



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2017

MARITIME ECONOMICS

Time: 3 hours

300 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 15 pages and an Addendum of 2 pages (i–ii). Please check that your question paper is complete.
 2. Answer all the questions.
 3. Read the questions carefully before answering.
 4. It is in your own interest to write legibly and to present your work neatly.
 5. When doing calculations, all working detail must be shown.
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QUESTION 1 MULTIPLE-CHOICE QUESTIONS

Answer these on the sheet that is part of your Answer Book. Place an X in the block next to the letter that is the answer to the question or is the term described.

- 1.1 Shipowners are being forced to ensure that decreasing amounts of the following gas are present in ships' exhausts:
- A tetra-ethyl lead
 - B carbon monoxide
 - C nitrogen
 - D argon
- 1.2 How many navigating officers will be assigned to a 10 000-TEU containership?
- A Six
 - B Three
 - C Five
 - D Four
- 1.3 The country providing most of the world's merchant seafarers is ...
- A India.
 - B China.
 - C Russia.
 - D Philippines.
- 1.4 A ship that is registered in Singapore but is owned by a British company, managed by a Hong Kongese company, and carries Indian crew will fly the ... flag at the stern when in port.
- A Singaporean
 - B British
 - C Hong Kong
 - D Indian
- 1.5 The letters LR are shown on a ship's load line. These stand for ...
- A Lloyd's Requirement.
 - B Lloyd's Restitution.
 - C Lloyd's Register.
 - D Lloyd's Refinery.
- 1.6 A handysize bulk carrier is on charter for five voyages from Rotterdam, Netherlands, to Mumbai, India. How many times will she pass through the Suez Canal?
- A Zero times
 - B Five times
 - C Ten times
 - D Nine times

- 1.7 What type of insurance would cover damage to a ship resulting from a fire in a cargo of coal?
- A TT Club
 - B FFO
 - C P&I Club
 - D Hull & Machinery
- 1.8 What type of insurance would cover damage to a ship resulting from a severe storm?
- A TT Club
 - B FFO
 - C P&I Club
 - D Hull & Machinery
- 1.9 What type of insurance would cover a ship needing to divert to land an injured crew member?
- A TT Club
 - B FFO
 - C P&I Club
 - D Hull & Machinery
- 1.10 Who declares general average in a case where cargo has been damaged as a result of a serious fire on a containership on a voyage charter?
- A Shipowner
 - B Cargo owner
 - C Charterer
 - D Ship's Agent at the nearest port
- 1.11 The term that applies to the process of settling a dispute between a charterer and a shipowner is known as ...
- A resolution.
 - B judgment.
 - C legal opinion.
 - D arbitration.
- 1.12 A severe revolving storm encountered off the coast of Japan where wind speeds reached 175 kmph is known as a ...
- A hurricane.
 - B typhoon.
 - C mid-latitude cyclone.
 - D monsoon.
- 1.13 Between the Gulf of Oman and the Arabian Gulf lies the ...
- A Strait of Hormuz.
 - B Strait of Malacca.
 - C Bab el Mandeb.
 - D Torres Strait.

- 1.14 The Incoterm that indicates that the costs of carrying the cargo (from the time that it is aboard the ship until it reaches the consignee's premises) will be paid by the consignee.
- A FOB
 - B FAS
 - C CIF
 - D DDP
- 1.15 The Incoterm that indicates that the costs of shipping cargo (until it is ready to be loaded aboard the ship) will be paid by the consignor.
- A FOB
 - B FAS
 - C CIF
 - D DDP
- 1.16 Who bears the costs of the insurance on the ocean leg of the transport chain if cargo is shipped DDU (Delivered Duty Unpaid)?
- A The shipper
 - B The consignee
 - C The carrier
 - D The forwarding agent
- 1.17 The document that sets out the conditions of the carriage of goods by sea is called the ...
- A Charter Party.
 - B Bill of Lading.
 - C Cargo Manifest.
 - D Voyage Instructions.
- 1.18 A seafarer is injured aboard a chartered ship. Who pays the medical bills when he is treated in hospital?
- A The charterer
 - B The owner
 - C The ship's P&I Club
 - D The Classification Society
- 1.19 The primary cause of the occasional fog banks that form over the west coast of southern Africa is ...
- A the Agulhas Current.
 - B the Benguela Current.
 - C offshore winds.
 - D the shape of the coastline.
- 1.20 The apex predator in the marine food chain is the ...
- A blue whale.
 - B great white shark.
 - C leopard seal.
 - D orca.

- 1.21 The term *estuary* refers to ...
- A an area partially enclosed by a reef.
 - B an area on the leeward side of a coral island.
 - C an area near the mouth of a river.
 - D an area at the head of a bay.
- 1.22 An international code that deals with the number of lifeboats a ship should carry is ...
- A SOLAS.
 - B STCW 95/2010.
 - C ISM.
 - D ISPS.
- 1.23 The process of registering a ship in a country other than the country where the owner is based is called ...
- A reregistering.
 - B flagging out.
 - C deregistering.
 - D reflagging.
- 1.24 A vessel that carries liquefied natural gas from Russia to China is called an ...
- A LNG FPSO.
 - B LNG bulker.
 - C LNG carrier.
 - D LNG terminal.
- 1.25 The country in which most ships are flagged is ...
- A Philippines.
 - B Panama.
 - C Liberia.
 - D Marshall Islands.
- 1.26 The African country with the largest ships' register is ...
- A South Africa.
 - B Nigeria.
 - C Egypt.
 - D Liberia.
- 1.27 If a country has a system of cabotage, it means that the country ...
- A allows ships of any nationality to move cargoes between its ports.
 - B allows only ships registered in its ports to move cargoes between its ports.
 - C allows only foreign ships to move cargoes between its ports.
 - D allows only foreign ships to move its export cargoes to foreign ports.

1.28 A ship steaming from Cape Town to Durban will ...

- A steam against the Benguela Current.
- B steam against the Agulhas Current.
- C steam with the Agulhas Current.
- D steam with the Benguela Current.

1.29 Conditions associated with a cold front may affect shipping in ...

- A Lagos (Nigeria).
- B Rio de Janeiro (Brazil).
- C Port Louis (Mauritius).
- D the North Sea.

1.30 Conditions associated with a tropical cyclone may affect shipping in ...

- A Lagos (Nigeria).
- B Rio de Janeiro (Brazil).
- C Port Louis (Mauritius).
- D the North Sea.

[60]

QUESTION 2 THE MARITIME WORLD

- 2.1 Read the extract from *Cape Times* (see **Addendum 1** to this question paper) and answer the questions set.
- 2.1.1 Apart from the transport of gas, why are the Arctic shipping routes important? (6)
- 2.1.2 Why is the discovery of gas in the Yamal Peninsula so important to each of the following?
- (a) Russia (4)
- (b) China (4)
- 2.1.3 How will the LNG be transported to China in January each year? (4)
- 2.1.4 Give two ways in which the new, specially-built LNG carriers have been equipped to proceed via the north-east passage. (4)
- 2.2 Study the table that has been given as **Addendum 2**. The statistics given show the numbers of ships (containerships, bulk carriers, VLCCs and product tankers) calling for the period 2012 to 2019. Note the following:
- The port serves a hinterland in which there is a thriving industrial sector, including an oil refinery.
 - A steel mill has been built in the hinterland recently.
 - A second oil refinery is under construction.
 - Figures for 2017 to 2019 are estimates.
- Now answer the following questions.
- 2.2.1 If you study the numbers of ships calling, when did the steel mill come into operation, or is likely to come into operation? (2)
- 2.2.2 Explain your answer to Question 2.2.1. (4)
- 2.2.3 According to the figures given, when did the second oil refinery come into operation, or is likely to come into operation? (2)
- 2.2.4 How many VLCCs are likely to be in port on any day in 2019? (4)
- 2.2.5 Besides the new steel mill and oil refinery, what infrastructure would need to be provided to cope with the expected increase in shipping? (8)
- 2.2.6 In what ways will the region in which Port Newrefin is situated benefit from developments in and around the port? (8)
- [50]**

QUESTION 3 SHIPPING OPERATIONS

Here are some details about the containership *Southern Island*:

| | | |
|------------------------|-----|---|
| Length | | 150 metres |
| Loaded draught | | 11 metres |
| Freeboard when loaded | | 4 metres |
| Owner | | Southern Island Shipping, London |
| Managers | | Delta Ship Management, Hong Kong |
| Port of Registry | | Valetta, Malta |
| Charterer | | Ocean Container Line, London |
| | | She is on a time charter for 12 months during which she will operate on Ocean Container Line's service London-Goteborg (Sweden)-Gdansk (Poland)-Helsinki (Finland)-St Petersburg (Russia)-London |
| Insurers | H&M | Lloyd's |
| | P&I | North of England P&I Club |
| Classification Society | | Lloyd's Register |
| Cargo Capacity | | 1650 TEU |

3.1 Refer to the ship's details given above. Explain why the ship has been flagged out.

(6)

3.2 The following cargo will be loaded in London for a voyage to the Baltic Sea ports listed below.

| | | |
|-------------------|-----|------------------------------------|
| For Goteborg | 124 | 40-foot general purpose containers |
| | 27 | 40-foot reefer containers |
| | 11 | 20-foot tank containers |
| For Gdansk | 209 | 40-foot general purpose containers |
| | 41 | 40-foot reefer containers |
| | 11 | 20-foot tanker containers |
| For Helsinki | 107 | 40-foot general purpose containers |
| | 14 | 40-foot reefer containers |
| | 09 | 20-foot tank containers |
| For St Petersburg | 115 | 40-foot general purpose containers |
| | 16 | 40-foot reefer containers |

- Loading in London will be done by two gantry cranes at a rate of 25 containers an hour **each**.
- Loading is scheduled to begin at 08:00 on 10 December.
- Breaks (tea breaks, change of shift, etc.) will total 3 hours for the duration of the loading process.
- Allowance for strong wind during the loading: 4 hours.
- Before she can sail, various clearance procedures will take two hours **once cargo work has been completed**.

- 3.2.1 How many hours will it take to complete the loading of the cargo, **including breaks and the estimated wind stoppage**? Round off to the NEXT hour, e.g. 13,2 becomes 14 hours. (6)
- 3.2.2 When will the loading of the cargo be finished? (6)
- 3.2.3 How many **TEU** does her cargo represent? (Be careful and note the types of containers she is carrying.) (6)
- 3.2.4 Will she be fully laden when she sails from London? (Answer YES or NO, but show how you arrived at your answer.) (6)
- 3.2.5 What is the minimum number of reefer plugs that she will need to carry this cargo? (6)
- 3.2.6 When will the ship sail from London? (4)

- 3.3 The containers that *Southern Island* will load have come from all over the world and were discharged by other ships in London for delivery to the Baltic Sea ports as shown.
- 3.3.1 On what type of service is Southern Island operating? (2)
- 3.3.2 What role does London play in a service such as this? H—P—. (2)
- 3.3.3 Will the British customs have cleared these containers when they were landed from other ships and before they were loaded onto Southern Island? Answer YES or NO. (2)
- 3.3.4 Is this a liner service? Answer YES or NO. (2)
- 3.3.5 What type of container will be used to carry each of the following cargoes?
- (a) Australian meat
- (b) Coconut oil from Mauritius (4)
- 3.3.6 The following cargoes are carried in some containers. State whether each is classed as dangerous goods. (Answer YES or NO.)
- (a) Drummed paraffin
- (b) Blocks of granite (4)
- 3.4 Assume that a container is being carried FOB, the INCOTERM for "*free on board*".
- Choosing your answers from either CONSIGNOR (SHIPPER) or CONSIGNEE, who pays for each the following?**
- 3.4.1 The costs of loading the container in London
- 3.4.2 The costs of discharging the container in Gdansk (4)

3.5 The following is the schedule for a round voyage from arrival in London until the ship arrives back in London:

| | |
|--------------------------|---------|
| Time in London | 02 days |
| London – Goteborg | 02 days |
| Time in Goteborg | 01 day |
| Goteborg – Gdansk | 02 days |
| Time in Gdansk | 02 days |
| Gdansk – Helsinki | 02 days |
| Time in Helsinki | 02 days |
| Helsinki – St Petersburg | 01 day |
| Time in St Petersburg | 02 days |
| St Petersburg – London | 04 days |

3.5.1 How many days will a round voyage take? (Assume that a round voyage is from the ship's arrival in London until she arrives back in London.) (6)

3.5.2 The ship is on time charter for 180 days.

(a) How many complete round voyages could she make during the charter, assuming that she redelivers to her owner in London? (6)

(b) During her time on charter, who is responsible for crewing the ship? Choose your answer from OWNER or CHARTERER or PORT AGENT. (2)

3.6 During a northbound voyage across the North Sea, *Southern Island* experiences very heavy seas that sweep seven containers into the sea. They sink. Fittings on the forecastle (fo'c'sle) are damaged by the sea.

3.6.1 Between which two ports did she experience the heavy seas? (4)

3.6.2 When she arrived at her next port, surveyors representing three organisations were waiting to assess the damage and loss. Which organisations do they represent? (6)

3.6.3 Where is the fo'c'sle on the ship? (2)

3.6.4 What type of insurance will cover the loss of the containers? (2)

3.6.5 Can general average be declared on this occasion? Give two reasons for your answer. (6)

- 3.7 Because of repair work to the damaged fo'c'sle, *Southern Island* was delayed by three days in her schedule. What term applies to this period when she cannot meet the requirements as agreed in the charterparty? (2)
- 3.8 What term applies if cargo work takes longer than agreed in the charterparty? (2)
- 3.9 Which IMO code or convention governs the content of courses that a navigating officer has to complete to qualify as a watchkeeping officer? (2)
- [100]**

QUESTION 4 INTERNATIONAL TRADE

- 4.1 A container being carried by *Southern Island* from St Petersburg is filled with 20 bundles of planks of Russian spruce wood.
- 4.1.1 How many bill(s) of lading is/are required for this cargo? Choose your answer from ONE or TWENTY. (2)
- 4.1.2 The carrier has arranged a door-to-door shipment for this container. What type of bill(s) of lading will be issued for this container? Choose your answer from COMBINED BILL(S) OF LADING or THROUGH TRANSPORT BILL(S) OF LADING. (2)
- 4.1.3 The truck carrying the container from the sawmill near St Petersburg to the container terminal catches fire, damaging the wood. Who will take responsibility for the damage to the wood? Choose your answer from THE CARRIER or THE CONSIGNEE or THE SHIPPER or THE CHARTERER or THE PORT AGENT. (2)
- 4.2 Convergence zones are important in world shipping.
- 4.2.1 Write a note on the importance of the Straits of Malacca. Among other facts that you provide in your note, mention the following:
- The position of this convergence zone on world trade routes; and
 - Some important cargoes (*other than containers*) that are carried via this convergence zone; and
 - The reasons for this convergence zone being important to world shipping. (12)
- 4.2.2 In recent years, the number of containerships passing through these straits has decreased.
- (a) Referring to the increasing size of containerships on long-haul routes between Asia and Europe, and the state of world trade, explain the reasons for the decrease in containership traffic through the straits. (10)
- (b) Will the freight rate on containers being moved between Asia and Europe have decreased? Answer YES or NO. (2)
- (c) Explain your answer to Question 4.2.2 (b). (6)

4.3 A five-hold ship loaded a full cargo in Durban and she discharged the following cargo in Mumbai, India:

| | |
|--------|-------------------------------|
| Hold 2 | 7500 tons of steel |
| Hold 4 | 8100 tons of aluminium ingots |

She then went to Cochin, also in India, and discharged the following cargo:

| | |
|--------|-----------------------------------|
| Hold 1 | 4800 tons of steel |
| Hold 3 | 7750 tons of cement in 1-ton bags |
| Hold 5 | 7680 tons of maize in 1-ton bags |

4.3.1 How many tons of cargo did she load in Durban? (4)

4.3.2 Which holds were empty for the voyage from Mumbai to Cochin? (4)

4.3.3 Referring to the cargo distribution, what would the ship have had to do before sailing from Mumbai for Cochin? (4)

4.4 Cheap steel is being imported by Country X, which has its own steel industry. Steel merchants in Country X can buy the imported steel at \$89 per ton less than the locally-produced steel.

4.4.1 What negative effects will this situation have on the local steel industry in Country X? (6)

4.4.2 What steps should Country X take to protect its own steel industry? (6)

4.5 Explain why maritime law needs to be similar in all countries. (6)

4.6 Which organisation ...

4.6.1 is the international controlling body for shipping?

4.6.2 would act against a ship that is deliberately causing oil pollution off the South African coast? (4)

[70]

QUESTION 5 MARINE ENVIRONMENTAL CHALLENGES

5.1 The following is the shipping weather forecast for CAPE WEST, i.e. the sea area to the west of Cape Town, for the period 12:00 on 14 July to 12:00 on 15 July.

| | |
|--|--|
| A depression is moving eastwards and will bring rapid meteorological changes within the forecast period. | |
| PRESSURE | 996 MB |
| WIND SPEED | 36 KNOTS, GUSTING 48 KNOTS AT TIMES. MODERATING TOWARDS THE END OF THE FORECAST PERIOD |
| WIND DIRECTION | NORTH-WESTERLY, BECOMING WESTERLY |
| WEATHER | RAIN, HEAVY AT TIMES |
| SEA STATE | 9 METRES, BECOMING 11 METRES |
| VISIBILITY | POOR IN RAIN AND IN SEA SPRAY |

5.1.1 What warning would Port Control Cape Town give to ships anchored in Table Bay? (4)

5.1.2 How will the depression affect shipping in Cape Town harbour? (6)

5.1.3 What does "*moderating towards the end of the forecast period*" mean? (4)

5.2 Random killing of great white sharks has brought reactions from various environmental groups. Explain how the practice of killing these sharks can have a negative effect on the ecosystem. (6)

[20]

Total: 300 marks