



MarTEL

Maritime Test of English Language

Phase 3 Standards Study guidelines Senior Engineer Officers

with support from all partners



MarTEL Phase 3 Study Guidelines

SENIOR ENGINEER OFFICERS

INTRODUCTION

These study guidelines are designed to assist test takers in recognising and developing higher levels of reading, speaking, listening, and writing skill. *The MarTEL Phase 3 Test for Senior Engineer Officers* assesses the English language proficiency of senior rank engineer officers (chief engineers or chief engineers to be) at management and operation level in a maritime linguistic context. This test can also be applied to the shore-based senior maritime specialists such as port state control officials, classification society inspectors, and surveyors.

The test will identify the Maritime English proficiency of professional mariners in the execution of their senior management and operational responsibilities, and serve as a benchmark for their certification.

The test consists of two sections:

Listening / Speaking Skills: Two parts, 30 minutes duration, 50 % of the total score.

Reading / Writing Skills: Two parts, 60 minutes duration, 50% of the total score.

Each part is designed to assess test takers' English language proficiency in to the context of maritime affairs. In this regard, most of the content of the questions are developed from typical on board activities, ship to shore tasks, and the legal and administrative responsibilities of senior level engineer officers. Issues such as trends in shipping, ship design and technology, maritime training, and international conventions are also used as the question topics. These sources are explained in detail in the relevant sections of this document.

The MarTEL Phase 3 test for senior deck officers is a computer based test. It is executed in one sitting and has a total duration of **two hours**. When taking the test, it is possible to go back and forth 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 sections may be re-visited. Test-takers are advised to be sure of their answers before moving on to another part.

Senior Engineers	LISTENING/SPEAKING	READING / WRITING
Suggested topics	1. Ship design and technology 2. Automation 3. Planned maintenance system 4. Dry-docking 5. Surveys 6. Port state control	7. Safety on board 8. Risk assessment 9. Risk management 10. Emergency response 11. Search and rescue 12. Ship security 13. International conventions 14. Classification 15. Job description 16. Performance evaluation 17. Maritime training 18. Trends in shipping 19. Instructions 20. Work orders 21. Spare part orders 22. Incident reports 23. Recommendations 24. Manuals
Tasks	Part 1: 2-3 items, 15 min. duration, 25% of the full score Part 2: 1 item, 15 min. duration. 25% of the full score	Part 1: 1 item, 30 min. duration, 25 % of full score Part 2: 1 item, 30 min. duration, 25 % of full score
Skills required	<ul style="list-style-type: none"> • understanding detailed information • understanding main point or idea • understanding inference • identifying viewpoints and attitudes • providing personal and factual information • describing people, places, objects and events • comparing, and contrasting people, places, objects and events • asking for information • interpret information highlighting significant points, and supporting detail • explaining how something works • giving directions and instructions • explain stages in a process; viewpoints • stating facts • giving advice on how to solve a situation or a problem • expressing opinions, intentions, attitudes • present ideas, arguments and comments 	<ul style="list-style-type: none"> • locating and identifying relevant information • understanding gist and main ideas • scanning for specific information • guessing meaning of unfamiliar words and expressions from context • understanding cohesive devices within a text • understanding inference • identifying viewpoint and attitude • giving and asking for advice, information, or instructions • making and responding to requests, orders, etc. • describing, comparing and contrasting people, places, objects, events and sequences of events • describing operations and processes • explaining cause and effect processes • explain stages in a process; viewpoints • stating facts • giving advice on how to solve a situation or a problem • expressing opinions, intentions, attitudes • present ideas, arguments and comments
Task types	Extended speaking based on a text Extended speaking based on a theme	Filling a form Writing a report Writing an essay Writing instructions/orders
Marking Criteria	Criterion Referencing and a percentage mark <ul style="list-style-type: none"> • There is a 60% minimum pass mark for each skill combination; 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. • 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. 	
Rubrics	Instructions for the test are written, spoken or both.	

LISTENING / SPEAKING SKILL

The listening skill is an essential element of communication, along with its counterpart, the speaking skill. It is required for receiving instructions in order to perform a duty or to take an action. Senior engineer officers must listen and comprehend what is being said when being reported about the day's activities by their junior officers, or during any developing situation requiring their involvement. Sometimes this can be in the form of routine feedback that requires their attention, and sometimes the development of an emergency situation.

Senior engineer officers and other shore-based marine engineering specialists should be able to listen to and comprehend discussions and presentations on a wide range of practical, abstract, specialized subjects related to their field of interest. While being involved in such a situation, they should be able to deduce the main idea or point, identify the details, and recognize the viewpoint of their interlocutor.

In any case, the sound and clear reception of spoken statements is considered very important for a correct and effective response.

The speaking skill is an important aspect of on board communication. This productive skill can be sometimes difficult to practice because it requires more than just reciting words. Senior engineer officers use their speaking skills to order, command a process, or relay information during or after a process is carried out. Such speaking situations may cover the daily routines or emergency cases. 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.

Senior engineer officers, as well as shore based marine engineering specialists, should also be competent in giving spoken accounts and presentations of their work. They should be able to speak effectively when expressing their opinions, intentions, and attitudes. Owing to their senior position, they may frequently find themselves in situations where they will be giving advice on how to solve problems and address incidents. In such situations, they should clearly express and present their ideas, viewpoints, and arguments. They should explain stages of the process, while highlighting significant points and providing details.

The MarTEL Phase 3 Test for Senior Engineer Officers allocates 50% of its total score to the assessment of the listening and speaking skills combined. The aim of this section is to assess test takers' ability to form meaningful statements that clearly convey their chain of thoughts which are based on their comprehension of what they have heard when listening to narrated text and questions. In this way, their listening and speaking skills are tested and assessed.

Sample Questions

PART 1

Instruction: *You are going to hear a recording twice. After listening, you will be asked questions on the subject. You will answer by speaking to the microphone, and you will have 10 minutes to answer. You may take notes while listening.*

New methods to save fuel on board ships (*narrated*)
(*The picture below is displayed on the screen while the text is being narrated*)



Waste heat recovery systems could deliver a five percent improvement in fuel efficiency in ships. As an example, researchers are developing a thermoelectric generator to capture waste heat from ships.

A Swiss research team are designing the generator to be integrated into the muffler instead of installed as a separate unit on the exhaust line. The recovered energy will be high enough to meet some of the electrical requirements, improving fuel efficiency by up to five percent.

In the meantime, a German shipping company expects to turn its ship's waste heat into onboard electricity with the installation of a waste recovery system on one of its new or existing ships by the autumn of 2011. The shipping company targets an initial four to six percent fuel savings.

With this company's ships consuming about 200,000 to 250,000 tons of bunker fuel annually, a fuel savings of four to six percent translates into a reduction of carbon emissions by about 37,000 tons a year and sulphur dioxide by about 150 tons per year.

On the other hand, a Danish shipping company has found another way to cut fuel consumption and greenhouse gas emissions by as much as 30 percent by cutting the top cruising speed of its ships in half over the past two years.

Finally, a company named ‘Sky Sails’ has been testing large towing kites which are attached by a towing line to the bow and fly high above before the ship, as a way to reduce fuel consumption. In one test, the towing kite helped reduce emissions by up to 35 percent annually and save \$1,000 in fuel a day.

Now answer the following questions.

Question 1: How many fuel saving methods are mentioned in the text? Name and briefly explain them.

Possible correct answer: *The text mentions three methods for saving fuel on board ships. The first one is recovery of the waste heat from the exhaust gases, which is converted into electricity. The second one is reducing the top cruising speed of the ship so it consumes less fuel as sails in lower speeds. The third method is attaching a flying kite to the bow of the ship to benefit from its towing power as it flies with the wind.*

Question 2: Which one of the methods do you consider to be the most easily applicable? Explain why, stating its advantages and disadvantages.

Possible correct answer: *I think reducing the top cruising speed is the easiest way to save fuel on voyages. It requires no additional equipment installation, which means spending time modifying the systems and spending extra money on additional equipment. Reducing speed can also reduce fuel consumption and gas emissions by up to 30%. The only weak point of this method is that your ships will get slower and this may affect your competitiveness. We are living in a fast moving world of commerce and services.*

Question 3: In your opinion, which one of the methods has a better future within the shipping industry? Present your argument.

Possible correct answer: *I think all methods can find some application in the future. Those who do not want to give up speed to save fuel may apply the waste heat generators and some other energy efficient systems to reduce their fuel cost. Those who are servicing traders who are not in a hurry to deliver their merchandise may choose slower ships to benefit from lower fuel consumption. For those ships which are out of the commercial sphere, such as research or training ships, can use towing kites or some other novel designs to lower their operating costs.*

Note: The answers will surely differ in parallel with test takers’ views. The important thing is that they are to be produced with clear and coherent statements and with an understandable pronunciation. The opinions of the test taker are not assessed.

PART 2

Instruction: *Read the text, and answer the following question by speaking to the microphone. You have 15 minutes to complete this part. Click the record button when you are ready to speak.*

Scenario: You have been informed by your captain that your ship has to endure a long passage through an area with **highly adverse weather conditions**. As the chief engineer of the ship, you have decided to gather your junior engineer officers and brief them on the situation.

Question: How will you instruct your junior officers about the precautions that they should take through this passage to ensure the safety of the engine rooms and smooth running of the ship's machinery? While answering this question you may use the evaluation points given below.

Evaluation points:

- Checking the operating limits of the machinery.
- Checking of the bilge.
- Checking of the service tanks.
- Securing the equipment.
- Backing-up of the systems.
- Water-tightness of the machinery spaces
- Occupational safety issues
- Personal safety issues

Possible correct answer: The test taker should produce clear and coherent statements with an understandable pronunciation to relay instructions correctly to the listeners. He/she should clearly express and present the ideas and explain stages of the process, while highlighting significant points and providing details.

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

“Gentlemen, we are about to enter an area which is under very severe weather conditions. I am told by the master that we may have to sail through very rough seas for a long time. I would like you to pay utmost attention to some issues on occupational and personal safety for our safe passage. Therefore be sure to:

Check the operating limits of main machinery and adjust the sensitivity settings of the control mechanisms.

Check the bilges for excessive water and transfer the necessary amount to holding tanks to minimize the free-surface effect. Do not discharge bilge water out of the ship unless the tanks are full.

Check the oil levels in the sump tanks of the main machinery and refill if necessary. Never permit the loss of lubrication due to heavy rolling.

Secure all large spares and stored items firmly in the engine room. Lock the overhead cranes and lifting gear. Do not permit any loose equipment.

Drain water from fuel tanks more frequently. Monitor the inlet and outlet pressures of the fuel and lubricating oil filters more closely.

Keep the engine room skylights and funnel doors tightly closed all times.

Stand-by an additional generator set in case of a failure. Patrol the machinery spaces and storage rooms more frequently. Be watchful for any irregularities. Make patrolling staff wear helmets and additional protective gear as necessary.

Keep engine room floors and staircases always oil free to prevent any injury by slipping.

That's all for now gentlemen. Please do not hesitate to call me in any case of emergency. Thank you."

How to succeed in this section?

Listening

Competent listening skills are important for on-the-job effectiveness and for the quality of on board relationships. A way to improve listening skills is to practise 'active listening'. It is advisable to review professional and non-professional publications, listen to news media, and listen to the radio, TV, and films in English. This is where one makes a conscious effort to hear not only the words that are being said, but more importantly, to try to 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.

Speaking

The MarTEL Phase 3 Test speaking skills section requires **non-interactive speaking** for the assessment of the test. The test taker records a speech with no audience or interlocutor to listen to or respond to. 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 texts used in the test are authentic maritime materials, and the language level required is 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 (Standard Marine Communication Phrases).

To improve the speaking skill, it is advisable to speak to your friends in English or with a native speaker as much as possible and express oneself in the language. Assessment of this skill is based on using grammar correctly, using maritime terminology, addressing the subject properly, fluency, and evaluation of facts and opinions.

To succeed in this section, test takers are expected to present a synthesis of information and points of view with appropriate interpretation and evaluation of facts and opinions based on the text and personal experience. They need to use critical thinking ability to extract the correct information as well as demonstrate their basic speaking skills. They must be able to differentiate between information, points of view, facts, and opinions.

READING / WRITING SKILL

For senior engineers in the maritime world, effective reading comprehension is required when searching for meaning within an increasingly challenging range of maritime texts, such as written reports, messages, and letters.

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 uses the English language.

For senior engineer officers on board, well developed reading skills are essential for the effective management of their engineering departments. Today the many manuals, which assist engineer officers in performing 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 management of the systems, as well as for identifying the causes of failures and sourcing their remedies.

Senior engineer officers should be able to proficiently document in writing certain internal and external communications that are required of their rank. As for documentation of an event or evidence, the engineer officer has to write reports of technical and chronological type and must keep the engine logbook using clear and thorough statements. With computer-based networks like internet and intranet, written communication has become more effective and efficient today.

This section focuses on two types of writing. One is an 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 outcome of this section can be a form to be filled in relation with the information given in the reading text or a short report based on the same text. 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 frame.

The MarTEL Phase 3 Test for Engineer Officers devotes 50% of its total score, to the evaluation of reading and writing skill. It focuses mostly on the informative, explanatory, and instructive texts which are most likely to be encountered in on board machinery manuals and safety documents. The level of language used in these texts is close to the advanced level.

Sample Questions

PART I

Instructions: Please read the text below first then fill the “SPARE PARTS ORDER FORM” with the required information. You have 30 minutes to complete this part.

ORDERING SPARE PARTS

You are the chief engineer of M/V ANATOLIA, a 15000 DWT dry-cargo vessel, which is owned by the ALBATROSS SHIPPING Company located in *Setustu No: 9 Kabatas, Istanbul-Turkey*.

You have departed from *the port of Aden in Yemen* on 01 December 2010 and now, on the second day after your departure, you are sailing to *Port of Singapore*. Your date of arrival to Singapore will be on 12 December 2011 and there you will stay for three days at *Dock No: 12*. You will leave Singapore Port in the early morning of December 16th and sail *for Port of San Francisco in California, United States*.

Your ship has a WARTSILA 1115 VS (Serial no: WD 002235-120) slow speed diesel engine for the main propulsion system and two MERCEDES BENZ TB 505 12V diesel engines for generating electricity. While you are sailing to San Francisco, you are planning to make the 3000-hour maintenance of one of the auxiliary engines, which has the serial number of MB000323-154. When you checked your inventory, you have noticed that you need some spare parts for carrying out your maintenance. The parts you need are; 6 pieces of Inner Oil Seal (part no: 1304F25H), 18 pieces of gasket (part no: 4395 HT 02) and 20 pieces of zinc plated washer (part no: 05C919).

When you contacted the supplier company FAST LOGISTICS Inc. located in *Spear Building No: 3 Axel Avenue 1103, Hong Kong, China*, you have learned that they can deliver the required spare parts in three days after the receipt of the order, to anywhere in the world. They told you that that they have all the parts in stock.

They also provided the information that the Inner Oil Seal costs 20 EUR a piece, the gasket costs 10 EUR a piece and the washer costs 2 EUR a piece but with a minimum order quantity of 24 pieces. The freight cost is to be calculated and added according to the delivery destination.

You have agreed with their terms and told them that you would like to receive the parts at your next port of call and instructed them accordingly for the delivery. You explained to them that the payment will be made by your company upon your confirmation on the receipt of the merchandise. You also told them that they can call you anytime on the ship's satellite phone (+90 752 676 4240) for any additional information.

Question: *Fill the Spare Parts Order Form given below according to the information in the text.*

SPARE PARTS ORDER FORM

COMPANY NAME :

SHIPPING ADDRESS :

CONTACT PERSON :
CONTACT NUMBER :
BILLING ADDRESS :
ENGINE TYPE :
ENGINE MODEL :
ENGINE SERIAL NUMBER(S) :
MUST RECEIVE BY :

REQUIRED SPARE PARTS

<i>ITEM NAME</i>	<i>PART NUMBER</i>	<i>UNIT PRICE</i>	<i>QTY</i>	<i>TOTAL</i>

<i>Grand Total</i>	
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Correct answer: For the correct answer, the test taker is expected to gather relevant information and fill in the information in the appropriate format. The test taker needs to demonstrate critical thinking ability to be able to differentiate between information, facts, and terms. The test taker is expected to read the text carefully and respond accordingly.

SPARE PARTS ORDER FORM

COMPANY NAME : *ALBATROSS SHIPPING COMPANY*

SHIPPING ADDRESS : *M/V ANATOLIA, Deck No:12 Port of Singapore, Singapore.*
CONTACT PERSON : *(Test taker's name), Chief Engineer*
CONTACT NUMBER : *+90 752 676 42 40*
BILLING ADDRESS : *ALBATROSS SHIPPING COMPANY
Setustu No:9 Kabatas, Istanbul-Turkey*
ENGINE TYPE : *Slow speed diesel*
ENGINE MODEL : *Mercedes Benz TB 505 V12*
ENGINE SERIAL NUMBER(S) : *MB000323-154*
MUST RECEIVE BY : *15 December 2010*

REQUIRED SPARE PARTS

<i>ITEM NAME</i>	<i>PART NUMBER</i>	<i>UNIT PRICE</i>	<i>QTY</i>	<i>TOTAL</i>
<i>Inner Oil Seal</i>	<i>1304F25H</i>	<i>20 EUR</i>	<i>6 pcs</i>	<i>120 EUR</i>
<i>Gasket</i>	<i>4395HT02</i>	<i>10 EUR</i>	<i>18 pcs</i>	<i>180 EUR</i>
<i>Zinc Plated Washer</i>	<i>05C919</i>	<i>2 EUR</i>	<i>24 pcs</i>	<i>48 EUR</i>
-	-	-	-	-

<i>Grand Total</i>	<i>348 EUR</i>
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PART 2

Instructions: *Read the scenario below and answer the question. You have 30 minutes to complete this part.*

Scenario: *You are the newly assigned chief engineer of a dry cargo ship. Your ship carries UMS notation. During your earlier voyages on board this ship, you have noticed that there are some irregularities or non-standard procedures being practiced by your junior engineer officers and deck OOWs on the transfer of monitoring of machinery from 'Engine Room' to 'Unmanned' status.*

You have decided to write a short directive to establish a standard procedure on the transfer of monitoring of machinery between ER and Bridge and in case of an emergency or failure as well. This directive will be included in your standing orders.

Question: Write a directive covering the issues mentioned above. You may benefit from your past experiences and evaluation points given below.

Evaluation Points:

- 1) Address group of the directive. (Where, when from whom, to whom, etc...)
- 2) Preparations before the unmanned period start.
- 3) Procedures on during the transfer of the monitoring
- 4) Procedures in case of an alarm or failure

Possible correct answer

Check that everything you write is factually accurate. The facts should be verifiable. Moreover, arguments should be soundly based and your reasoning should be logical. You should not write anything that will misinform or mislead your readers. Accurate information in writing is essential for effective communication and decision making.

Although the answer is not a single form of a statement and it will vary with the test taker's professional approach and experiences; a most likely sample answer is given below.

M/V.....(The name of the ship)

DATE:

FROM: Chief Engineer

*TO: 2nd Engineer Officer
3rd Engineer Officer*

INFO: First Officer

SUBJECT: Standing Order for Monitoring of Machinery

Unmanned Engine Room Procedures to be Carried Out by the Engineer on Duty.

1. Before the unmanned period starts, the following has to be carried out:

a) Check that all machinery runs properly.

- b) Check that all service tanks (fuel oil, lubricating oil etc.) are sufficiently filled for the designated unmanned period.*
- c) Check that the necessary pumps and related valves stand-by as assumed:*
 - Spare lubricating oil pumps for main engine, gear, and propeller.*
 - Seawater and freshwater cooling-water pumps for central cooling system.*
 - Fuel circulation and pressure pumps.*
 - Starting air compressor.*
- d) Check that the necessary regulating functions are engaged as assumed.*
- e) Check that the selected generator is in stand-by position on the main switchboard.*
- f) Check that the safety systems for main engine and auxiliary engine are engaged.*
- g) Check that there are no alarm signals which indicate an abnormal situation on the alarm panels and that all supervision points are functional.*
- h) Make a functional test of the alarm system.*
- i) Make an entry to the ER log book that the above items have been carried out.*

2. Transfer of monitoring of machinery from Engine Room to Unmanned.

- a) Inform the deck officer on duty (Officer of the Watch- OOW) that the Engine Room is ready for unmanned period operation. The bridge shall approve that the unmanned period can commence. Make sure that the duration of the unmanned period is coordinated and agreed.*
- b) At all times, the engineer on duty must stay at a place where he can be reached from the bridge and he should not leave this place without the information of the bridge. The deck OOW must be informed on his whereabouts.*
- c) The monitoring is transferred through the watch paging system. Only when acknowledgement is given from the bridge, the engine room can be left.*
- d) Commence of the unmanned engine room period is recorded in the ER log book.*

3. Transfer of monitoring of the machinery from Unmanned to Engine Room.

- a) When the deck OOW feels necessary to transfer the monitoring of the machinery to engine room, the engineer on duty is informed.*
- b) The watch paging system is used for transfer of the monitoring.*
- c) End of the unmanned engine room period is recorded in the ER logbook*

4. In case of alarm or failure

a) In case of an alarm or failure, the engineer on duty is called to the bridge. After verifying the alarm, he goes to the engine room as quickly as possible.

b) On arrival to the engine room, he acknowledges the alarm signal. The bridge will realize through this acknowledgement that the engineer on duty is in the engine room.

c) After necessary arrangements or repairs are made, the deck officer on duty is informed that the unmanned period can resume.

d) Type of alarm and the time of acknowledgement must be recorded in the ER logbook with the arrangements or repairs that have been carried out.

How to succeed in this section:

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. 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 text.

Writing is a productive skill, and involves the development and presentation of thoughts in a structured way. Most of the written duties on board 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

SOURCE CONTENT TOPICS FOR TEST QUESTIONS
(Complementary to suggested topics on page 3)

Ship Construction

Ship construction techniques and technology

Trim and Stability

Stability at small angles of heel

Trim

Stability at large angles of heel

Watertight sub-division and the effects of compartment flooding

Watertight sub-division

Effects of compartment flooding

Forces on ship structures

Static forces

Dynamic Forces

Stress in ship structures

Resistance to ship motion, propellers, powering and fuel consumption

Ship resistance

Powering

Propellers

Instrumentation systems

Sensors/transducers

Transmitters/signal converters

Transmission medium

Signal conditioners

Process control systems and controllers

Need for process control

Process controllers

Tuning techniques

System representation

Regulating units

Regulating units

Performance

Fire safety

Fire protection systems

Regulatory requirements

Maintenance procedures

Establish resources
Prepare documentation
Safe working practice
Code of Safe Working Practice
Permit-to-work procedures
Routine and preventative

Agreements and conventions

Agreements and conventions
Certification
Loadlines
SOLAS
MARPOL
Health Regulations
Safety of Ship, passengers, crew and cargo
National legislation for implementing International agreements

Objectives of individuals

Job descriptions
Responsibilities
Performance targets

Performance of individuals

Individual appraisal systems
Staff appraisal

Roles and responsibilities of teams

Teams
Team responsibilities
Internal team management

Performance of teams

Team appraisal systems
Team appraisal

Assessment of risk

Hazard
Risk rating
Frequency
Severity
Record

Risk management

Evidence
Implications
Information
Minimising risk

*Implementation
Compliance*

Emergency and damage control plans

*Prepare plans for response to emergencies
Responding to distress and medical emergencies
Main engine failure
Steering gear failure
Man overboard
Fire
Dragging anchor
Imminent collision and collision
Stranding and grounding
Flooding
Passenger and cargo emergencies
Stability emergencies
Enclosed space rescues
Pollution
Parting of lines and tow ropes
Piracy, terrorist activity, armed robbery and other security issues
Port of refuge
Abandon ship
Precautions for the protection and safety of persons on board
Initial actions and response
Communications and signals required
Procedures to be followed
Pollution and damage control*

Implementing emergency and damage control procedures

*The value of drills and other training to cope with emergencies.
The drills, and their organisation
The action to take as Chief Engineer in the event of emergencies at sea or in port,
Emergency towing arrangements and procedures
Procedures for refloating a vessel with and without assistance*

Search and rescue operations

*Plan and prepare a search
Conduct a search
Conduct a rescue
Terminate SAR operations*