



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2014

MARITIME ECONOMICS

Time: 3 hours

300 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 11 pages and an Addendum of 1 page (i). 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. Where calculations are involved, all working must be shown.
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QUESTION 1 THE MARITIME WORLD

- 1.1 Until the 1930s, Port X used to be an important coal bunkering place for ships trading between Port A and Port B.
- 1.1.1 Explain why ships seldom call at Port X now that no ocean-going ships use coal as fuel. (6)
- 1.1.2 How will this change have affected the economy of Port X? (6)
- 1.2 Some shipowners are investigating alternative means of propulsion for their ships.
- 1.2.1 List two means of propulsion that are of interest to some shipowners. (4)
- 1.2.2 Give two reasons why some shipowners are investigating other means of propulsion for their ships. (4)
- 1.2.3 Besides alternative means of propulsion, give two ways in which shipowners are trying to make their ships more 'environment-friendly'. (4)
- 1.3 Study the table below. It represents the average freight rates (per ton of cargo in US\$) for particular routes for Capesize iron ore carriers for a particular year. Now answer the questions set:

	APRIL	JULY
Brazil – China	24.45	26.34
Brazil – Rotterdam	22.33	23.54
NW Coast Australia – China	19.36	20.19
NW Coast Australia – Rotterdam	25.22	26.44
Saldanha Bay – China	22.78	24.55
Saldanha Bay – Rotterdam	20.45	21.32

- 1.3.1 What is a Capesize ship? (2)
- 1.3.2 Which route shows the greatest increase in rates from April to July? (6)
- 1.3.3 Give two possible reasons for the change in rates on the route you gave for your answer to Question 1.3.2. (4)
- 1.3.4 What is the overall trend in the rates from April to July – FIRMING or SOFTENING or STEADY? (2)
- 1.3.5 Look at the rates to China. Why are the rates for the Brazil-China route higher than for the other routes to China? (4)
- 1.3.6 If a ship is chartered to move 178 000 tons of iron ore from Saldanha Bay to China in July of that year, how much will she earn for the voyage? (4)

- 1.4 Study the Addendum attached to this question paper and answer the questions set.
- 1.4.1 Which tanker type would be best to bring crude oil from an offshore storage rig to Durban for refining? (2)
- 1.4.2 Which tanker type would be best to move 150 000 tons of crude oil from Kuwait in the Arabian Gulf to an oil terminal in the Mediterranean Sea? (2)
- 1.4.3 Which tanker type would be best to move LNG from Qatar in the Arabian Gulf to Japan? (2)
- 1.4.4 Which tanker type would be best to move a cargo of petrol from Durban to Walvis Bay (Namibia)? (2)
- 1.5 Many of the world's seafarers are drawn from developing countries as fewer western people now choose seafaring as a career.
- 1.5.1 Which country supplies most of the world's seafarers? (2)
- 1.5.2 Give two reasons for the seafarers of that country being attracted to the sea as their profession. (4)
- [60]**

QUESTION 2 SHIPPING OPERATIONS

- 2.1 The handysize bulker *Leonardo Taurus* was a few hours steaming from Cape Town where she would have discharged a full cargo of animal feed, originating from Buenos Vistas Animal Feed Company, Buenos Aires, and destined for Southern Farming Co-operative, Malmesbury, near Cape Town. A serious engine failure occurred, leaving the ship helpless in extremely rough seas and an onshore gale force wind.

Her Master sent out a MAYDAY call and the salvage tug *Ocean Star* sailed from Cape Town to try to salvage the ship. However, before the tug could reach her, *Leonardo Taurus* was driven ashore. (Her Master had ordered both her anchors to be dropped, but both anchor chains broke in the heavy seas.) She grounded shortly before spring high tide, and with heavy seas battering her, she was left hard aground with little chance of being refloated.

Helicopters lifted the crew to safety, although the Master and several senior officers remained on board to assist with the salvage operation.

Heavy seas continued to pound the ship and by the following morning, she had taken in an amount of seawater because of serious hull damage. The senior officers were airlifted to safety by the helicopters. The heavy seas prevented the tug from connecting a towing wire to the ship, and *Leonardo Taurus* lay abeam the heavy surf and broke in two.

When the salvage team could not refloat the ship, they set about avoiding serious oil pollution and prepared to get the bunker oil ashore. All her cargo was lost in the accident.

She was covered for all forms of marine insurance.

- 2.1.1 When the tug left the port, her owners had negotiated a salvage agreement with the ship's owners for a 'no-cure-no pay' operation. What is the proper name for this agreement? (2)
- 2.1.2 When they realised that the ship could not be refloated, the tug owners changed that agreement to another. What is the name for that other agreement? (2)
- 2.1.3 Giving a reason for your answer, can the tug claim salvage from this operation? (4)
- 2.1.4 Assume
- *Leonardo Taurus* had taken a full stem of heavy fuel oil in her previous port;
 - her capacity for heavy fuel is 2 800 tons;
 - the voyage from her previous port to the point of breakdown took 16 days; and
 - during the voyage, she used 42 tons of heavy fuel per day at sea.

- (a) How much heavy fuel did she consume during her entire voyage? (6)
- (b) How much heavy fuel did she have on board when she went aground? (6)
- (c) Explain why it is so important to try to avoid oil spillage. (6)
- (d) Even if she had not been damaged by the heavy seas, it would have been very difficult to refloat her. Quote an extract from the account above that gives the reason for this. (4)
- 2.1.5 The owners of *Leonardo Taurus* discuss with their lawyers and insurers whether they should declare General Average. Can the owner declare General Average? Answer YES or NO. (2)
- 2.1.6 What kind of marine insurance covers each of the following?
- (a) The loss of the ship (2)
- (b) The loss of the cargo (2)
- (c) Oil pollution (2)
- 2.2 What term is given to each of the following?
- 2.2.1 The amount of money paid to an insurance company to insure a ship and her cargo. (2)
- 2.2.2 The process used to settle disputed marine insurance claims. (2)
- 2.3 How many bills of lading will be used for the following?
- 2.3.1 The cargo of animal feed carried by *Leonardo Taurus*. (2)
- 2.3.2 A container in which there is the household furniture of the Jones family and the Cupido family who are emigrating to Britain. (2)
- 2.4 Which government department would need to clear a container of car parts arriving in East London from Germany? (2)
- 2.5 Dangerous cargoes form an important part of the carriage of goods by sea.
- 2.5.1 Give two examples of dangerous cargoes which might be shipped in a containership. (4)
- 2.5.2 A container has a consignment of dangerous cargo.
- (a) Explain how you would recognise immediately that it contained dangerous cargo. (2)
- (b) What special measures would you take in stowing **this** container on a fully cellular container ship? (4)

- 2.6 The following message was received by BC Shipping, the port agents at Vancouver for *Pearl River*. Vancouver is on the west coast of Canada and ships arriving to load grain usually undergo inspection by surveyors in the anchorage before berthing. **Her agent expects that *Pearl River* will berth at the grain terminal operated by Alberta Grain at about 14:00 on 8 December and will begin loading about two hours after that. Loading will be by two chutes (pipes) at a rate of 500 tons per hour each.**

ETA PILOT STATION VANCOUVER 00:01 6./12 FOR PILOTAGE TO ANCHORAGE FOR PRE-LOADING INSPECTION. PREVIOUS PORTS (LAST CALL GIVEN FIRST) SAN FRANCISCO; SHANGHAI; HONG KONG; RICHARDS BAY; SINGAPORE; MUMBAI; JEDDAH; GIBRALTAR; ROTTERDAM; SALDANHA BAY. DRAUGHT FORWARD 5 METRES AFT 5.5 METRES. REQUEST FREE PRATIQUE. WHEN ALONGSIDE, WILL REQUIRE BUNKERS AS FOLLOWS: 800 TONS HFO (380 CST), AND 180 TONS MDO. ALSO REQUIRE STORES AS PER LIST EMAILED TO YOU 15/11 PLUS 400 LITRES GREY PAINT CODE 776/445/GR/33. I CONFIRM THAT I RECEIVED VOYAGE INSTRUCTIONS VANCOUVER TO MANILA.

CARGO STOWAGE PLAN AS FOLLOWS:

1 HATCH : 3 500 TONS WHEAT
 2 HATCH : 4 000 TONS WHEAT
 3 HATCH : 5 500 TONS WHEAT
 4 HATCH : 5 000 TONS WHEAT
 5 HATCH : 4 000 TONS WHEAT

HOLDS SWEEPED, CLEAN AND DRY AS PER INSTRUCTIONS. PLEASE ENSURE THAT IMMIGRATION, CUSTOMS AND VARIOUS SURVEYORS MEET THE SHIP ON ARRIVAL IN ANCHORAGE.

JONES, MASTER PEARL RIVER

2.6.1 Study the Master's message.

- (a) Who will supply the paint for the ship? Choose from: AGENT or OWNER or CHANDLER or CHARTERER or SHIPBROKER. (2)
- (b) Quote a sentence from the message that indicates that the Master will know exactly what is expected for the voyage from Vancouver to the discharge port. (2)
- (c) Quote the part of the message that refers to the fact that the Master wishes port health authorities to clear the ship as no one on board is suffering from any serious illness. (2)

- 2.6.2 If the charter covers the time in the anchorage, loading, carriage of the grain to the discharge port, and discharge of the grain plus two days' cleaning of holds after discharge, what kind of charter is this? (2)

- 2.6.3 What is the name of the document that is the agreement governing the chartering of a ship? (2)
- 2.6.4 The wheat to be loaded is grown in the Canadian province of Alberta which is inland and therefore has no port. How will the wheat have been brought to Vancouver for loading into *Pearl River*? (Remember the size of the consignment of wheat to be loaded.) (2)
- 2.6.5 Surveyors are to meet the ship in the anchorage.
- (a) Why will surveyors be required to board the ship? (4)
- (b) Why does the master want the surveyors to board the ship in the anchorage and not wait until the ship is alongside the loading terminal? (4)
- 2.6.6 Refer to the details at the start of Question 2.6 regarding the loading of the wheat.
- (a) What is the total tonnage of wheat to be loaded? (6)
- (b) How many hours will it take to load the ship? (6)
- (c) If the Master hopes to sail three hours after completing loading, what is the ship's ETD from Vancouver? (6)
- 2.6.7 As mentioned in the ship's message to the agents, she intends bunkering at Vancouver. Her agent expects that bunkering will begin one hour after she berths and will last about 8 hours.
- (a) Will the bunkering operation delay the ship in Vancouver? Answer YES or NO, and give a reason for your answer. (6)
- (b) The prices of bunkers in Vancouver are: HFO – US\$ 540 per ton; MDO – US\$ 710 per ton. What is the expected total bill for the bunkers (HFO and MDO) in US dollars? (6)
- (c) If US\$ 1 – Canada\$ 1.22, what will be the amount on the electronic bank transfer which the agent will pass to the bunker supply company in Canadian dollars? (6)
- 2.6.8 Referring to the message from the Master of *Pearl River* and from your own knowledge of shipping, list items of expenditure that will appear on the disbursement account that the agent will prepare to send to the vessel's owner. (6)

[120]

QUESTION 3 INTERNATIONAL TRADE

- 3.1 Refer to the message sent by the master of *Pearl River* in Question 2.6.
- 3.1.1 In terms of an IMO code, her last 10 ports of call are listed. Name the IMO code that requires ships to list these ports before clearance is given by the Port State Control. (2)
- 3.1.2 Will *Pearl River* arrive in the anchorage in daylight or at night? (2)
- 3.1.3 Look at the list of ports. How many times did *Pearl River* come to South Africa? (2)
- 3.1.4 Of the ten ports of call, which was her first port of call? (2)
- 3.1.5 In which country is Manila? Choose from INDIA or CHINA or PHILIPPINES or JAPAN or SOUTH AFRICA. (2)
- 3.1.6 Which ocean will she cross when she steams from Vancouver to the discharge port? (2)
- 3.1.7 *Pearl River* is owned in Britain, and has been chartered to a Canadian company to move the wheat from Vancouver (Canada). She is registered in Malta, and has British officers and a Filipino crew.
- (a) What flag would be flown at the stern when she is loading the wheat in Vancouver? (2)
- (b) Give two reasons for the owners wishing to register their ship in Malta instead of in Britain. (4)
- (c) Give two reasons for the owners wishing to employ a Filipino crew instead of a British crew. (4)
- (d) Which country would exercise its responsibilities as Flag State Control in this instance? (2)
- (e) *Pearl River* might be regarded as a vessel flying a flag of convenience, and some people view this negatively. Giving reasons for your answer, provide your opinion on this matter. (10)
- (f) Referring to *Pearl River* and her voyage carrying Canadian wheat, explain why a country's maritime law must conform to international maritime law and to the various codes and conventions associated with international maritime trade and shipping. (10)

3.2 The following is the schedule for Atlantic Shipping whose containerships operate between Europe and South Africa:

	AS FALCON	AS EAGLE	AS HERON	AS OSPREY
Cape Town	09 – 10 May	16 – 17 May	23 – 24 May	30 – 31 May
Port Elizabeth	11 May	18 May	25 May	01 – 02 June
Durban	13 – 15 May	20 – 22 May	27 – 29 May	04 – 06 June
Cape Town	17 – 18 May	24 – 25 May	31 May – 01 June	08 – 09 June
Las Palmas	26 May	01 June	08 June	15 June
Rotterdam	31 May – 02 June	07 – 09 June	14 – 16 June	21 – 23 June
London	03 – 04 June	10 – 11 June	17 – 18 June	24 – 25 June
Bremerhaven	06 June	13 June	20 June	27 June

- 3.2.1 What is the frequency of this service? Choose from WEEKLY or FORTNIGHTLY or MONTHLY. (2)
- 3.2.2 Assume that a container carrying bags of cement should be in the stacking area in a container terminal 24 hours before the arrival of a ship. Assume also that the container must be in London BEFORE 20 June.
- (a) Which is the latest ship that can carry the container so that it arrives at its destination on time? (2)
- (b) By which date should the containers be delivered to the Durban Container Terminal? (2)
- (c) When will the ship arrive in London? (2)
- 3.2.3 At how many different South African ports do the ships call? (2)
- 3.2.4 In which country is Rotterdam? (2)
- 3.2.5 The cement in the container referred to in Question 3.2.2 is shipped FOB (free on board). Who pays for each of the following? (Choose your answers from THE CARRIER or THE SHIPPER or THE CONSIGNEE.)
- (a) The movement of the container from the cement factory to Durban Container Terminal. (2)
- (b) The loading of the container onto the ship in Durban. (2)
- 3.2.6 If the container referred to above is being shipping in a door-to-door operation, who is responsible for the organisation involved in moving the container from the cement factory to a builder's yard near London? (Choose your answer from THE CARRIER or THE SHIPPER or THE CONSIGNEE.) (2)

- 3.3 The Straits of Dover (between Britain and France) are extremely important in international shipping.
- 3.3.1 Give one of the important cargoes (EXCLUDING OIL) that pass through those straits. (2)
- 3.3.2 Give the main source of the oil cargoes that pass **southbound** through the Straits of Dover. (2)
- 3.3.3 Into which channel will a southbound tanker pass once she has passed through the Straits of Dover? (2)
- 3.3.4 The strait is the busiest international seaway in the world, used by about 400 commercial vessels every day.
- (a) How many vessels will pass through the straits every hour? (4)
- (b) How many ships will pass through the straits each year? (4)
- 3.4 Assume that the state has agreed to subsidise 50 percent of the construction costs of a new large drydock in Saldanha Bay.
- 3.4.1 How will this subsidy help the project to build the drydock? (6)
- 3.4.2 What are the major benefits of having a large drydock in Saldanha Bay? (6)
- 3.4.3 Which offshore industry in West Africa would use a drydock in Saldanha Bay? (2)
- [90]**

QUESTION 4 ENVIRONMENTAL CONSIDERATIONS

- 4.1 When *Pearl River* is five days out of Manila, she received the following weather forecast for the area she was approaching.

GALE WARNING +++++ GALE WARNING +++++ GALE WARNING

WIND SOUTH WEST, FORCE 12 EXCEEDING 100 KNOTS AT TIMES
SEA CONFUSED SWELL REACHING 12 METRES AT TIMES
WEATHER HEAVY RAIN
VISIBILITY POOR IN THE RAIN

ALL SHIPS ARE ADVISED NOT TO STEAM WITHIN 400 NAUTICAL MILES OF THE EYE OF THE STORM CURRENTLY LOCATED AT POSITION 12° 36' N 135° 05' E AND MOVING NW AT ABOUT 15 KNOTS

- 4.1.1 What weather system is causing the weather described in this forecast? (2)
- 4.1.2 What is the 'eye' referred to in the weather forecast? (4)
- 4.1.3 Why are ships advised to keep clear of the weather system? (6)
- 4.1.4 Apart from keeping clear of the weather system, give two precautions that the master of *Pearl River* would take to ensure that his ship is safe. (4)
- 4.1.5 If this weather system hits a port, what effect would it have on operations at the port? (6)
- 4.2 Explain why the exchange of ballast water is an important practice in shipping. (8)
- [30]**

Total: 300 marks