NATIONAL SENIOR CERTIFICATE EXAMINATION
SUPPLEMENTARY EXAMINATION – MARCH 2018

MARITIME ECONOMICS

Time: 3 hours 300 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 10 pages. Please check that your question paper is complete.
2. Answer all the questions.
3. Read the questions carefully.
4. It is in your own interest to write legibly and to present your work neatly.
5. Show all working where calculations are involved.

QUESTION 1 THE MARITIME WORLD

1.1 The Dutch East India Company (DEIC) established a "halfway house" at the Cape in 1652 to provide a place where their ships could stop during their long voyage from Europe to the East and back.

1.1.1 Why did the DEIC need to provide this "halfway house" for their ships? (6)

1.1.2 How did the introduction of steamships change the need for such places? (6)

1.2 Look at the details of the following bulk carriers:

Name	***Length***	***Beam***	***Draught (Loaded)***	***Deadweight***
Pluto	162 m	28 m	12 m	32 106
Neptune	190 m	30 m	14 m	47 117
Saturn	184 m	29 m	13 m	46 205
Mars	226 m	31 m	15 m	67 228
Venus	330 m	60 m	19 m	221 071

1.2.1 Which two of the ships would be most suited to move the following cargo?

42 200 tons of steel from Port A (water depth 17 m) to Port B (water depth 24 metres) (4)

1.2.2 Explain your answer to Question 1.2.1. (4)

1.2.3 Look at the ships you have chosen as your answer to Question 1.2.1. Which ship(s) would be able to move that cargo if they/she had to pass through a lock that had the following dimensions? Note that at least four metres' clearance on each side, ahead and astern and two metres' clearance beneath the keel are required:

Length: 200 m; Breadth: 38 m; Depth: 15 m (4)

1.2.4 Explain your answer to Question 1.2.3. (8)

1.3 STCW 95 Convention as revised deals with important aspects of seafaring.

1.3.1 List the main aspects of that convention as it relates to seafaring. (6)

1.3.2 List three countries from which many of the world's seafarers come. (6)

1.3.3 Explain why fewer seafarers come from Western Europe these days. (6)

1.3.4 The South African government has introduced Operation Phakisa. One of the stated intentions of Operation Phakisa is to increase the number of South African seafarers.

1.3.4.1 What would be the best way to START the project to increase the number of South African seafarers? (2)

1.3.4.2 List four incentives that the government could introduce to ensure that Operation Phakisa succeeds in its goal of increasing the number of South African seafarers. (8)

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QUESTION 2 SHIPPING OPERATIONS

2.1 A cargo of 3 600 tyres is to be carried in 40-foot (12-metre) containers from Osaka Tyres, Japan, to Uzusi Vehicle Assembly Plant in Port Elizabeth. They will be carried in bundles of 5 tyres, and the dimensions of each bundle (with packaging and on a cargo pallet) are: Base: 1 metre x 1 metre; Height: 1,8 metres. They will be shipped aboard the containership *CSL Pilot*, operated by CSL Shipping.

2.1.1 What is a cargo pallet? (4)

2.1.2 Of how many bundles will the tyre shipment be comprised? (6)

2.1.3 How many bundles will fit into one container whose internal dimensions are as follows?

Length: 12 metres; Breadth: 2,1 metres; Height: 2,3 metres (6)

2.1.4 How many containers will be needed to move this shipment from Japan to Port Elizabeth? (6)

2.1.5 The shipment is carried at $3 100 per container. What is the expected earnings for the ship for the carriage of this shipment? (6)

2.1.6 Describe the procedure to move one container of tyres from the tyre factory in Osaka, Japan, until the container is stowed on board the ship in the Osaka container terminal. (8)

2.1.7 The shipment is shipped using the incoterm DDP (Delivered Duty Paid).

2.1.7.1 What does the term **DUTY** mean in this incoterm? (4)

2.1.7.2 In terms of the incoterm used for this shipment, who will pay for each of the following? (Choose your answer from SHIPPER or CARRIER or CONSIGNEE.)

(a) The ocean leg of the shipment. (2)

(b) The truck that will take a container from Port Elizabeth harbour to the vehicle factory. (2)

(c) Insurance for the cargo during the ocean leg of the shipment. (2)

2.1.7.3 Identify or give the term for each of the following in connection with the tyre shipment from Osaka to Port Elizabeth.

(a) The shipper of the cargo. (2)

(b) The document that will govern the shipment of this cargo. (2)

(c) The government department that will "clear" the cargo on arrival in Port Elizabeth. (2)

(d) The carrier of the cargo. (2)

(e) The device that is fitted to each container door to show whether the container has been opened or not during the shipment. (2)

(f) The list of containers carried by a containership. (2)

2.2 The container ship *CSL Pilot* is owned by CSL Shipping in Japan but registered in Panama.

2.2.1 What term is given for the ship being registered in a country other than the owner's country? (2)

2.2.2 What term is given to the country of registry in the case of *CSL Pilot*? (2)

2.2.3 Why would an owner register his ship in a country other than his own? (6)

2.3 What role does a classification society play from the time a ship is planned until she is delivered to her owner? (8)

2.4 As *CSL Pilot* approached Port Elizabeth, she collided with the bulker *Sea Princess* carrying manganese that she had loaded in Port Elizabeth. The bulker was seriously damaged on the starboard side and two of her fuel tanks were holed. One seafarer aboard the bulker was injured and taken ashore for treatment by the National Sea Rescue Institute.

No one aboard the containership was injured, but the ship suffered serious damage to her bow, and five containers were lost overboard. Two sank and three were recovered by a local launch company and towed into Port Elizabeth harbour.

Another ship, *Ulundi*, was outbound from Ngqura but diverted to stand by the damaged vessels.

The accident caused a large oil spill, and heavy fuel oil from the bulker washed up along the coast of Algoa Bay (including several tourist beaches) and also on Bird Island, an important bird colony. Several salvage and diving support vessels were chartered to deal with the effects of the accident. The bulker was towed into Port Elizabeth by the salvage tug *Tidal Power*. Temporary repairs were carried out in Port Elizabeth before she was towed to Durban for permanent repairs.

CSL Pilot was also repaired temporarily in Port Elizabeth but steamed to Cape Town where she was repaired. She continued her voyage to South America.

2.4.1 Give one word for each of the following terms:

2.4.1.1 Ship's fuel. (2)

2.4.1.2 A person who is rescued following a shipping accident. (2)

2.4.1.3 The type of insurance that covers damage to a ship. (2)

2.4.1.4 The type of insurance that covers the loss of a container. (2)

2.4.1.5 The type of insurance that covers the towage of a ship following an accident. (2)

2.4.1.6 The type of insurance that covers the loss of the manganese cargo. (2)

2.4.2 The following is a rule for avoiding a collision at sea and applies to the accident off Port Elizabeth:

When two power-driven vessels (**such as** *CSL Pilot* **and** *Sea Princess*) *are crossing and risk of collision exists, the vessel which has the other on her own starboard side shall keep out of the way and shall … avoid crossing ahead of the other vessel.*

2.4.2.1 *Sea Princess* had *CSL Pilot* on her starboard side, and seems to have tried to cross ahead of the containership. Who is probably to blame in this situation? (2)

2.4.2.2 Give two manoeuvres that *Sea Princess* could have done to avoid the collision. (4)

2.4.3 General Average is sometimes declared in the case of a shipping accident.

2.4.3.1 What is General Average? (6)

2.4.3.2 Can General Average be declared in the case of *CSL Pilot*? Answer YES or NO. (2)

2.4.3.3 Who declares General Average? (2)

2.4.3.4 In the case of a dispute over a maritime matter, by what process is the dispute settled? (2)

2.4.4 The bulker is on charter to an Indian company for the voyage carrying manganese from Port Elizabeth to Mumbai.

2.4.4.1 What is the name of the document that governs a ship's charter? (2)

2.4.4.2 What term will apply for the time when she is under repair and therefore unable to fulfil the requirements of the charter? She is O ... H … (2)

2.4.4.3 Will the charterer of *Ulundi* be able to penalise her for the time she stood by the two damaged vessels? Answer YES or NO. (2)

2.5 The agreed time for *Sea Princess* to load her manganese cargo was 70 hours plus 8 hours' breaks and changes in shift.

2.5.1 What term is given to the "agreed time to load" a cargo? (2)

2.5.2 She took 85 hours to load (plus breaks and changes in shift).

2.5.2.1 What term applies in this case? (2)

2.5.2.2 An agreed payment has to be made in this case. Who would have to pay whom? (Give only the correct letter A or B next to the question number in your answer book.)

A THE SHIPOWNER PAYS THE CHARTERER or
B THE CHARTERER PAYS THE SHIPOWNER (2)

2.5.2.3 Would rain have delayed the loading of a manganese cargo? Answer YES or NO. (2)

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QUESTION 3 INTERNATIONAL TRADE

3.1 Car tyres can be made in South Africa, and it is important for the state to protect the local tyre industry against cheaper imported tyres.

3.1.1 ***Why*** should the state want to protect local tyre manufacturers from foreign competition? (4)

3.1.2 ***What*** should the state do to protect local tyre manufacturers from foreign competition? (4)

3.2 The following statistics show the approximate average number of ships passing the convergence zones daily:

Suez Canal	42 ships
Cape Agulhas	60 ships

3.2.1 According to the figures given above, how many ships will pass Cape Agulhas in a year? (4)

3.2.2 Consider the location of each of these places on global shipping routes.

3.2.2.1 Why do many containerships transit the Suez Canal? (6)

3.2.2.2 Why do many large bulk carriers (including ore carriers) pass Cape Agulhas? (6)

3.2.3 Most of the ships passing Cape Agulhas do not call at South African ports. What can be done to attract a larger number of these ships to call at South African harbours? (6)

3.3 The Cape Agulhas route became extraordinarily important on ***two*** occasions between 1956 and 1975.

3.3.1 **What** happened during that time to cause the Cape route to become even more important? (4)

3.3.2 Explain **why** the Cape route became so important on those two occasions. (4)

3.4 *Sea Princess* needed to be certified seaworthy by two organisations before she could continue trading. Which organisations are these? (4)

3.5 *CSL Pilot* is registered in Panama and *Sea Princess* is registered in Liberia.

3.5.1 Where is Liberia? (2)

3.5.2 Which country would investigate the collision between the two ships? Choose your answer from the following and write ***only*** the correct letter in your answer book:

A South Africa, Liberia and Panama
B South Africa and Panama
C South Africa and Liberia
D Panama and Liberia
E Only Liberia
F Only Panama (2)

3.5.3 Explain your answer to Question 3.5.2. (6)

3.6 *CSL Pilot* berthed in Port Elizabeth at 19:30 on 14 March. The authorities decided it would be best to repair her bow while she was discharging and loading her cargo. She had 670 containers to discharge and 430 to load. Beginning cargo work at 21:30 on 14 March, she will have two container gantry cranes and each will handle 25 containers per hour. Breaks will total 4 hours.

It is estimated that the temporary repair work, which will only start at 07:30 on 15 March, will take about 72 hours, including breaks.

3.6.1 On her way to Port Elizabeth and before the accident, *CSL Pilot* sent her crew list and a list of her last 10 ports.

3.6.1.1 In terms of which IMO code does the ship have to do this? (2)

3.6.1.2 Why was this code introduced? (2)

3.6.2 How long will her cargo work take? Include breaks in your answer. (6)

3.6.3 When will cargo work be completed? (6)

3.6.4 When will the repair work be completed? (6)

3.6.5 By how many hours will *CSL Pilot* be delayed in Port Elizabeth? (6)

3.7 *Sea Princess* will be towed to Durban by the tug *Tidal Power*. The distance is 396 nautical miles and her average speed is estimated to be 6 knots.

3.7.1 How many hours will it take for the tug and tow to reach Durban? If necessary, round off to the NEXT hour. (6)

3.7.2 While towing *Sea Princess* to Durban, the tug will encounter the Agulhas Current. Does the current flow …

A along the coast towards the south-west, or
B along the coast towards the north-east? (2)

3.7.3 Is the current likely to slow the tug's progress or help her progress during the tow? (2)

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QUESTION 4 MARITIME ENVIRONMENTAL CHALLENGES

4.1 *Sea Princess* had come to Port Elizabeth in ballast from India and had exchanged her ballast water twice while crossing the Indian Ocean.

4.1.1 What is meant by the term **in ballast**? (4)

4.1.2 Explain why she had to exchange ballast water on her voyage to Port Elizabeth. (6)

4.2 *The accident caused a large oil spill, and heavy fuel oil from the bulker washed up along the coast of Algoa Bay (including several tourist beaches) and also on Bird Island, an important bird colony.*

Explain why the effects of this accident are so serious. (10)

4.3 Indicate (by writing YES or NO next to the appropriate question number in your answer book) whether each of the following will affect the operation described below.

4.3.1 Strong wind on container operations in Port Elizabeth harbour. (2)

4.3.2 A north-east gale on the towing operation of *Tidal Power* en route to Durban. (2)

4.3.3 Rain on container operations in Port Elizabeth harbour. (2)

4.3.4 Heavy seas on container operations in Port Elizabeth harbour. (2)

4.3.5 Fog on loading manganese in Port Elizabeth harbour. (2)

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Total: 300 marks