



# MarTEL

Maritime Test of English Language

## Phase 2 Standards Study Guidelines Engineer Officers

*with support from all partners*



# STUDY GUIDELINES for MarTEL Phase 2 TESTS

## ENGINEER OFFICERS

### *INTRODUCTION*

The *MarTEL Phase 2 Test for Engineer Officers* aims to assess the English language proficiency of marine engineers who have recently graduated from a maritime academy or are already serving on board a ship and holding a junior position. It is designed to test English language usage in maritime contexts and professional discourse.

As the test is designed to measure the English language proficiency of sea-going marine engineering officers in a realistic and vocation specific context, specific maritime vocabulary directly relating to their field of work, such as SMCP, is tested as well as plain English.

The test consists of five sections:

*SMCP Proficiency:* One part, 15 questions, 20 minutes duration, 15% of the total score.

*Reading Skills:* Two parts, 30 minutes duration, 35% of the total score.

*Listening Skills:* Two parts, 20 minutes duration, 20 % of the total score.

*Speaking Skills:* One part, 15 minutes duration, 20 % of the total score.

*Writing Skills:* One part, 30 minutes duration, 10% of the total score.

Each part is designed to assess the test taker's English language proficiency in respect to real world on board requirements. Therefore, the questions are mostly directed to the duties and routines of a marine engineering officer who is ready to take responsibility for a multi-nationally crewed vessel on which the working language is English. In this regard, most of the content of the 'skills' tests are developed from typical on board communications and activities, but some ship to shore tasks of a marine engineer (such as ordering spare parts and preparing technical reports) are also used as the question sources. The topics of these sources are explained in detail under the above mentioned sections of the test.

The MarTEL Phase 2 Test for Marine Engineers is computer based. It is executed in one sitting and has a total duration of approximately 2 hours. While taking the test, it is possible to go to and fro through the questions of each part of a section but once a part has been completed and submitted, it is not possible to return. The test taker can choose which section to start with, but a section cannot be quitted until all of its parts are submitted. No section may be re-visited. Test takers are advised to be sure of their answers before moving on to another part.

Marine Engineers	SMCP	LISTENING	READING	SPEAKING	WRITING
<b>Suggested topics</b>	1. Ships in general 2. Safety on board 3. Engineering 4. Operation and maintenance of marine internal combustion engines		5. Planned maintenance system 6. Dry-docking 7. Surveys 8. Port state control		
<b>Tasks</b>	1 part - 15 items, 20 min duration, 15 % of full score	2 parts – 10 items, 20 min. duration, 20 % of full score	2 parts – 10 items, 30 min. duration, 35 % of full score	1 part – 1 item, 15 min. duration, 20 % of full score	1 part – 1 item, 30 min. duration, 10 % of full score
<b>Skills required</b>	<ul style="list-style-type: none"> <li>understanding terms and phrases</li> <li>reproducing standard phrases as precisely as possible</li> <li>using standard phrases effectively</li> <li>applying phrases in compliance with radio regulations</li> </ul>	<ul style="list-style-type: none"> <li>understanding detailed information</li> <li>understanding gist, main ideas</li> <li>understanding inference</li> <li>identifying viewpoints and attitudes</li> </ul>	<ul style="list-style-type: none"> <li>locating and identifying relevant information</li> <li>understanding gist and main ideas</li> <li>scanning for specific information</li> <li>guessing meaning of unfamiliar words and expressions from context</li> <li>understanding cohesive devices within a text</li> <li>understanding inference</li> <li>identifying viewpoint and attitude</li> </ul>	<ul style="list-style-type: none"> <li>providing personal and factual information</li> <li>describing people, places, objects and events</li> <li>comparing, and contrasting people, places, objects and events</li> <li>asking for information</li> <li>explaining how something works</li> <li>giving directions and instructions</li> <li>stating facts</li> <li>giving advice on how to solve a situation or a problem</li> <li>expressing and eliciting opinions, intentions, attitudes</li> </ul>	<ul style="list-style-type: none"> <li>giving and asking for advice, information, or instructions</li> <li>making and responding to requests, orders, etc.</li> <li>describing, comparing and contrasting people, places, objects, events and sequences of events</li> <li>stating facts</li> <li>describing operations and processes</li> <li>narrating a sequence of events (e.g. report)</li> <li>explaining cause and effect processes</li> <li>presenting and analysing argument, evidence, and examples</li> </ul>
<b>Task types</b>	Multiple-choice questions	Multiple-choice questions	Multiple-choice questions	Extended speaking based on a reading passage	Writing an essay Writing a report
<b>Marking Criteria</b>	<b>Criterion Referencing and a percentage mark</b> <ul style="list-style-type: none"> <li>There is a 60% minimum pass mark for each skill; hence an overall mark of min. 60% is required for a pass grade. However, it is at the individual institution's discretion to set the standards for each section provided that these are not lower than the minimum standards set by the MarTEL Test Team.</li> <li>Once the tests have been officially launched, to obtain a MarTEL certificate at the Phase 2 and Phase 3 levels (Deck and Engineering), test takers are expected to satisfy the criteria for the grade of pass. The grade will be awarded by a professional seafarer who will judge whether the criteria for pass have been met. At a later stage a criteria for Pass, Merit and Distinction will be launched.</li> </ul>				
<b>Rubrics</b>	Instructions for the test are written, spoken or both.				

# STUDY GUIDELINES for MarTEL PHASE 2 TEST SECTIONS

## ***SMCP PROFICIENCY:***

*As navigational and safety communications from ship to shore and vice versa, from ship to ship, and on board ship must be precise, simple and unambiguous so as to avoid confusion and error, there is a need to standardise the language used. This is of particular importance in the light of the increasing number of international trading vessels with crews speaking many different languages, since problems of communication may cause misunderstandings leading to dangers to the vessel, the people on board and the environment.*

(From the foreword in: International Maritime Organization. (2002). *Standard Marine Communication Phrases (SMCP)*. London: IMO.)

International Maritime Organization (IMO) publication 'Standard Marine Communication Phrases' (SMCP) is the only internationally acknowledged *standard* in Maritime English so far. Under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), the ability to use and understand the IMO SMCP is required for the certification of officers in charge of a navigational watch on ships of 500 gross tons or more. Therefore MarTEL considers the content of this publication important and devotes a sizable part of its total score (15 %) to the assessment of its proficiency. The Phase 2 test taker is expected to be able to comprehend and use of all the vocabulary and phrases in this book.

Although the content of SMCP is mainly directed at navigational issues and deck officers, some parts of this publication concern the duties and related communications of an engineering officer on board. These topics are mostly the safety and event reporting issues listed below with their chapter codifications as they appear in the book.

## **A2 ON-BOARD COMMUNICATION PHRASES**

A2/1 Standard Wheel Orders

A2/2 Standard Engine Orders

A2/3.1 Propulsion system

## **B ON-BOARD COMMUNICATION PHRASES**

B1/1.7 Briefing on special navigational events

B1/1.8 Briefing on temperatures, pressures and soundings

B1/1.9 Briefing on operation of main engine and auxiliary equipment

B1/1.10 Briefing on pumping of fuel, ballast water, etc.

B1/1.11 Briefing on special machinery events

B1/1.12 Briefing on record keeping

B1/1.13 Handing and taking over the watch

B1/2 Trim, list and stability

## B2 SAFETY ON BOARD

### B2/1 General activities

- B2/1.1 Raising alarm
- B2/1.2 Briefing crew and passengers
- B2/1.3 Checking status of escape routes
- B2/1.4 Checking status of lifeboats / life rafts
- B2/1.5 Ordering evacuation
- B2/1.6 Roll call
- B2/1.7 Ordering abandon vessel
- B2/1.8 In-boat procedures

### B2/2 Occupational Safety

- B2/2.1 Instruction
- B2/2.2 Practical occupational safety
- B2/2.3 Occupational accidents
- B2/3 Fire protection and fire fighting
  - B2/3.1 Fire protection
    - .1 Checking status of equipment
  - B2/3.2 Fire fighting and drills
    - .1 Reporting fire
    - .2 Reporting readiness for action
    - .3 Orders for fire fighting
    - .4 Cancellation of alarm
- B2/4 Damage control
  - B2/4.1 Checking equipment status and drills
  - B2/4.2 Damage control activities
    - .1 Reporting flooding
    - .2 Reporting readiness for action
    - .3 Orders for damage control
    - .4 Cancellation of alarm

## *Sample Questions*

The IMO SMCP is a standardisation of oral communication. The MarTEL Phase 2 test assesses the test-taker's proficiency in using and understanding SMCP terminology and phrases. It applies some multiple-choice questions which are aimed mostly at the comprehension of the phrases as used in short statements which depict the real life requirements on board. Test takers are directed to explain the phrase in question through the use of plain English phrases, thereby at the same time testing their proficiency in general English, and confirming their comprehension of the SMCP item in question. An example of this approach is given below:

Q.1 When you **post** a fire watch in a fire area, this means:

- a) You send letters to firemen in the fire area.
- b) You assign some of the crew to keep a watch in the fire area.
- c) You give watches to some of the crew to record the time of the fire.
- d) You take over the watch from the fire fighting crew in the fire area.

e) You send reports by post for the damage in the fire area.

The SMCP phrase “*post a fire watch*” is transposed to a more general English usage of “assign some of the crew”. To answer this question correctly the test-taker should know the use of the verb “*post*” as it is used in the SMCP and also understand the meanings of the statements and maritime terminology in the distracters to differentiate the correct choice from the wrong ones.

Prepositions play an important role in the meaning of a sentence or a statement. The MarTEL Phase 2 test assesses their correct usage within the SMCP context. The test-taker should be familiar with their usage. An example is:

Q.2 "Go ..... pump room ..... engine room to fight the fire.

- a) to/ back
- b) back/ to
- c) through/ to
- d) from/ back
- e) away/ to

The correct answer “*through/ to*” gives the true meaning of the SMCP phrase which tells us that one should use the pump room as a passage to the engine room to fight the fire in the engine room. The other choices do not make sense.

One of the aspects of the SMCP is that through the standardisation of the language used on board, some phrases are chosen to relay information or order an action and their replies or reports are minimised to single statements. An example is the question below.

Q.3 When you are ordered: "**Check the fire main!**" you should report back:

- a) “The fire main is ready!”
- b) “The fire main is complete!”
- c) “The fire main is operational!”
- d) “The fire main is replaced!”
- e) “The fire main is mustered!”

Although the choice (a) seems grammatically correct and meaningful, the correct answer is actually (c), which gives the status of the "fire main system" and therefore is the standard phrase to report back.

Another type of question requires both comprehension and some logical thinking in order to differentiate the correct answer from the wrong ones. For example:

Q.4 What do you understand from the engine order: “**Half astern port!**”

- a) This ship has two bow thrusters.
- b) This ship has two auxiliary engines.
- c) This ship has twin propellers.
- d) This ship has no stern thrusters.
- e) This ship has a single propeller.

There seems to be no direct connection between the question and the given answers but the test-taker who understands what the given engine order means, applies logic to reach the conclusion that this engine order is valid only if a ship has two shafts or two propellers. Since the given engine order makes a distinction by indicating the "*port*" one is to be reversed, there must also be a "*starboard*" one and this means the ship has two propeller shafts or twin propellers.

Q.5 What should you say to the **relieving engineer** when handing over the watch?

- a. "You have the watch now."
- b. "Take over the watch from me."
- c. "I want to be relieved."
- d. "Your watch starts in 5 minutes."
- e. "Stand by to take over the watch from me."

Apparently all the answers seem to be appropriate to hand over a watch to the relieving engineer. The answer to this question is (a), as specifically suggested in SMCP while handing and taking over a watch. All engineer officers must follow the same phrase while handing and taking over a watch as suggested.

In the MarTEL Phase 2 Test SMCP Proficiency section there are 15 multiple-choice questions to be answered within 20 minutes.

### ***How to succeed in this section?***

IMO's SMCP is a compilation of phrases to assist ship's officers and engineers in the greater safety on navigation and the conduct of the ship. To succeed, test takers must understand the standardised phrases. In order to do this, test takers must have a good command of basic maritime terminology which is used to describe the locations, safety related systems and actions on board a ship. It is also necessary to command a certain level of scientific terminology to understand the SMCP phrases relating to temperatures, pressures, degrees etc.

As for the standardised orders and reports, the test-taker has no option but to learn these statements. Studying the chapters of IMO SMCP book which are listed above can be very helpful in this respect.

### ***READING SKILL:***

For engineering officers on board the most commonly used language skill in the effective implementation of their duties is reading. Today the many manuals which assist engineering officers to perform installation, operation, maintenance and repair of machinery systems and various on board equipment are available in hard copy or as software. These manuals are mostly in English and are essential reading for the operation and maintenance of the systems, as well as identifying the causes of failures and sourcing their remedies. These manuals are the engineering officers' best friend - but only if their English reading competency is at a sufficiently high level.

There are also many computer-based automations which are directly involved with the monitoring of the engines and auxiliary systems, log keeping of events, planning maintenance and managing the inventory. These facilities are mostly, if not totally, run using software that utilises English to produce data. Therefore engineering officers need to be skilful readers in order to carry out their duties competently.

*The MarTEL Phase 2 Test for Engineer Officers* devotes the major part of its assessment weighting, 35% of its total score, to the evaluation of reading comprehension. It focuses mostly on the informative, explanatory and instructive passages which are most likely to be encountered in on board machinery manuals and safety documents. The level of language used in these passages is close to the advanced level. These materials can be sourced from such topics as listed below:

1. SHIPS IN GENERAL

- 1a. Types of ships, description of their functions and operation
- 1b. Directions and locations on board
- 1c. Measurements of a ship, length, width, depth, volume and weight
- 1d. Shipbuilding, structural elements of a ship
- 1e. General arrangement of a merchant ship, decks, holds, machinery areas, accommodation
- 1e. Manning of a ship, organisation and duties

2. SAFETY ON BOARD

- A. Occupational safety
  - A1. Code of Safe Working Practices
  - A2. Enclosed spaces
- B. Fire fighting.
  - B1. Alertness, precautions, protection
  - B2. Description, use and care of fire fighting equipment
- C. Damage control.
  - C1. Description, use and care of damage control equipment
- D. Life saving appliances.
  - D1. Personal life saving appliances
  - D2. Life saving crafts
- E. Abandon ship procedures.

3. ENGINEERING

- A. Principles of internal combustion engine
- B. Diesel engine

- B1. Stationary and moving parts of a diesel engine
- B2. Starting systems
- B3. Fuel system
- B4. Lubrication system
- B5. Air system
- B6. Cooling system
  
- C. Main propulsion system
  - C1 Main engine
  - C2. Transmission
  - C3. Shafting and propellers
  
- D. Auxiliary engines
  - D1. Principles of electricity
  - D2. Generators
  - D3. Distribution
  - D4. Electric motors
  - D5. Batteries
  
- E. Boilers
  - E1. Types of boilers
  - E2. Structure of a boiler
  - E3. Boiler auxiliaries
  - E4. Feed water treatment
  
- F. Auxiliary machinery
  - F1. Fuel purifiers
  - F2. Air Compressors
  - F3. Fresh water producers
  - F4. Ventilation systems
  - F4. Pumps
  - F5. Valves
  
- G. Ship service systems
  - G1. Air conditioning
  - G2. Refrigeration
  - G3. Sanitary systems
  - G4. Sewage system
  - G5. Bilge system
  - G6. Ballast system
  - G7. Tanks and piping elements
  - G8. General and emergency illumination
  
- H. Steering gear system
  - H1. Emergency switch-over procedures
  
- 4. OPERATION AND MAINTENANCE OF THE ENGINES
  - A. Starting, running, monitoring and shutting down.

- B. Use of manuals, for installation, operation, maintenance and repair
- C. Trouble shooting

## 5. PLANNED MAINTENANCE SYSTEM

- A. Preventive and breakdown maintenance
- A1. Components of PMS
- A2. Automated PMS

## 6. DRY-DOCKING

- A. Dry-docking types
- A1. Dry-docking procedures

## 7. SURVEYS

- A. Types of survey
- A1. Survey procedures

## 8. PORT STATE CONTROL

- A. Ship's documents
- B. Port State Control check list

### *Sample Questions*

*MarTEL Phase 2 Test* applies written passages, each followed by multiple-choice questions, for the assessment of the reading skill. The aim of these questions is to evaluate the reading comprehension of the test taker. An example of the test is given below.

### **READING PART I**

#### **GENERATOR SET EXERCISE**

Generator sets on continuous standby must be able to go from a cold start to being fully operational in a matter of seconds. This can impose a severe burden on engine parts. However, regular exercising keeps engine parts lubricated, prevents oxidation of electrical contacts, uses up fuel before it deteriorates, and in general, helps to maintain reliable engine starting. Exercise the generator set at least once a month for a minimum of 30 minutes loaded to no less than one-third of the nameplate rating. Periods of no-load operation should be kept to a minimum, because unburned fuel tends to accumulate in the exhaust system. If connecting to the normal load is not convenient for test purposes, the best engine performance and longevity will be achieved by connecting it to a load bank of at least one-third the nameplate rating.

Questions:

1. What does ‘**exercising** a generator set’ mean?
  - a) Making regular checks on its electrical contacts.
  - b) Running the generator set from time to time when it is not used.
  - c) Lubricating the generator set once a month.
  - d) Always loading the generator set with one-third of its load capacity.
  - e) Always keeping the generator set always fully operational.
  
2. What is the **benefit of exercising** a generator set?
  - a) It prepares the generator set to always be ready for a heavy load.
  - b) It reduces the consumption of fuel.
  - c) It increases the generator set reliability for future use.
  - d) It makes lubrication easier.
  - e) It reduces the exhaust smoke emissions.
  
3. What is the suggested **running time duration** for exercising a generator set?
  - a) 30 hours.
  - b) One third of its total running time.
  - c) One month
  - d) Half an hour.
  - e) It is not indicated in the paragraph.
  
4. What is the **most important point** when exercising a generator set?
  - a) Moving parts must be lubricated before the start.
  - b) Fresh fuel must be used during the exercise.
  - c) Periods of no-load running must be as short as possible.
  - d) Electrical contacts must be cleaned after exercising.
  - e) The exhaust system should be checked during the exercise.
  
5. According to the passage, how can a generator set **impose a severe burden** on its parts?
  - a) By working long hours under full load.
  - b) By reaching full running status soon after the start.
  - c) By being regularly exercised under load.
  - d) By using deteriorated fuel during exercising.
  - e) By being exercised under its name plate rating.

*The correct answers are underlined.*

## READING PART II

### SHIPBOARD EMERGENCY PROCEDURES

#### Alarms

Personnel not directly involved in dealing with an emergency are to report to their assigned stations immediately upon hearing an alarm. This facilitates the assignment of additional help or the directing of abandon-ship procedures. Depending on the severity of an emergency, the captain may call upon any or all hands aboard for assistance; therefore everyone must be ready to respond to any order the captain or ship's officers may issue in a drill or real emergency.

#### *Types of Alarms*

There are different emergency alarms to signify unsafe conditions aboard ship:

- General emergencies: For a general emergency, such as a fire or collision, the general alarm and ship's whistle sound for at least 10 seconds and instructions describing the type of emergency and location are given over the public address system.
- Abandon ship: For abandon-ship circumstances, six short blasts followed by one long blast are given on the alarm and whistle. One short blast means to lower boats; two short blasts means to stop lowering boats. Accompanying commands and instructions to abandon ship are given over the public address system.
- Man overboard: If a person falls overboard, an alarm is given by hailing "Man Overboard" and notifying the mate on duty. Three long blasts on the whistle may be given.
- Return to safe conditions: When an emergency is over, the 'All Clear' signal for dismissal is given by three short blasts of the whistle and general alarm.

#### *Muster List*

- The muster list is displayed in several places on the unit. It explains what action is to be taken in response to the audio and visual alarm signals.
- In addition, there is a notice displayed in each cabin stating what the occupants should do in an emergency.

In an emergency it is important that a proper muster should take place as quickly as possible to account for all persons on board and discover if anybody is missing. Remember, it could be you that has been involved in an emergency, requires help and needs to be looked for.

#### Questions:

1. What is the **general reason** to sound an alarm onboard a ship?
  - a) To muster people as quickly as possible.
  - b) To call the captain to the bridge.
  - c) To inform the crew of an unsafe situation.
  - d) To signify all the ships in that area.
  - e) To make crew report to their stations.

2. What should those who are **not directly assigned** to a duty in an emergency do after hearing an alarm?
- a) They should stay where they are for an order.
  - b) They should prepare the lifeboats to launch.
  - c) They should leave the ship immediately.
  - d) They should go to their assigned stations.
  - e) They should call the captain to their assistance.
3. When abandoning the ship, which **signal** indicates the launching of the lifeboats?
- a) Instructions given by the captain.
  - b) 10 seconds sounding of the of the ship's whistle.
  - c) One short blast from ship's whistle.
  - d) Information given on the public address system.
  - e) A crew member hailing "Man overboard!"
4. Why is it necessary to use the **public address system** after sounding a general alarm?
- a) To inform the crew about the type and location of the emergency.
  - b) To enable the captain call for the assistance of the all crew onboard.
  - c) To make the crew go to their abandon ship stations as soon as possible.
  - d) To inform the captain that all crew are in their assigned stations.
  - e) To call the ships in vicinity for assistance in an emergency situation.
5. What is the **purpose** of a muster list?
- a) It lists the names of the crew who should abandon the ship immediately.
  - b) It makes the captain to decide what to do to prevent a collision.
  - c) It describes the types of alarm that can be sounded from ship's whistle.
  - d) It gives clear instructions on how to use the public address system.
  - e) It tells the crew what they should do after hearing an alarm.

*The correct answers are underlined.*

MarTEL Phase 2 Reading Skill section contains two parts, each with a written passage and five multiple-choice questions. The time allowed for each part is 15 minutes.

### ***How to succeed in this section?***

As one can observe from the questions, the correct answers are mostly stated using general English or they are derived from the given information. The answer can be deduced through a close reading of the text. Therefore, the test-taker should use the intensive reading approach and focus on the technical aspects.

Intensive reading requires reading for detail, and is used on shorter texts in order to extract specific information. One can use intensive reading skills to grasp the details of a specific situation. In this case, it is important that one understands each word, number or fact. This method is a recommended way to successfully complete the MarTEL reading skill tests. The reading texts in the test are short and contain detailed and sophisticated information as is common in the manuals and regulatory texts which are used on board. The test-taker needs to understand the exact meaning of every statement in order to answer the questions which are aimed to deduce information from the passage.

## ***LISTENING SKILL:***

Although the listening skill seems rather less important (for an engineering officer) than the reading skill, it is nevertheless an essential element of communication, along with its counterpart, the speaking skill. It is required for receiving a spoken order or instructions in order to perform a duty or to take an action. Engineering officers must listen and comprehend what is being said when being delegated the day's activities by the superior officer, or during any developing situation requiring their involvement. Sometimes this can be in the form of routine feedback that requires their attention during the watch, and sometimes an announcement of an emergency situation. In any case, the sound and clear reception of spoken statements is considered important for the role of an engineering officer.

*The MarTEL Phase 2 Test for Engineer Officers* allocates 20% of its total score to the assessment of the listening skill. The evaluation of the score is carried out by two different types of approach to listening. One part of the skill test consists of a short, narrated passage to assess the comprehension of the test-taker when he/she needs to concentrate on information relayed through the medium of speech. The other part of the test consists of a conversation between the engineering crew members of a ship concerning the activities of the engine department. This assesses the test taker's ability to understand and follow multi-speaker statements. The scenarios are taken from real life situations on board and can be sourced from the topics listed below.

1. SAFETY ON BOARD
  - A. Occupational safety
    - A1. Code of Safe Working Practices
    - A2. Enclosed spaces
  - B. Fire fighting.
    - B1. Alertness, precautions, protection
    - B2. Description, use and care of fire fighting equipment
  - C. Damage control.
    - C1. Description, use and care of damage control equipment
  - D. Life saving appliances.
    - D1. Personal life saving appliances

- D2. Life saving crafts
- E. Abandon ship procedures
- 2. OPERATION AND MAINTENANCE OF THE ENGINES
  - A. Starting, running, monitoring and shutting down
  - B. Engine orders
  - C. Briefing and reporting on routine and special machinery events
- 3. SMCP
  - A. Standard Marine Communication Phrases concerning the engine department.
- 4. PORT STATE CONTROL

### *Sample Questions*

## **LISTENING PART I**

In this part, test takers listen to a recording of orally delivered information on a particular subject. The aim is to assess their listening skills on following a coherent and informative statement. The test takers listen to the narration and take notes of the important points which may help them answer the questions. These passages are authentic materials which are mostly drawn from maritime related sites on the internet or maritime publications..

### **INTERNATIONAL LOAD LINE** (*narrated*)

The waterline refers to an imaginary line marking the level at which a ship or boat floats in the water. The temperature of the water affects the floating level because warm water provides less buoyancy, being less dense than cold water. Likewise, the salinity of the water affects the floating level since fresh water is less dense than salty seawater.

The purpose of a load line is to ensure that a ship has sufficient freeboard and thus sufficient reserve buoyancy. The freeboard on commercial vessels is measured between the uppermost continuous deck and the waterline. This must not be less than the freeboard marked on the Load Line Certificate issued to each ship. All commercial ships, other than in exceptional circumstances, have a load line symbol painted amidships on each side of the ship. This symbol must be permanently marked so that if the paint wears off, it can still be seen. The load line makes it easy for anyone to see whether a ship has been overloaded. The exact location of the load line is calculated and/or verified by a Classification Society that issues the relevant certificates.

This symbol, also called an International Load Line (or Plimsoll line), indicates the maximum safe draft, and therefore the minimum freeboard for the vessel in various operating conditions.

*Now answer the questions*

1. According to the passage, **which elements** affect the level of sea water on the sides of a ship?

- a) Depth of sea water.
- b) Type of the ship.
- c) Number of crew on board.
- d) Salinity and temperature of the sea water.
- e) Amount of fresh water on board.

2. What is the purpose of the load line?

- a) To show how many passengers the ship can carry.
- b) To indicate what type of ship it is.
- c) To make sure that the ship has sufficient freeboard.
- d) To show that this ship is a commercial ship.
- e) To indicate that the ship floats on even keel.

3. Where is the load line painted on the ship?

- a) On the bow, on both sides.
- b) Amidships, on both sides.
- c) Amidships, on the uppermost deck.
- d) On both sides of the superstructure.
- e) At the stern.

4. Looking at the load line one can easily see:

- a) If the ship is well certified.
- b) If the ship is a new building.
- c) If the ship is carrying cargo
- d) If the ship has undergone major repairs.
- e) If the ship is overloaded.

5. The International Load Line is also called the:

- a) Plimsoll Line.
- b) Certification Line.
- c) Freeboard Line.
- d) Safety Line.
- e) Operational Line.

*The correct answers are underlined*

## LISTENING PART II

In this part, a recording of a conversation between two or more people is played. The test takers must follow the conversation and understand the issues in order to reply to the questions that follow. The test takers may take notes while listening.

*Narrated:*

**Second engineer:** “John, I would like you to ventilate the engine room before starting the main engine so that we can have some fresh air for the start.”

**Fourth engineer:** “Should I switch on all the fans sir?”

**Second engineer:** “I don't think that's necessary. Two of them will be enough. One from each side will do. But make sure that the fire dampers are open to ensure good circulation.”

**Fourth engineer:** “Very well sir. Should I keep the fans running after the engine's been started?”

**Second engineer:** “No, that won't be necessary. It'll be alright with natural ventilation.”

**Fourth engineer:** “Yes sir.”

*Now answer the questions*

1. What does the second engineer want from the fourth engineer?

- a) He wants him to start the engine.
- b) He wants him to switch on some of the engine room fans.
- c) He wants him to check the expansion tank.
- d) He wants him stop the fans before the start of the main engine.
- e) He wants him to prevent the circulation of fresh air.

2. How many fans will be needed to supply fresh air to start the engine?

- a) One
- b) Two
- c) Three
- d) Four
- e) All

3. How will they make the fresh air circulate in the engine room before starting the engine?

- a) They will keep the main engine running.
- b) They will switch off the fans.
- c) They will use natural ventilation.
- d) They will keep the fire dampers open.
- e) They will use the engine starting air.

4. Why do they want to switch off the fans after the engine starts?

- a) Because the fans are switched off automatically as soon as the engine starts.
- b) Because natural ventilation will be sufficient for supplying fresh air.
- c) Because switching on the fans will impose extra load to the main engine.
- d) Because the fans must be switched off for the engine to run smoothly.
- e) Because the temperature of the engine room is already very low.

5. When do you think this conversation is taking place?

- a) Before the ship gets underway for a voyage.
- b) During the voyage as the ship speeds ahead.
- c) Before the arrival of the ship to the port.
- d) During the manoeuvres of the ship for berthing.
- e) During the repairs in the dry dock.

*The correct answers are underlined.*

MarTEL Phase 2 Listening Skill section contains two parts, one with a narrated passage and another with a conversation. Both parts have five multiple-choice questions. The time allowed for each part is 10 minutes.

### ***How to succeed in this section?***

Competent listening skills are important for on-the-job effectiveness and for the quality of onboard relationships. A way to improve listening skills is to practise 'active listening'. This is where one makes a conscious effort to hear not only the words that are being said, but more importantly, to try and understand the overall message being sent.

In order to do this, test takers should pay careful attention to the narration or conversation. One cannot be distracted by what else may be going on around them, or by letting their minds deal with something else. Total concentration is required during this test. Test takers should concentrate on listening and remind themselves constantly that their goal is to truly hear what is being said; setting aside all other thoughts, and concentrating on the message.

When answering the questions, test takers should read the questions carefully and may refer to their notes for choosing the correct answer.

## ***SPEAKING SKILL***

In the course of their work, engineering officers on board typically use the speaking and listening skills rather less than the reading skill. However, the speaking skill is still an important aspect of onboard communication. This productive skill can be sometimes difficult to practice because it requires more than just reciting words.

Engineering officers use their speaking skills to order, report, command a process, or relay information during or after a process is carried out. Such speaking situations mostly cover the daily routines of on board duties and sometimes in the case of an emergency. In both cases a clear and coherent verbalisation of a statement with an understandable pronunciation are needed for the message to be relayed correctly to the listeners.

*The MarTEL Phase 2 Test for Engineer Officers* assigns 20% of its total score to the assessment of speaking skills. The evaluation of the score is carried out in a single part which consists of an integrated reading passage followed by a question referring to the passage. The aim of this section is to assess test takers' ability to form meaningful statements which clearly convey their chain of thoughts. In this way, an engineering officer's skill to relay information orally by way of reporting or commanding is tested.

### ***Sample Question***

In this section, the test taker will first read a passage on a specific subject. Then the test taker will be given a question which he/she will reply orally. His/her reply will be recorded.

#### ***THE PLANNED MAINTENANCE SYSTEM***

Compliance with the International Safety Management (ISM) Code with regards to a Planned Maintenance System (PMS) became mandatory for passenger ships, high speed craft, oil tankers, chemical tankers, gas carriers and bulk carriers on 1st July 1998.

Four years later to the day, it became mandatory for other cargo ships to implement a PMS.

The PMS onboard a ship offers the ship's personnel a powerful tool for keeping track of the maintenance of every item of machinery on board the ship. It has many benefits.

The planning of maintenance jobs is automated, so there is no need for the chief engineer to go through a vast amount of manuals to pick and choose the jobs which need to be done, and possibly miss out a few.

Having an approved PMS on board is an essential part of quality management.

Records are maintained effectively and can be easily reached for ready reference as and when required, thus increasing the experience factor of the ship's operators.

Tracking the use and storage of thousands of spares and linking the same to maintenance jobs, allows for a tremendous economic advantage in inventory management and planning, thus allowing the ship operator more resources to allocate with greater economic effectiveness.

Classification societies take a more positive approach in the survey of machinery if it is shown that an approved PMS is in effective use on board.

*The passage disappears and the question appears.*

**Question: (written)** The passage informs us of the benefits of applying a Planned Maintenance System (PMS) on board the ship. Explain in your own words how you would benefit from such a system on your ship. Begin speaking after the beep. You have 2 minutes preparation time and 90 seconds to respond.

**Possible correct answer:** Although the answer will vary with the test taker's professional approach and experiences, a most likely sample answer is given below.

*I think a well established planned maintenance system on board a ship is a great help to the engineer officers. Using such a system, I can have a better control of my work and job; that means I know better what to do, when to do and how to do. I can plan my working hours more effectively and I can do a better job by not missing or neglecting the things that I should have done. In the end, the machinery will run more smoothly and give me less trouble because I have done the right things at the right time. And finally this will make me a better engineer officer which is good for my career.*

The test taker is expected to give an answer by way of a grammatically correct and meaningful speech which is related to the written text. The opinions conveyed are not judged, but the sophistication of the sentences used, the clarity of pronunciation and the relevance to the given topic are all assessed and duly scored.

The MarTEL Phase 2 Speaking Skill section contains one written, integrated reading passage followed by a single question. The time allowed for reading is 10 minutes. There is a preparation time of 2 minutes and the time allowed for the answer speech is 90 seconds.

### ***How to succeed in this section?***

There are three kinds of speaking situations:

- Interactive,
- Partially interactive
- Non-interactive.

MarTEL Phase 2 Test of Speaking Skills requires **non-interactive speaking** for the assessment of the test. The test taker records a speech with no audience and counter-part to listen to or respond. This is a little different from the real world requirements of on board activities but as MarTEL is a computer-based test there is no other way of doing it. The integrated passages used in the test are authentic maritime materials to make their language level close to advanced level. Here are some tips for test takers to improve their speaking skills.

- Pronounce the distinctive language sounds clearly so that people can distinguish them. This includes making tonal distinctions.
- Use the correct forms of words. This may mean, for example, changes in tense, case, or gender.
- Put words together in the correct order.

- Use appropriate vocabulary.
- Make clear to the listener by examples the main sentence components, such as the subject, the verb and the object.
- Make the main ideas stand out from supporting ideas or information.
- Try to present thoughts in a logical order so that people can follow what you are saying.
- Use Maritime English terminology and phrases in their correct layout expressed in SMCP.

## ***WRITING SKILL***

In these days of computerised log-keeping, report generation and material acquisition, writing may seem to be an outdated skill for an engineering officer, but this is not the case. When it comes to documentation of an event or evidence, the engineering officer still has to write reports of technical and chronological type and must keep the engine logbook using clear and thorough statements. Thanks to computer-based networks like internet and intranet, written communication has become more effective and efficient today. Engineering officers should be able to proficiently document in writing those onboard duties and external communications that are required of their rank.

*The MarTEL Phase 2 Test for Engineer Officers* considers the writing skill as an important aspect of language and assigns 10 % of its total score to the assessment of the writing skill. It focuses on two types of writing. One is an opinion-based integrated written exercise, which provides the test-taker with certain information and then requires statements on the issue in grammatically accurate and coherent sentences with attention given to the usage of nautical phrases and terminology. The other is an independent-type written exercise on a given subject where the aim is to encourage the test taker to utilise as many standardised nautical phrases and vocabulary items within the given context as possible. The sources for these subjects are:

1. ROUTINE RECORDS
  - A. Logbook keeping
    - A1. Description of events, malfunctions and incidents
    - A2. Explanations of actions, remedies and results
  - B. Class procedures
  - C. Dry-docking procedures
  - D. Surveys
2. NON-ROUTINE WRITTEN COMMUNICATION
  - A. Reports
    - A1. Malfunction reports
    - A2. Incident reports
  - B. Orders

- B1. Occupational orders
- B2. Safety orders
- B3. Administrative orders
  
- C. Work orders for remedial purposes
  
- D. Spare part requisitions
  
- E. Job applications
- E1. Cover letters
- E2. Curriculum vitae

### ***Sample Question***

### **Integrated Reading and Writing**

In this part the test taker will read a passage on a specific subject. After reading the passage he/she will be asked to write his/her opinions on one of the aspects of the subject.

#### **FAILURE OR BREAKDOWN MAINTENANCE**

In this arrangement, the equipment is left untouched until a breakdown occurs, i.e. fix it when it fails. At the time of a breakdown, the equipment is repaired or replaced and any other specified maintenance procedure is carried out. This can be effective when applied correctly, e.g. non-critical low cost equipment or where no other strategy is possible.

#### Advantages:

- (a) Low cost is correctly applied.
- (b) No advanced planning is required other than ensuring spares are available.

#### Disadvantages:

- (a) No warning of failure-safety risk. A serious breakdown of equipment may cause sufficient down-time to put the ship out of commission until it is repaired.
- (b) Requires large standby maintenance team. If several breakdowns occur simultaneously, the available man power on the ship may not be able to cope, resulting in a long delay.
- (c) Secondary damage - longer repair time.
- (d) Large spares stock requirement since failure is uncertain; blockage of capital.
- (e) Some items may require the specialist services of the manufacturer to carry out repairs, which may cause further delays.

**Question:** Compare the advantages and disadvantages of the "failure or breakdown maintenance strategy" and write a short paragraph of around 100 words that states your opinion on the subject.

**Possible correct answer:** Although the answer will vary with the test taker's professional approach and experiences, a most likely sample answer is given below.

*Failure or breakdown maintenance is a risky business. In the shipping world today, a fast and reliable service is considered very important and almost vital for a company to succeed. Therefore to provide a reliable service to the customers and transport their goods right on time, the ship owner depends on the crew to run his/her ship without any trouble that can*

*cause delays or worse, damages to cargo. This means you, as an engineer officer, have to have trouble-free running machinery, especially a propulsion system that runs reliably. I think, this type of maintenance method falls short of this expectancy. The risk of having a breakdown that can hinder the ship's voyage is higher because you take no precautions against the possibility of a breakdown due to a worn part or wastage. When a failure or a breakdown occurs, you must be ready to handle it quickly and thoroughly. This requires, as stated in the text, specialist man power and large variety of spare parts which can be costly.*

*I do not recommend this type of maintenance unless the ship is near to end of its service time, where a planned maintenance system is not helpful and too costly due to very old and worn machinery or the service does not require a tight schedule and a malfunctioning ship can be substituted by a sister ship.*

In this part the test taker is asked to write opinions on a given subject. The integrated reading part is informative and draws the outlines of the subject which is considered to be helpful to the test-taker when preparing the answer. Test takers are expected to write their opinions in coherent and grammatically accurate sentences that contain appropriate Maritime English phrases. The opinions of the test taker are not judged. The score is set by the grammatical accuracy and sophistication of the sentences with attention paid to the usage of maritime terminology.

MarTEL Phase 2 Writing Skill section contains one part which is mostly integrated with a reading passage and followed by a single question. The time allowed for reading is usually 10 minutes and for writing it is 20 minutes.

### ***How to succeed in this section:***

Writing is a productive skill, and often seems to be the hardest of the four language skills since it involves the development and presentation of thoughts in a structured way. When this skill is considered in the view of real life requirements on board, it is not that difficult as most of the duties and involvements on board which require a specific format to describe, record and report an event or incident. Nevertheless, an engineering officer will always benefit from having good writing skills. Here are some tips to improve your writing skill.

- Use the correct forms of words. This may mean using forms that express the right tense, case or gender.
- Put words together in the correct word order.
- Use vocabulary meaningfully.
- Make the main sentence components, such as subject, verb, and object, clear to the reader.
- Make the main ideas distinct from supporting ideas or information.
- Make the text coherent, so that other people can follow the development of the ideas.
- Be careful with spelling and punctuation.
- Use Maritime English terminology and phrases meaningfully.
- Make your arguments clear and coherent if applicable

## **END OF STUDY GUIDELINES FOR MARTEL PHASE 2 TEST FOR ENGINEER OFFICERS**