



NOVEMBER 2021 EXAMINATION SESSION  
MONDAY 22<sup>nd</sup> NOVEMBER 2021– AFTERNOON

# SHIP OPERATIONS AND MANAGEMENT

Time allowed – three hours

Answer any FIVE questions – all questions carry equal marks

Please read the questions carefully before answering

1. Answer **ALL** parts of the question.

- a) Describe the characteristics (for example dimensions, tonnages, cargo gear and equipment) of **ONE** of the following types of vessels:
  - i. Capesize bulk carrier
  - ii. MR (Medium Range) tanker.
  - iii. New Panamax container vessel
- b) Draw a side profile and cross sectional of the vessel.
- c) Label the significant parts of the vessel.
- d) Give details of **ONE** trade the vessel operates in, where and how it will load, carry and discharge its cargo.

Use the world map provided to support your answer

2. Answer **BOTH** parts of the question.

- a) Explain the role and responsibilities of the DPA regarding the safe operation of each vessel and the proper implementation of the International Safety Management (ISM) system.
- b) Explain what specific certificates and other documents a vessel carries to show compliance with the ISM code; what is their validity, which bodies issue these certificates and what do these certificates signify? What other documentation should the vessel have to support these certificates?

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3. Answer **ALL** parts of the question

You have been asked by a potential investor about the costs of ship owning.

- a) Clearly explain the difference between acquisition/fixed costs, daily running/operating costs and voyage costs
- b) Describe as fully as possible the different cost items you would expect to see in each of these categories.
- c) You have received the following list of costs for a vessel under your management. How would you allocate these costs to the categories in Part (a) of the question

Light dues  
P&I call  
War risk insurance premium  
Tug costs at load port  
Supply of main engine lubricants  
Draft survey  
Registration costs  
Agency fees  
On hire survey for spot charter.  
New Gyro system for the vessel.

4. Define and explain **FIVE** of the following abbreviations.

- i. IEEC
- ii. IOPP Certificate
- iii. SOLAS Convention
- iv. IACS
- v. CTL
- vi. NDFFCA PMQS
- vii. SEEMP
- viii. ECDIS

5. Your five-year-old vessel has reported a fire in No 3 cargo hold with a full cargo of grain while on route to the discharge port. Despite CO<sub>2</sub> being released into the hold this has not been successful and the Master has requested to divert to a nearby port where more sophisticated equipment and trained fire fighters are available.

Following berthing at a layby berth the fire has been extinguished with the aid of the shore fire fighters and the ship's crew but water and fire damage has been caused to the cargo in No 3 hold and adjacent holds by the heat and water. There has been major damage to the hold and associated hatch cover and ballast tanks. In addition, some of the crew and shore personnel have minor injuries and smoke inhalation problems. The Master has declared General Average

Discuss in detail the different insurances the vessel will have in place to cover this event.

6. Answer **ALL** parts of the question and show your workings for each.

Using only the data below and avoiding excessive rounding up, calculate:

- What quantity of cargo can be loaded? (Show your workings)
- Where would you organise bunkers and what quantity would you stem, giving your reasons for this.
- Calculate the daily net profit for the voyage. (Show your workings)

Your vessel will complete discharge at Portland, Oregon, USA and is fixed to load at Seattle, USA for discharge at Yokohama, Japan.

Bunker ROB on completion Portland

300MT VLSFO 0.5%S 380@\$510 pMT

190MT LSGasoil 0.1%S @ \$600 pMT

Vessel must have a minimum of 5 days fuel on board at all times to cover safety margin. Intention is to place vessel on spot market at Yokohama after discharge with minimum 600 MT LSFO 0.5%S on board and 200 MT LSGasoil 0.1%S. All fuel used in ECA is LSGasoil 0.1%S

SDWT 51,347 MT on 12.3 M

Cubic Grain 66,392 M3

Constant including FW 550 MT

Loaded speed 13 KTS on 24 MT VLSFO 0.5%S or LSGasoil 0.1%S per day as appropriate

Ballast speed 14 KTS on 24 MT VLSFO 0.5%S or LSGasoil 0.1%S per day as appropriate

Port consumption 4 MT VLSFO 0.5%S or 4 MT LSGasoil 0.1%S per day as appropriate all purposes

Vessel Daily Running Cost \$10,000 per day

Cargo 50,000 MT Grain 10% MOLOO (SF 1.40) Seattle-Yokohama

No draft restrictions on voyage.

14,000 MT SSHEX at Load/11,000 MT SSHINC at Discharge.

Freight \$37 FIOST per Metric Tonne

Commission 5%.

Distances

Portland-Seattle 392 NM All steaming in US ECA

Seattle to limit of US SECA Zone 275 NM

US ECA Zone--Yokohama 4242 NM

Bunker Prices

Portland: VLSFO 0.5%S \$525 pMT, LSGasoil 0.1%S \$585 pMT (6hr delay and fuel, \$2000 barge cost)

Seattle: VLSFO 0.5%S \$540 pMT, LSGasoil 0.1%S \$600pMT (concurrent with loading)

Port charges

Portland \$86,000

Yokohama \$77,000

**PLEASE TURN OVER**

7. Answer **ALL** parts of the question.

- a) (i) Explain the role of a classification society in shipping and what services they offer?  
  
(ii) Give details of the normal cycle of surveys that are required for a vessel to remain in Class.
- b) All vessels carry three (safety) Certificates relating to Construction, Equipment and Radio. Give details of **FIVE** other certificates issued by Class on behalf of Flag, including their validity, verification requirements and what they certify.

8. Answer **BOTH** parts of the question, using the world map provided to support your answer.

- a) Your vessel is due to load grains at Houston, USA for discharge at Ulsan, South Korea and at Hong Kong and is not equipped with a scrubber system. What specific fuels must the vessel have on board for the voyage to meet the various sulphur emission restricted areas that it will encounter on the voyage and at what points during the voyage should each fuel be used.
- b) Your vessel will need to bunker during the voyage, identify a bunker port on the voyage and explain why you would choose this location. Discuss in detail what measures your company should have in place to ensure the vessel receives good quality bunkers at the right price.