depressants b. dispersants c. detergents
4. The TBN value of the lube oil shows the ability of the lube oil to ……..... the acid influence.
   a. enhance b. sustain c. neutralize
5. Lube oils with a viscosity around SAE 15 are ….....…. for diesel engines.
   a. suitable b. unsuitable c. proper
6. To prevent corrosion of metal surfaces we can improve the anticorrosive property of lube oil by adding corrosion ..... .
   a. improvers b. inhibitors c. preventers
7. The crosshead and the guides are lubricated by ..... .
   a. cylinder lube oil b. circulating lube oil c. turbine oil
8. The cylinder lube oil has ..... the circulating lube oil.
   a. higher viscosity than b. lower viscosity than c. the same viscosity as
9. The cylinder oil service tank is ..... the cylinder oil storage tank.
   a. the same as b. bigger than c. smaller than
10. The lubrication of the cylinder liner is done ..... .
    a. vertically b. horizontally c. circumferentially

J. Fill in the gaps with an appropriate derivative.

1. Empty the ……. ***(contain)*** of this box on the floor.
2. …… ***(add)*** in the lubricating oil improve its quality.
3. The TBN value of a lube oil eliminates the ……. ***(corrode)*** influence of acid.
4. Antioxidant additives in the lube oil prevent its …… . ***(oxidize)***
5. The …….. ***(remove)*** of water and foreign particles in the lube oil is done in a centrifugal …….. . ***(separate).***

K. What is shown in each picture? What happens in each of the devices shown? How?

3. Maintenance of Diesel Engines (I)

I. Maintenance Work

Lead-in: REPAIR – MAINTAIN – OVERHAUL

- ⇨ to ***repair*** is to fix, to restore a damaged part of the engine (in many cases this can be done while the ship is at sea)
- ⇨ to ***maintain*** is to service a machine or parts and by all means keep it/them in good condition, thus minimizing damage and breakdown (part of it can be done at sea as well)
- ⇨ to ***overhaul*** is to dismantle the parts of a machine, examine them and repair or replace the damaged or defective ones (this must be done when the ship is docked)

Detailed instructions on ***how to operate and maintain*** an engine are given by the ***engine constructor*** to ensure the efficient operation of the machinery. If these instructions are followed, the maintenance can be carried out regularly and properly, so ***breakdowns*** are minimized. The instructions are supplied in ***manuals*** and kept by the Chief Engineer, but they are at the disposal of all engine room members.

A. The following pictures show some damage you have to deal with during overhauling or maintenance. Identify the damage and write an appropriate caption under each picture (choose from the list below).

- Accumulated deposits on exhaust valve after 10.000 hours of running heavy fuel oil
- Major wear and deformation of a 4-stroke D.E. piston crown
- Piston crown with accumulated carbon deposits

1. ....

2. ....

3. ....

B. What possible reasons caused this damage? Match the types of damage in the previous exercise with the most probable reason from the list below.

high thermal stresses	HFO with high carbon content	residues from the combustion of fuel oil

C. Here are some more problems of the engine components. Discuss possible reasons for these. Write them down next to each problem. Some hints are given in the brackets.

Problems	***Possible reasons***
1. Cracks on piston or cylinder head underside	
2. Crankshaft deflection	
3. Sticking of piston rings in their grooves	
4. Scale on cylinder head and externally on cylinder liner	
5. Scratches and abrasion on cylinder liner surface	
6. Scuffed cylinder liner	

Hints
[abrasive particles, e.g. ash in fuel, iron chips in lubricant]
[vibration, main bearing wear down, slackened tie bolts and chocks]
[inadequate lubrication causing major friction]
[deposits of salts from cooling water]
[thermal stresses, variations in temperature]
[accumulation of deposits, excessive lubrication]

D. Fill in the glossary with the words in the box.

defective	**abrasion**	**at one's disposal**	**scale**	**dismantle**
accumulate	**deformation**	**alignment**	**chips**	**groove**

Glossary

1.	build up, pile up
2.	out of shape distortion
3.	disassemble, disconnect, remove
4.	faulty, damaged
5.	available to use
6.	bringing back to a straight line
7.	deposits of salts suspending in water
8.	channel
9.	wound on a metal surface caused by hard particles, e.g. sand, iron chips, etc.
10. (iron)	very tiny iron particles

E. What maintenance work did you experience on your first training voyage?

Useful vocabulary:
dismantle, disassemble, fit, adjust, machine, grind, lap, scrape, recondition, clearances, weld, etc.

F. Listen to a Chief Engineer who informs the shipowner about overhauling the engine of a newly-purchased ship.

i. Tick only the components you can hear in the list below.
ii. Listen to the dialogue again and add beside each engine part what work was done to it.

	Fuel pumps
	Leaking pipes
	Cylinders
✓	Piston rings → *replacement*
	Cylinder liner
	Connecting rod top and bottom end bearings
	Main bearings
	Winches
	Crankcase

	Crankshaft
	Camshaft
	Cylinder head
	Valve seats
	Bilge pump
	Steering gear
	Atomizers, filters
	Stuffing box

G. Read the following text on engine maintenance and fill in the gaps with the words in the box.

instructions	**scale**	**corrosion**	**readjusted**	**cracking**	**cloths**
dismantling	**carbon**	**deflection**	**clearances**	**grade**	**spare**

The engine should be overhauled and cleaned at regular intervals. A guide as to the frequency of overhauls is always given by the engine constructor but the load the engine is run on and the (1) ..... of fuel and lubricating oil play an important role too.
Before starting any overhaul job, it is advisable to have the required tools, the (2) ..... manual and some (3)..... parts ready.
Any (4) .....work should be carried out with the greatest care. Lubricating openings should be sealed off and cleaning should be done with cleaning (5) .... (not cotton waste).
Here are some maintenance works during overhauling:

- The cylinder head should be checked at the combustion side for cracks or burning damage and for (6) ..... at the water spaces. The contact faces should also be inspected and soft iron joints should be replaced.
- The piston and especially the piston crown is exposed to high thermal stresses which eventually may cause (7) ..... . Piston rings should be checked for (8) ..... deposits in their grooves and for proper (9) .... in order to avoid excessive wear sticking and breakage.

- The scavenge and exhaust ports on the cylinder liner should be cleaned of residues and combustion products and the cylinder liner should be gauged for wear. The most common reason for cylinder liner wear is (10) ..... caused by the presence of sulphur in the fuel.
- The fuel injectors should be cleaned and their drilling should be checked for wear. Their injection pressure should be (11) ....., if necessary.
- Worn main bearing and vibrating forces are the main reasons for crankshaft (12) .... The shaft should be aligned and its tie bolts should be retightened. Having proper clearances for all bearings is very important too.

H. What maintenance work should be done to the following engine parts? Discuss with your partner and choose an appropriate answer.

1. scored valve seats →.....
2. seized piston →.....
3. fuel cam nuts → .....
4. stuffing box →.....
5. noisy crosshead guides and slippers →.....
6. sump tank →.....
7. connecting rod screws →.....
8. inlet and outlet valve contact surface between the valve and the valve seat insert → ... .
9. camshaft drive – too large gear backlashes →.....
10. governor → .....

should be retightened	should be lapped with carborundum paste and reground	the guides should be aligned and the ply of slippers should be readjusted	check for actual contact surface, recondition	cleaned and its sealing elements (flange, gasket, packing) should be replaced
should be cleaned of sediment	check the level and condition of oil	check for correct tightness, retighten them	replacement	replacement

I. Match the words in the box to the appropriate definition.

to lap	**carbon deposits**	**to recondition**	**clearance**	**sediment**	**to seal**
to grind	**carborundum paste**	**soft iron joints**	**deflection**	**scored**	**a ply**

1. .....: to rub and smoothen a surface with a grinder
2. .....: to cover with, to put on top of a surface
3. .....: slight distance between two surfaces
4. .....: remains, residues of unburned carbon and other substances
5. .....: to service, to overhaul, to bring in its/the former condition
6. .....: coarse paste-like material for filling in scratches
7. .....: to close tightly
8. .....: a travel
9. .....: deviation from normal

10. .....: coagulation of suspending substances, deposit
11. .....: pitted, with deep scratches
12. .....: sealing elements of soft iron

J. Tick the proper maintenance work for each defect.

Defects	Maintenance Work								
	SCRAPING	RECONDITIONING	MACHINING	RETIGHTENING	GRINDING		ALIGNING	READJUSTMENT	CLEANING	REPLACEMENT
					LAPPING	REGRINDING				
Incorrect clearances										
Carbon deposits										
Worn surfaces										
Scale – sludge										
Deflection										
Surfaces out of roundness										
Scored – scratched surfaces										
Slack tie bolts or screwed connections										
Incorrect injection pressure										
Wear down failure										
Cracks, fractures										

K. Circle the odd word out.

1. disconnect, disassemble, restore, remove, dismantle
2. deposits, residues, incrustations, remains, score, scale, sediment
3. crack, crank, fracture, break, smash
4. flange, washer, joint, sailing, gasket
5. plug, seal, cork, jam, clog, tap

II. Maintenance and Safety

A. Read the text about an accident in the engine room. How could appropriate maintenance have prevented it? Choose the correct alternative of the words in bold.

ENGINE-ROOM FIRE*

What happened?

A fire in the diesel generator room damaged the electrical control cables and resulted in the ***loss / pause*** of electrical power and main propulsion. The emergency generator started automatically. A watchkeeper ***achieved / attempted*** to extinguish the fire with a hand-held dry powder extinguisher, but was driven back by dense black smoke. The fire was eventually extinguished by a fire-fighting party wearing firemen's suits and ***breathing / face*** apparatus. When the fire had been extinguished, propulsion power was re-established from one of the vessel's four main engines which also provided electrical power from one of two shaft-driven generators. Temporary repairs to the cabling in the generator room permitted the start-up of one diesel generator.

Why did it happen?

The fire was believed to have started by the escape of hot exhaust gases from an air start valve on one of the generators, since the rocker cover was found lifted off its seat and the air start valve was found to have a broken stud and the securing flange had lifted about 10mm. It was suggested that the hot gases ***ignited / put out*** vaporized lubricating oil inside the cover sufficient to lift the cover, from where the fire spread to the deckhead located about 1.5 m above. An ignition test of the deckhead insulation caused it to burn and emit black smoke. This could possibly have been due to the ***absorption / mixture*** of oil vapour over a period of time since the deckhead surface was irregular and may have presented cleaning difficulties.

What can we learn?

1. When removing cylinder head valves for maintenance, the opportunity should be taken to examine fasteners for signs of fatigue. Fasteners should be tightened to the torque specified by the ***creator / manufacturer*** – at the same time checking that nuts run freely on their threads.
2. Deckheads – especially those in low-headroom machinery spaces – should be examined periodically for ***accumulation / assembly*** of combustible deposits and cleaned appropriately.

⇨ *deckhead*: the undersurface of a deck
(it refers to the bottom of the deck above you, the "ceiling", and the frames supporting it)

B. Read the following "Warning" text and complete the unfinished sentences. Use the phrases below.

1. ...of springs
2. ...pierce the skin
3. ...oil to run down onto the piston crown
4. ...of hot liquids or gases

* IMO Lessons Learned for Presentation to Seafarers, No 17 in 17th session.

General: Correct operation and maintenance are crucial points for obtaining optimum safety in the engine room. The general measures mentioned here should therefore be routine practice for the entire engine room staff.

Special Dangers

WARNING!

- Keep clear of space below crane with load.
- The opening of cocks may cause discharge ..... .
- Think out beforehand which way liquids, gases or flames will move, and keep clear.
- The dismantling of parts may cause the release ..... .
- The removal of fuel valves (or other valves in the cylinder cover) may cause ..... . If the piston is hot, an explosion might blow out the valve.
- When testing fuel valves, do not touch the spray holes as the jets may ..... .
- Do not stand near crankcase doors or relief valves – nor in corridors near doors to the engine room casing when alarms for oil mist, high lube oil temperature, no piston cooling oil flow, or scavenge box fire are registered.

C. The following words come from the text above. Underline the best definition.

1. *keep clear of*
   a. stay near to b. stay away from c. stay across
2. *discharge of liquids*
   a. flush of liquids b. delivery of liquids c. flow of liquids
3. *beforehand*
   a. in advance b. handy c. having in hand
4. *to release*
   a. to loosen b. to set free c. to relieve
5. *to pierce*
   a. to burn b. to penetrate c. to wound
6. *oil mist*
   a. a cloud of oil vapours b. a haze c. a thick oil cloud
7. *an alarm is registered*
   a. it is logged b. it is noticed c. it is sounded

D. Read the following safety precautions during maintenance. Fill in the parts that are missing from the text using the sentences in the box below.

SAFETY PRECAUTIONS

LIGHTING

Ample working light should be permanently installed at appropriate places in the engine room, and portable working light should be obtainable everywhere. Special lamps should be available (1).....

CHECK AND MAINTAIN

Measuring equipment, filter elements, and lubricating oil condition.

TURNING GEAR

Before engaging the turning gear, (2)..... and that the indicator cocks are open. When the turning gear is engaged, check that the indicator lamp "Turning gear in" has switched on. Check turning gear starting blocking once every year.

LOW TEMPERATURES – FREEZING

If there is risk of freezing, then (3)....., or the cooling water treated to avoid freezing.

ENTERING THE CRANKCASE OR CYLINDER

Always ensure that the turning gear is engaged; even at the quay, (4).....
Check beforehand that the starting air supply to the engine and the starting air distributor, is shut off. In case of oil mist alarm, precautions must be taken before opening the crankcase.

SLOW-TURNING

If the engine has been stopped for more than 30 minutes, (5)....., just before starting in order to safeguard free rotation of the engine.

Before maintenance work is carried out, (6)..... according to the safety precautions given on the specific Data Sheet.

SAFETY PRECAUTIONS

- ☒ Stopped engine
- ☒ Shut off starting air supply
- ☒ Block the main starting valve
- ☒ Shut off starting air distributor
- ☒ Shut off safety air supply
- ☒ Shut off control air supply
- ☒ Shut off air supply to exhaust valve
- ☒ Engage turning gear
- ☒ Shut off cooling water
- ☒ Shut off fuel oil
- ☒ Stop lubricating oil supply
- ☒ Lock the turbocharger rotors

A. all engines, pumps, coolers, and pipe systems should be emptied of cooling water	B. the engine must be stopped and blocked	C. for insertion through the scavenge ports
D. check that the starting air supply is shut off	E. slow-turning should always be effected	F. the wake from other ships may turn the propeller and thus the engine

Vocabulary Consolidation

E. Useful vocabulary: Fill in the missing derivatives in the tables below.

Verb	*Noun*	*Adjective*
accumulate	.....	accumulated
.....	corrosion	corroded / corrosive
.....	lubrication / lubricant	lubricating
abrade	.....	abrasive / abraded
align	.....	aligned
.....	absorption	absorbent

Noun	*Adjective*
defect	.....
.....	worn
.....	viscous
.....	impure
combustion	.....
.....	dense
residue	.....

Verb	*Noun*
vibrate	.....
.....	consumption
verify	.....
treat	.....
.....	distillation
.....	resistance
.....	circulation
replace	.....
adjust	.....
.....	ignition

APPENDIX II
Pair-work: Student B material

Unit 1

May 25, 2010: Collision in Singapore Strait, 2,500 mt oil leak.

Exercise (f) (page 21)

- An oil tanker and a bulk carrier collided in waters between Malaysia and Singapore, spilling an estimated 2,500 tonnes of oil, but traffic in Asia's busiest shipping lane was not affected.
- The Malaysian flagged Aframax class M/T Bunga Kelana 3 [IMO 9178331, built in 1998, DWT 105784] was carrying about 62,000 tonnes of light crude oil and Bintulu condensate. The collision occurred between the tanker and the MV Waily, a bulk carrier registered in St Vincent and the Grenadines [IMO 8221478, built in 1983, DWT 25449], which suffered minor damage. The collision caused a 10-metre gash on the port side of the tanker, the coast guard said. Both vessels are currently anchored away from the incident's site. There were no reports of injuries among the 50 crew members.
- Singapore port authorities said the spill measured about four kilometres by one kilometre and was located six kilometres south of Singapore's south eastern tip at 2:20 pm local time. Singapore and Malaysia activated oil-spill response companies and a clean-up operation involving 20 craft.
- The incident happened in the Traffic Separation Scheme (TSS) of the Singapore Strait, 13 kilometres from the tip of the island nation. Singapore, the world's largest bunkering port and Asia's top oil-trading hub, lies at the south eastern end of the waterway.

Unit 2

Talk about injury.

Exercise (f) (page 47)

⇨ *[type of injury: bone fracture]*
It may be broken. Don't move it. I'll put an inflatable splint to keep it still.

⇨ *[type of injury: internal abdominal bleeding]*
Lie in bed with your head and shoulders raised. I'll take your pulse every 10 minutes.

Unit 3

BUNKERING CHECKLIST

Exercise (c) (page 91)

PRIOR COMMENCING BUNKERING	***DONE***
The Bunker Pre-Loading Plan has been completed and posted.	YES
An accommodation ladder is rigged.	NO
Plug all deck scuppers and ensure they are oil- and water-tight.	NO
Empty out and plug all save-alls.	YES
Place oil absorbent materials and oil brooms at designated locations.	YES
Inspect hose and couplings for damage.	YES

Establish two-way communication link with delivery vessel or facility.	YES
Agree on distinct hand signals for ship and bunker supplier.	YES
Sight, agree and record supplier meter readings or tank soundings.	NO
Ensure seamen are assigned to tend moorings.	YES
Prepare (line-up) the filling line – open all relevant valves.	YES
Check all valves on the system.	NO
DURING BUNKERING	***DONE***
Take ullages/soundings in order to determine the loading rate and cross check the calculated against the one claimed by the supplying facility.	YES
When a tank is 70-80% full decrease loading rate and take ullages more often.	YES
Check continuously bunker hoses / connections for leakage.	YES
Close valves as each tank is completed.	YES
Witness, seal, date, jointly countersign, and retain bunker samples.	NO
Give ample warning to the terminal / barge before the final notification or the interruption of the flow.	YES
Notify supplier when final tank is reached.	NO
On completion, close all filling valves.	YES
AFTER BUNKERING	***DONE***
Ensure all hoses are fully drained.	YES
Close and blank off manifold connections.	NO
Blank off disconnected hose couplings.	YES
Reconfirm all bunker line and tank filling lines are secured.	YES
Reconfirm all bunker tank soundings.	YES
Sight, agree and record shore/barge meter readings or tank soundings.	YES
Verify all details on bunker receipt are correct.	NO
Complete all relevant entries in Oil Record Book and Log Books.	NO

Unit 6

Sentence stress.

Exercise (D) (page 198)

- We'll come **back** to the **ship** at eight.

Review 2

SMCP checklist.

Exercise (B) (page 218)

☐ QUESTION From what direction are you approaching?
☐ QUESTION What is your port of destination?
☐ INFORMATION I am entering the fairway.
☐ ADVISE Advise you keep your present course.
☐ REQUEST I require two tugs.
☐ WARNING Uncharted reef reported in area around Buoy No. 18.

APPENDIX III
Audio material transcripts

Audio • CD tracks

1. Unit 1	Section 1, Exercise I(a) *(p. 10)*	19. Review 1	Part One, Exercise 1B *(p. 116)*
2. Unit 1	Section 1, Exercise II(d) *(p. 14)*	20. Unit 4	Section 3, Exercise I(b) *(p. 148)*
3. Unit 1	Section 1, Exercise II(e) *(p. 14)*	21. Unit 4	Section 3, Exercise II(a) *(p. 150)*
4. Unit 1	Section 2, Exercise I(b) *(p. 19)*	22. Unit 5	Section 1, Exercise G *(p. 159)*
5. Unit 1	Section 2, Exercise III(d), Story 1 *(p. 28)*	23. Unit 5	Section 5, Exercise I(a) *(p. 177)*
6. Unit 1	Section 2, Exercise III(d), Story 2 *(p. 28)*	24. Unit 5	Section 5, Exercise I(b) *(p. 177)*
7. Unit 1	Section 2, Exercise III(d), Story 3 *(p. 28)*	25. Unit 5	Section 5, Exercise I(c) *(p. 178)*
8. Unit 2	Section 1, Exercise I(b) *(p. 42)*	26. Unit 5	Section 5, Exercise III(d) *(p. 181)*
9. Unit 2	Section 2, Exercise I(c) *(p. 48)*	27. Unit 5	Section 5, Exercise IV(a) *(p. 182)*
10. Unit 2	Section 2, Exercise II(a) *(p. 50)*	28. Unit 6	Section 2, Exercise B *(p. 198)*
11. Unit 2	Section 2, Exercise III(c), (clip i) *(p. 55)*	29. Unit 6	Section 2, Exercise C *(p. 198)*
12. Unit 2	Section 2, Exercise III(c), (clip ii) *(p. 56)*	30. Unit 6	Section 2, Exercise E *(p. 198)*
13. Unit 2	Section 3, Exercise I *(p. 64)*	31. Unit 6	Section 3, Exercise A *(p. 200)*
14. Unit 2	Section 4, Exercise III(d) *(p. 73)*	32. Unit 6	Section 3, Postgraduate Study, Exercise (a) *(p. 201)*
15. Unit 3	Section 1, Part I, Lead-in *(p. 80)*	33. Review 2	Part Two, Exercise G *(p. 216)*
16. Unit 3	Section 1, Exercise I(c) *(p. 81)*	34. Appendix I	Section 1, Exercise B *(p. 225)*
17. Unit 3	Section 4, Exercise I(a) *(p. 109)*	35. Appendix I	Section 2, Lubricating Oils, Exercise A *(p. 242)*
18. Review 1	Part One, Exercise 1A *(p. 116)*	36. Appendix I	Section 3, Maintenance work, Exercise F *(p. 255)*

Unit 1: Incidents and accidents at sea

Section 1, Exercise I(a) ***Collision in the North Sea*** (page 10)

Damage from a collision in the North Sea. A Greek tanker carrying jet fuel collided with a Cypriot container ship some 30 km off the Dutch coast Tuesday. The cause of the collision is still unknown. A Port of Rotterdam spokesman said the container ship had been en route to Rotterdam from St. Petersburg. The damaged tanker, the Mindoro, leaked jet fuel from a hole above the waterline but the coast guard says the leak was quickly contained. The North Sea is home to some of the world's busiest shipping lanes, Rotterdam is one of Europe's biggest ports but authorities are expecting no delays as a result of the accident.
["Collision in the North Sea", Oct 12, 2010, Deborah Lutterbeck, Reuters]

Section 1, Exercise II(d) ***[extract from the news report]*** (page 14)

- The cause of the collision is still unknown.

Section 1, Exercise II(e) ***[extracts from the news report]*** (page 14)

- "damage from a collision"
- "collided with a Cypriot containership"
- "a Port of Rotterdam spokesman"
- "Rotterdam is one of Europe's biggest ports"
- "no delays as a result of the accident"

Section 2, Exercise I(b) ***IMO Reports on Marine Casualties and Incidents: Classification of Ship Casualties*** (page 19)

(MSC-MEPC.3/Circ.3, December 2008)
For the purpose of reporting information to the International Maritime Organisation, ship casualties are classified as "very serious casualties", "serious casualties", "less serious casualties" and "marine incidents".
"Very serious casualties", according to the definition given by the IMO, are casualties to ships which involve total loss of the ship, loss of life, or severe pollution.
"Serious casualties" are casualties to ships which do not qualify as "very serious casualties" and which involve a fire, explosion, collision, grounding, contact, heavy weather damage, ice damage, hull cracking or suspected hull defect, resulting in:

1. immobilization of main engines, extensive accommodation damage, severe structural damage, such as penetration of the hull under water, etc., rendering the ship unfit to proceed,
2. pollution (regardless of quantity),
3. a breakdown necessitating towage or shore assistance.

[Three news reports on the same marine accident (tracks 5, 6, 7)]
Section 2, Exercise III(d), Story 1 ***Grounded cargo ship threatens NZ environmental disaster. (Thu 13 Oct, 2011)***
(page 28)

Eight days after running aground on a reef off the coast of New Zealand, a stricken cargo ship threatens the country's worst

maritime environmental disaster. The Rena 12 has been leaking toxic fuel into the sea since becoming stuck here more than a week ago. Now salvage experts say the stricken vessel could break in half. The salvage crews are busy wor-king on safely pumping out the oil and steadying the ship to keep it from breaking in two and sinking. Large splits have opened in the middle of the hull, making the operation tougher for rescue teams. MARITIME NEW ZEALAND SALVAGE EXPERT BRUCE ANDERSON, SAYING: "We already had a complex project to start with. It's even harder now that we've sustained damage on board this vessel. So what was tough is going to be tougher, but we've got the best salvage crew you can ever find in the world to get on board and start these things going." Three hundred tonnes of thick toxic fuel has already washed up on one pristine coast of Tauranga, in the middle of the Pacific country's North Island. Other cargo and debris have also reached land, but volunteers and soldiers are working hard to clear the beaches. The Greek owners of the vessel have offered an unreserved apology for the accident, while the ship's captain and second officer have been charged with operating a vessel in a manner causing unnecessary damage or risk. (Simon Hanna, Reuters.)

Section 2, Exercise III(d), Story 2 ***Bad Weather Halts Cargo Ship Salvage (Tue 18 Oct, 2011)*** (page 28)

Rough seas force the salvage crew to leave this cargo ship grounded off the New Zealand coast. 350 tonnes of toxic fuel have already leaked in the country's worst maritime environmental disaster in decades. And bad weather is adding to the problem. The authorities fear the stern, which contains more than 1,000 tonnes of oil, may break away from the rest of the ship. NEW ZEALAND TRANSPORT MINISTER, STEVEN JOYCE, SAYING: "We're in quite a critical phase for that ship over the next, probably, 24 hours, because of the weather conditions." The vessel's captain is due in court on Wednesday on charges of operating a ship in a dangerous manner. (Lily Grimes, Reuters)

Section 2, Exercise III(d), Story 3 ***Containers removed from stricken ship off New Zealand coast (Thu Nov 17, 2011)*** (page 28)

The delicate and painstaking task of removing cargo containers from the stricken ship 'Rena' - grounded off the coast of New Zealand - enters its second day. Workers must cut each of them free from the stack, then attach cables so the containers can be lifted by a crane onto a nearby barge. Eighteen have so far been removed from the vessel but work is expected to slow once the salvors reach the full ones. SALVAGE MANAGER, MARITIME NEW ZEALAND, KENNY CRAWFORD, SAYING: "These are empty containers. There's no real weight in them. The weather conditions are just about perfect for this operation." And if wind speeds exceed 24 knots, the work must stop for safety reasons. SALVAGE MANAGER, MARITIME NEW ZEALAND, KENNY CRAWFORD, SAYING: "Ultimately, the salvors' safety is paramount here as well. So they don't want to be underneath a container that's going to fall apart on them." Of the 1,200 containers, about 800 are situated below deck. Workers have said they may have to cut the ship open to reach them.
(Travis Brecher, Reuters)

Unit 2: I require medical assistance

Section 1, Exercise I(b) ***Injured crewmember – Medical officer dialogue*** (page 42)

Medical Officer:	Come in! What's the problem?
Crewmember:	I think I broke my hand! It hurts a lot!
Medical Officer:	Let's see. It looks bruised. But we need an X-ray to see if it's a strain or a fracture. How did it happen?
Crewmember:	I fell off the accommodation ladder, it wasn't rigged properly. I landed on my hands and feet.
Medical Officer:	Did you have your safety boots on?
Crewmember:	Oh, yes! I was wearing my safety boots *and* my hard hat.
Medical Officer:	Good for you! Otherwise it would have been much worse. Take the rest of the day off. The other second officer will replace you on your watch. If the pain is unbearable, take these painkillers. I will arrange for an agent to escort you to the local hospital as soon as possible. Now, we need to apply a splint to your arm, to keep it still.

Section 2, Exercise I(c) ***First aid advice – BURNS [the "gist" of the advice given]*** (page 48)

Remove the victim and yourself from the source of the burn; if the victim's clothes are still burning, sprinkle with water or roll the victim to the ground. Cool the burn down. Pour large amounts of water for at least 10 minutes over the burn. Explain what you're doing to the casualty, reassure them and make them comfortable. Remove any jewellery such as rings and watches. Remove any clothing around the burned area unless it is directly over the burn or stuck to the skin. Do not put any creams, oils or lotions onto the burn. Loosely cover the burn to protect it from infection; do not wrap the wound up tightly, do not encircle the wound with the covering.

Section 2, Exercise II(a) ***First aid kit contents*** (page 50)

Key: The only items not included in the First Aid Kit are: eye wash, burn wrap, synthetic gloves.

Section 2, Exercise III(c) clip (i) ***First aid advice – UNCONSCIOUS BUT BREATHING [the "gist" of the advice given]*** (page 55)

Place victim on their side to protect their breathing. Do not move the victim if you suspect they've hurt their back or neck, unless their breathing is noisy and their mouth is blocked with blood or vomit. If you do so, try to keep their head in alignment with their neck. When victim is on their side, check for signs of circulation, i.e. coughing, movement and normal breathing.

Check for a pulse at the neck. If the victim is bleeding, press firmly on the wound. Continue to check that the victim is breathing normally every minute or so. This is the most important thing to remember.

Section 2, Exercise III(c) clip (ii) ***CPR for adults*** (page 56)

Key: 30 chest compressions / 2 breaths.

Section 3, Exercise I ***Injured seafarers*** (page 64)

1. I strained my ankle. I was painting the funnel and I was on the scaffold; I fell off the scaffold and landed on my ankle. Luckily I was wearing a safety harness.
2. I have burned my hands. I was in the engine room. A pipe leaked and some hot oil spilled on me. I didn't have my gloves on, and even though I washed by hands immediately with lots of cold water, I have some pretty bad burns.
3. I cut my finger. I was using the chisel and it slipped from my hand so I cut my finger. Luckily I had my gloves on so the cut is not too deep.

Section 4, Exercise III(d) ***Occupational Safety Announcement*** (page 73)

Attention! Entering the main deck of the vessel is dangerous due to storm. Make use of handrails and lifelines on deck and in corridors. Secure all loose objects in your cabins.

Unit 3: Call the Watch Engineer

Section 1, Part I, Lead in. ***Pre- Bunkering: the Chief Officer reports to the Master before bunkering starts*** (page 80)

We are ready for bunkering. We will take on 400 tonnes of bunker fuel. I have checked the "before bunkering" part of the procedure checklist. The bunker barge is now safely alongside. We have secured all moorings and we have put the fenders in position. We have rigged the accommodation ladder. The main engine is on stand-by, we have put the drip trays in position, and we just finished sounding the tanks.

Section 1, Exercise I(c) ***Vessel procedures: Bunkering – Responsibility*** (page 81)

The Chief Engineer is responsible for bunkering operations as well as bunk lubricants supply operation and upon completion, for handling records.
The Master is responsible for securing the vessel during bunkering operations and that all appropriate signals are shown.
Assigned crew duties are as follows:

- Chief Engineer: Supervising the whole process
- Second Engineer: Valve handling (Engine Room)
- Third Engineer: Tank soundings
- Chief Officer: Supervising deck operations
- Second Officer: Tending mooring lines

Also, one A.B as watchstander at bunker header and one for a Deck-Rover watch. The "Deck-Rover" watch primary duty is monitoring for oil spills on deck and over the side during bunkering, visually inspecting the water near or opposite all bunker tanks, and being in position to view spillage on deck or in water during tank change over and topping off.

Section 4, Exercise I(a) ***Mooring Line Care and Maintenance*** (page 109)

There are serious accidents that happen to crewmembers when damaged or worn mooring ropes part and strike those standing by in the vicinity. Apart from a visual inspection by crew prior to berthing and periodic inspections by the watchman while alongside, mooring rope and mooring wire should be periodically inspected along their entire length at least once a month. The wear along the rope should be externally examined. Mooring ropes should be cropped once the working end becomes worn. If there is any doubt as to the strength or integrity of a rope then it should be replaced. If the mooring wire is worn such that the diameter has decreased then it should be discarded. In order to ensure that ropes remain in satisfactory condition and free of damage the following points should be borne in mind by crewmembers.
Fibre ropes should not be left exposed to sunlight while at sea; they should either be covered or stored below deck.
Wire ropes are to be periodically dressed with an appropriate grease to help maintain their condition.

Review 1

Part One, Exercise 1A ***Maritime Accident*** (page 116)

On terra firma - finally. Hundreds of vacationers land safely in Italy, hours after their cruise ship ran aground and capsized in the Mediterranean Sea, killing at least three. With teary eyes, they step off a ferry after being plucked from the stricken Costa Concordia on Saturday. The 290-metre long ship ran into a sandbar near the island of Giglio, before tipping over onto its side. One passenger described the scene. PASSENGER OF CRUISE SHIP "COSTA CONCORDIA" SAYING: "We had a blackout and everybody was just screaming. All the passengers were running up and down and then we went to our cabins to learn what was golng on and then they said that we should stay calm - it is nothing it is just some electric problem or just some blackout thing." Rescuers are still searching the chilly waters around the island. The cruise ship was carrying around 4,000 people and had just embarked on a winter Mediterranean cruise. The cause of the accident is still being investigated. (Andrew Raven, Reuters)

Part One, Exercise 1B ***Maritime Accident (II)*** (page 116)

A helicopter comes to the rescue of a crew member trapped on a capsized ship off Italy's west coast. After 37 hours on board the Costa Concordia, Manrico Gianpetroni is airlifted to safety on a stretcher. Rescuers earlier made radio contact with the chief purser, who has a broken leg. They are still searching for the 40 others missing since the cruise ship ran aground Friday, killing at least three. Cruise operators say the ship was on its regular course when it struck a rock. Officials are concerned the ship's fuel could pollute the water, but so far there has been no sign of a leak. (Lindsey Parietti, Reuters)

Unit 4: PLS ADV ASAP

Section 3, Exercise I(b) ***Sentence stress*** (page 148)

My stomach hurts, what do you think I should do? I think you should take some medicine.
Which tool should I use? You should use the spanner.

Section 3, Exercise II(a) ***Writing advice*** (page 150)

Why should you write **a letter of request**? There are a number of situations that require the use of a letter of request, for example, when asking for an interview, when asking for a letter of recommendation, or when making a request for information. Here are some general tips for writing a letter of request. Keep it simple. In the first paragraph you should tell the recipient why you are writing. Then briefly explain what it is you want the reader to do. I suggest that you give the reader all the information they need in order to comply with your request. And of course, I recommend that you list your contact information, for the reader to contact you if they have any questions about your request. You shouldn't forget to identify any attachments, and finally you should thank the person for their assistance.
When you are writing a **memo**, on the other hand, you shouldn't use a complimentary close, like a closing salutation, and you shouldn't sign at the bottom, the "from" line eliminates the need. But I would advise you to use headings, bullets or numbered lists so that key points stand out and the document is easy to read.
Creating **a meeting agenda** gives a sense of purpose and direction to the meeting; it is like a roadmap for the meeting. All agendas should list the following: meeting starting time, meeting end time, meeting location, topic headings, the time each topic is expected to last, and the participants who are expected to introduce each topic.

Unit 5: I read you good

Section 1, Exercise G ***The Estonia disaster: the Mayday call*** (page 159)

Estonia:	**Europa, Estonia, Silja Europa, Estonia.**
Silja Europa:	**Estonia, this is Silja Europa replying on channel 16.**
Estonia:	**Silja Europa.**
Silja Europa:	**Estonia, this is Silja Europa on channel 16.**
Estonia:	**Silja Europa, Viking Estonia.**
Silja Europa:	**Estonia, Estonia.**
Estonia:	**Mayday Mayday.**
Estonia:	**Silja Europa, Estonia.**
Silja Europa:	**Estonia, Silja Europa, are you... calling Mayday?**
Silja Europa:	**Estonia, What's going on? Can you reply?**
Estonia:	**This is Estonia**, *(in Finnish) who is there?*
Estonia:	**Silja Europa, Estonia!**
Silja Europa:	**Yes, Estonia, this is Silja Europa.**
Estonia:	*(in Finnish) Good Morning. Do you speak Finnish?*
Silja Europa:	*(in Finnish) Yes, I speak Finnish.*
Estonia:	*(in Finnish) Yes, we have a problem here now, a heavy list to starboard side. I believe that it is 20, 30 degrees. Can you come to our assistance and also ask Viking line to come to our assistance?*

Section 5, Exercise I(a) ***Piraeus Traffic – Routine Exchange*** (page 177)

Piraeus Traffic, Piraeus Traffic, Pacific Spirit, Good morning sir.
Pacific Spirit, Piraeus Traffic.
Now I am entering the northbound lane.
Ok, sir, call us back at the north exit of TSS.
Roger that. I will call you at the north exit of the TSS. Thank you. Standing by at 14 and 16.

Piraeus Traffic, Piraeus Traffic, Pacific Spirit.
Pacific Spirit, (from) Piraeus Traffic.
I am leaving the North exit of the northbound lane.
Ok, 3 miles distance of the yellow buoy, call Pilot Station on channel 12 and call us back.
Ok, sir, 3 miles from the Pilot Station I will call the Pilot and I will inform you also.

Pacific Spirit, Pacific Spirit, do you read me?
Piraeus Traffic, Pacific Spirit.
Pacific Spirit, Piraeus Traffic.
I am now 3 miles from the yellow buoy.
Have you contacted with the Pilot Station?
Yes, sir. We informed the Pilot and they instructed us to proceed and they will board us near the yellow buoy.
Ok, sir. Proceed to SW of the yellow buoy, approximately one mile distance, stop your vessel and wait for pilot embarkation.
Ok, sir. We will wait for the pilot one mile from the buoy.

Section 5, Exercise I(b) ***Station calling Piraeus Traffic*** (page 177)

We left Zea Marina and we are sailing for ... shipyard at Perama. Over.
Ok, proceed.
Pay attention to the main entrance of Piraeus.
Roger that, sir. Thank you very much. Standing by 13,14.

Section 5, Exercise I(c) ***(one-sided communication; messages sent to Piraeus Traffic)*** (page 178)

Good morning to you... talking on the bridge. I would like to ask you for permission to lower our rescue boat for testing. The rescue boat for testing only. We'll be careful. We just want to check that everything works fine. Thank you for your permission. I'll let you know when I finish with testing. Thank you very much. Standing by 14, 12 and 16.

Section 5, Exercise III(d) ***VHF communication*** (page 181)

SANTOS PORT CONTROL, SANTOS PORT CONTROL **THIS IS DORIS LIMA ALFA GOLF FIVE, DORIS LIMA ALFA GOLF FIVE** **ON CHANNEL ONE-FOUR** **OVER**
DORIS LIMA ALFA GOLF FIVE **THIS IS SANTOS PORT CONTROL, SANTOS PORT CONTROL** **ON VHF CHANNEL ONE-FOUR** **GO AHEAD** **OVER**
SANTOS PORT CONTROL, SANTOS PORT CONTROL, THIS IS DORIS **REQUEST: I REQUIRE PERMISSION TO ENTER TRAFFIC LANE** **OVER**
DORIS, THIS IS SANTOS PORT CONTROL **INFORMATION: YOU HAVE PERMISSION TO ENTER TRAFFIC LANE AT 0900 UTC** **INSTRUCTION: ENTER INWARD TRAFFIC LANE FROM SOUTH EAST** **OVER**
SANTOS PORT CONTROL, THIS IS DORIS **MESSAGE UNDERSTOOD: I WILL ENTER TRAFFIC LANE FROM SOUTH EAST AT 0900** **QUESTION: WHAT IS MY BERTH NUMBER?** **OVER**
DORIS, SANTOS PORT CONTROL **ANSWER: YOUR BERTH NUMBER IS SEVEN-BRAVO** **REPEAT, YOU HAVE TRAFFIC CLEARANCE TO PROCEED TO BERTH NUMBER SEVEN-BRAVO** **OVER**
SANTOS PORT CONTROL, THIS IS DORIS **MESSAGE RECEIVED. THANK YOU VERY MUCH** **STANDING BY ON CHANNELS ONE-FOUR, ONE-SIX** **OVER AND OUT**

Section 5, Exercise IV(a) ***Minor accident*** (page 182)

A: Hey, how are you? I heard you had an accident. How are you feeling?
B: Yeah, I had an accident, but fortunately it wasn't serious. I'm fine. I was painting outside the accommodation and while

I was climbing up the ladder I lost my footing and fell. I got away with a few bruises. A crewmember was there to help me. He was passing by as I was lying on deck, and he helped me up.

A: Well, these things happen but you have to be extra careful!
B: Yes, I know. Good thing I had my safety boots and my helmet on.

Unit 6: My next voyage

Section 2, Exercise B ***Where to go in Southampton (dialogue)*** (page 198)

A: Time to go now, are you ready to leave?
B: Where will we go? I want to see the old town first. It's in the centre I think. We'll get a map from the tourist information office.
A: Ok, I'd love to walk around the **Historic old town**. Let's do that.
B: Yes. And it's a good idea to visit the interactive SeaCity Museum – there's a special exhibition about the Titanic, the ship departed from the city of Southampton.
A: To be honest, I don't want to close myself in a museum, no matter how interactive. Plus, we will not have time to do that. Aren't you going to meet your friend who studies at the University here? When are we gonna do that?
B: We'll give him a call. So, forget about the museum. We can meet him before lunch. He said he's going to give us a tour of the **University**. I want to see their Maritime Studies department.
A: OK. Then maybe we'll have time to do some shopping after lunch. Or we can find an Open Market to mingle with people, get some fresh air.
B: You know what? 30 miles from Southampton is the Stonehenge landscape, with the prehistoric monument. There are bus tours starting from Southampton. It would be a shame to miss that!
A: Come on, there is no time for such a day trip out of the city. I just want to go to a nice restaurant and relax in the evening.
B: You're right. Where will we eat?
A: We'll pick a **restaurant in Oxford Street**. Right after dinner we'll come back to the ship. Remember we are going to depart at 2300.

Section 2, Exercise C ***Sentence stress*** (page 198)

Where will we **go**?
Where will we **eat**?

Section 2, Exercise E ***"Southampton's Friendly Restaurant Quarter" (Key)*** (page 198)

Oxford Street – close to the Marinas
White Start tavern – Modern British
Poppadom Express – Modern Indian
Dockgate 4 – International
The Thai Café – Exotic Asian
Kuti's Brasserie – Authentic Indian (Bangladeshi style)
Oxford's – Modern European

Section 3, Exercise A ***Development plans in Southampton: "The Cultural Quarter: more than a sum of its parts" (Key)*** (page 200)

The Arts Complex
The Guildhall Square (open space for events)
The Sea City Museum (all the cultural heritage so far scattered around the city are going to be housed in one place)

Section 3, Postgraduate Study, Exercise (a) ***City University, London, Professor John Carlton introduces the MSc Maritime Operations and Management course. (Key)*** (page 201)

Full-time course – duration: 1 year
Part-time course – duration: up to 5 years
You can come with an undergraduate degree in subjects like:
Law, Science, Engineering, Accountancy, Management
If you come from the sea, you need a Class 1 Certificate with some years of experience as Master or Chief Engineer.
1st term
(compulsory modules)
Operations, Technology, Law, Management, Accountancy and Finance
Note: exams after Christmas
2nd term
(optional modules)
Off-shore Engineering, Environment, Marketing, Security, Risk Management, Ship Design
Final term
Dissertation
Note: viva

Review 2

Part Two, Exercise G ***Southampton Cruise Port (key)*** (page 216)

You can hear the following phrases in the presentation:
deep water ports / operating passenger ships / superb facilities / large liners / maritime hub / supply services

Appendix I: English for Marine Engineers

Section 1, Exercise B ***Steps in a High Seas Bunkering Procedure (key)*** (page 225)

i.

1. Securing supply tanker alongside the vessel.
2. Using the ship's crane to hoist the bunker hose.
3. Vessel's deck crew opening the manifold.
4. Connecting bunker hose to manifold.
5. Attaching bottle for drip sampling in the supply tanker.
6. Pumping starts.
7. Vessel drip sampling for quality control.

ii.

1. An adequate number of Yokohama **fenders** are placed on the supply tanker depending on weather conditions.
2. After the manifold is opened, the supplier hands over the **emergency stop** button to the vessel.
3. Samples are sealed for later verification of supplied product quality in case a **dispute** arises.
4. The **pumping rate** is up to 600 m^3/h.
5. There is **communication** between the crews about pumping speed.
6. The supply tankers are **double**-hulled, state of the art tankers.

Section 2, Lubricating Oils, Exercise A ***Lubrication*** (page 242)

The main task of lubrication is to reduce friction between the moving parts of an engine. In this way we ensure better performance of the engine and reduction of wear due to friction. Lubrication also acts as a cooling means of the metal surfaces because it absorbs a considerable amount of heat which is released from friction.
Furthermore, it assists the piston rings in sealing the combustion chamber.
Moreover, it protects the surfaces from corrosion, even when the engine is out of running, thanks to the good tenacity lubricants have on metal.
Finally, it keeps the metal surfaces clean due to the antifouling property of lubricating oil.
Correct lubrication of the engine is of great importance because inadequate lubrication would lead to the seizing of bearings and sticking of the engine.
The correct choice of lubricating oil is essential too and we should always consult the engine constructor's manual as to the recommended type of oil for the particular engine.
The types of lubricating oils used in marine diesel engines are generally mineral oils, coming from the residues (base stock) of crude oil after its distillation. These mineral oils are fortified with chemicals (additives) which enhance their functional properties that the engine requires.

Section 3, Maintenance work, Exercise F ***Briefing on ME overhauling*** (page 255)

Shipowner: Well, how is overhauling of the "Seafarer" going?

C/E: We have almost finished overhauling the Main Engine.

S: Fine! Could you give me some details on the works carried out?

C/E: Certainly. Well the **cylinders** and **pistons** were examined and found in pretty good condition but the **piston rings** were in bad condition and we replaced them.
The **cylinder heads** were also in good condition with no signs of metal fatigue. We only removed some scale in the water passages around the valves. The **valve seats** were found to have scratches and pittings and we regrounded them. The **cylinder liner** was measured for wear but it was within permissible limits.

S: Well, the engine seems to have been well maintained, no big damages whatsoever. What about the crankshaft and main bearings?

C/E: We aligned the **crankshaft** and measured the wear down of main **bearings**. No 1 and 2 main bearings had signs of overheating and a wear down of 0.050 inches. We reconditioned them and we also cleaned the **crankcase** and retightened the screwed connections.

S: Good! What about the fuel pumps?

C/E: All pumps were found in good order. The atomizers and filters, however, were found very dirty. We cleaned them with paraffin. We also plugged two pipes which appeared to be leaking. That's all. We haven't examined the boilers and auxiliaries yet.

S: Thank you for the briefing. We'll talk again later.

APPENDIX IV
Postgraduate study: MSc in Maritime Studies

MSc International Maritime Studies – Ship and Shipping Management

2013 – Course overview

This course is part of the taught MSc programme in International Maritime Studies (IMS) which is designed to provide a period of intensive study in a specialist maritime area. The MSc in Ship and Shipping Management addresses the complex factors which are involved in the overall management of a shipping operation. You will reflect on the latest research in safety management techniques, and explore the impact of international legislation on management strategies in the industry.

Course content

You will study five core units in periods 1 and 2 (October to May), followed by the project in period 3 (June to September).

International Maritime Law: You will critically evaluate the development, aims and applications of international maritime law, including offshore energy law. A negotiating exercise will help you develop problem-solving skills.

Management of Shipping Operations: This unit provides an understanding of the management issues required in running a shipping operation both on board ship and ashore. You will study the inter-relationship of different management functions throughout the shipping operation, looking at how ship and shore are linked to enhance the commercial, safety and environmental protection aims of the maritime venture.

Maritime Business and IT Strategy: This unit blends the complementary subjects of strategic management and IT strategy. You will consider the role of IT in the strategic development of the maritime enterprise and processes that integrate the areas of business and technology with business improvement.

Safety and Enforcement: You will gain an appreciation of the issues and the role/influence of key organisations associated with health, safety and maritime law enforcement in both the shipping and offshore industries. The unit also examines the relationship between safety and enforcement.

Project Proposal: The aim of this unit is to progress your research and academic skills, enabling you to produce a realistic and achievable research proposal for the master's-level project. It introduces you to the research process and details the methodological options for both data gathering and data analysis.

Project: Maritime professionals need to be skilled in identifying and analysing problems so that they can lead changes in policy or practices. For this unit you will develop those skills by identifying, planning and implementing a programme of research and analysing, evaluating, interpreting and communicating the findings. You will apply these skills to an area of personal interest that is relevant to your future career.

Assessment Each taught unit is assessed by a combination of presentations, written coursework and/or an examination.

Course length 12 months full-time (also available part-time, 24 months)

Fees The course fees for students in 2013 are:
Full-time UK and EU students: £6,500, Overseas students: £11,000

Entry level

An honours degree in maritime studies, environmental science or management, shipping, geography, business or law, or in any appropriate subject area at 2.2 or above.

An ordinary degree or HND in a technical or business discipline, combined with an appropriate track record of achievement in a professional context.
Qualifications equivalent to the above may also be considered – contact the Faculty Officer for further information.
If your first language is not English, you must have an IELTS score of 6.5 (6.0 writing) or equivalent.
In the case of professional mariners, the entry requirements are as follows:

- Deck Officer: Master's (Unlimited) Certificate + at least two years' experience as Chief Officer.
- Ship Engineer: Chief Engineer (Class 1) Certificate + at least two years' experience as Chief Engineer.
- For professional applicants, proof of prior learning and relevant work experience is necessary.

Career opportunities Career paths include:

- General and project management roles within relevant maritime organisations and businesses.
- Ship and shipping company management.
- Marine accident investigation.

MSc Shipping Operations, Distance Learning

2013 - Course overview
The course aims to cater for students that have a wealth of professional expertise and practical experience and are likely to be very motivated. It enables experienced shipping industry professionals to succeed in management positions ashore and to apply their learning to identify and solve complex, real-life issues and problems through work-related assignments and workplace projects. The course also develops students' general managerial abilities of time management, influencing skills, report writing, presentations, and career management.

Serving seafarers and shipping industry professionals have demanding jobs that may take them to different parts of the world, and so need to be able to study wherever they are and whenever they can. This postgraduate programme is offered fully online by distance learning using Solent University's virtual learning environment, a web-based platform that is accessible from anywhere in the world, day or night. Students learn as part of an on-line community of tutors, fellow students, library, and student support services just as they would if they went to the university itself. Each student has his or her own dedicated academic tutor and study partner, and studying online is made interesting, interactive, and engaging with forums, wikis, reflective journals, and video presentations. Additionally, shipping industry experts are involved in the programme and in the mentoring of work-based projects, which enhances the value of the students' learning.

Course content
Year 1 -- **Core units:** Postgraduate and Self-managed Study / International Maritime Context / Business Research Skills / Professional Skills and Practice Portfolio.
Option units: Risk & Safety Management / Legal Process and Maritime Talent Management.
Year 2 -- **Core units:** Project.
Option units: Safety Culture, Performance and Reward Management / Accident Investigation, Organisational Learning, Employee Relations and Engagement.
The MSc is a unique university degree aimed at professionals working in the maritime industry, which focuses specifically on the safety and human resource aspects of maritime operations. The course is accredited by the Institute of Marine Engineering, Science and Technology (IMarEST).
Assessment Assessment is through individual coursework, presentations, briefing paper, reports, portfolio, personal development plan, and project work including a dissertation.

Graduate quote
"I started sailing in 1972 with Denholm Ship Management as a cadet. I am now Senior Marine Superintendent for Odfjell Management AS, the world's largest Chemical Shipping company. Having gone to sea at 16 and worked my way up to a senior management position, I had never considered that I would be able to turn the clock back and carry on with further education, let alone at Masters level."
"The fact that the MSc Shipping Operations is an online learning suite that does not require attendance at the university is a benefit. The core units are relevant to all sectors of the Maritime Industry and the investigative reports and analysis required are again a benefit to my work as a Marine Superintendent."
"Time management has been a skill I never appreciated till the start of this course. The requirements for Internet access and limited online access to certain set texts have posed some challenges to me, however, overall I am excited about the course and the upcoming project work I will be involved in. The use of a Mentor to guide and assist in the course work and project determination is a core part of the process, and again one I was not familiar with."

Entry Level – 2013 A higher academic qualification in an appropriate discipline, professional experience to management level and current or recent employment in the maritime industry. Applicants must have ONE of the following:

- A recognised Honours degree in Maritime Studies, Shipping, Business, Law or other appropriate discipline (normally at 2.2 or higher) plus work experience in the maritime industry to a reasonable level of responsibility.
- A Certificate of Competence as Master or Chief Engineer, Class 1 Master Mariner, Class 1 Engineer, Standards of Training Certificates and Watchkeeping Management Level Qualifications, or equivalent, and work experience in the maritime industry to a reasonable level of responsibility, such as a 1st or 2nd Officer, 2nd or 3rd Engineer, or equivalent.
- A Higher National Diploma or Foundation Degree in an appropriate discipline plus relevant professional qualifications and experience.

Additionally: All MSc candidates must be employed in, or have recently been employed in the shipping / maritime industry. Applicants do not necessarily have to have a degree to be eligible to enter the programme. Non-native speakers of English must have IELTS 6.5 or TOEFL iBT score of 100 or more.

Course length: 12 to 24 months / **Mode of study**: Distance Learning

Carrier Opportunities This course will broaden the career opportunities for those already working in the maritime industry and enhance prospects in a diverse selection of careers including:

- Marine superintendent
- Designated person ashore
- Fleet manager
- Port operations manager
- Crewing manager
- Ship manager
- Maritime administration manager
- Maritime lecturer
- Shore-based ship operations manager
- Marine surveyor

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The following dictionaries were used for Glossary definitions:

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- Oxford Advanced Learners Dictionary, www.oxfordadvancedlearnersdictionary.com

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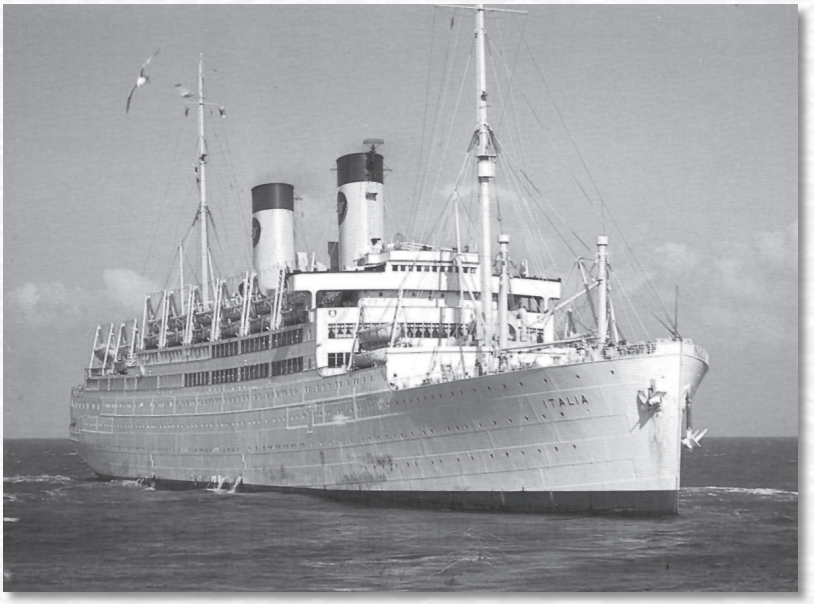

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