

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2023
Programme Name: BSc (NS)
Semester: V
Subject Code: UG21T5504
Subject Name: SPECIALIZED CARGO HANDLING & STOWAGE

Date: 11.12.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. What is the purpose of container shoes on a ship?
 - A) To improve container stability during transit
 - B) To measure the weight of containers
 - C) To prevent rust on container surfaces
 - D) To track the container's location
2. During loading, what action should be taken if some refrigerated cargo is found to be damaged or thawed?
 - A) Reject the entire cargo
 - B) Load it separately from the undamaged cargo
 - C) Ignore it as long as it's less than 10% of the total cargo
 - D) Continue loading as usual
3. What does "Reid vapor pressure" refer to in the context of oil cargoes?
 - A) The pressure inside cargo tanks
 - B) The pressure at which oil becomes flammable
 - C) The pressure exerted by oil vapors at a specific temperature
 - D) The pressure in the pumproom
4. Guidelines for the Prevention of pollution by Noxious Liquid Substance is stated in which of the below mentioned Annexes of MARPOL.
 - A) Annex II
 - B) Annex III
 - C) Annex I
 - D) Annex V
5. Which type of chemical tanker is designed for carrying the most hazardous cargoes?
 - A) Type 1

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- B) Type 2
 - C) Type 3
 - D) Type X
6. What is the purpose of the IGC Code in the context of gas tankers?
- A) To regulate the temperature of cargo tanks.
 - B) To specify the design requirements for gas containment systems.
 - C) To control the use of deepwell pumps.
 - D) To provide guidelines for tank cleaning procedures.
7. Why is maintaining proper ventilation important on Ro-Ro ships?
- A) To reduce fuel consumption
 - B) To keep the crew comfortable
 - C) To prevent vehicle exhaust buildup
 - D) To improve cargo stowage
8. What does "DP" stand for in the context of Offshore Supply Vessels?
- A) Dynamic Positioning
 - B) Deepwater Port
 - C) Drilling Platform
 - D) Diving Procedure
9. What equipment will you use to measure the percentage by volume of hydrocarbon gas in cargo tanks on an oil tanker?
- A) Oxygen analyser
 - B) Explosimeter
 - C) Tankscope
 - D) Gascope
10. On which type of ships we find Oil Record Book Part 1?
- A) On Oil tanker
 - B) On Container Ships
 - C) On Bulk Carrier
 - D) All of the above

Section B

Five Questions of 02 Marks each

- 11. State the contents of CSC plate.
- 12. Define RVP & TVP.
- 13. Define Upper Flammability Limit.
- 14. What is MARVS?
- 15. List any four types of tanks in Gas Tankers.

Section C

Seven Questions of 10 Marks each of which any 05 questions to be answered.

- 16. (a) Explain Bay plan of container vessel. (5 Marks)
- (b) Explain the factors affecting container stow (Any five) (5 Marks)



17. With respect to reefer ships explain the following:

- (a) Care, monitoring and records of cargo during passage- (5 Marks)
- (b) Purpose of temperature recording. (5 Marks)

✓ 18. (a) Draw and label the flammability diagram. (5 marks)

(b) Provide detailed explanation of flammability diagram. (5 Marks)

✓ 19. What is crude oil washing? (3 Marks) Write down the hazards and benefits of crude oil washing? (7 marks)

20. A tank Measuring 21m x 16m x 16m has an ullage Port extending 0.8m above the top of the tank. It is to be loaded with crude oil at 24°C. 2% of the tank volume is to be left for expansion when maximum temperature expected during the voyage is 40 deg Celsius. (Density of oil = 0.820 @ 15 deg Celsius in vacuum. Given: VCF (40) = 0.9785; VCF (24) = 0.9923.

Find the: (a) Mass of oil loaded (b) Ullage at load Port.

(10 Marks)

21. (a) Sketch and label type A prismatic tank in a fully refrigerated gas carrier.

(b) Explain the hazards of Gas Cargo (any five). (2x5=10 Marks)

✓ 22. (a) What are the measures taken to maintain watertight integrity of ro-ro cargo spaces? Write any five. (5 Marks)

(b) What precautions we should take while loading / discharging a heavy lift? Write any five. (5 Marks)

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