

**INDIAN MARITIME UNIVERSITY**  
**(A Central University, Government of India)**  
**End Semester Examinations – December 2024**  
**B Sc (NS)**  
**Semester V**  
**UG21T5504**  
**SPECIALISED CARGO HANDLING & STOWAGE**

Date: 13.12.2024  
Time: 3 Hrs

Max. Marks: 70  
Pass Marks: 35

**Section A**

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

1. What is the role of a Bay Plan on a container ship?
  - a) To calculate fuel consumption
  - b) To organize container stowage
  - c) To manage ballast water
  - d) To record cargo weight
  
2. What does the International Maritime Dangerous Goods (IMDG) code regulate?
  - a) Stowage of oil cargo
  - b) Safety procedures for dangerous goods
  - c) Maintenance of container locks
  - d) Loading procedures for bulk carriers
  
3. A \_\_\_\_\_ recorder registers temperature on a pressure-sensitive circular chart over 31 day period on Reefer Vessels.
  
4. It is essential that any dunnage to be used is placed in the refrigerated space before pre-cooling begins ( True / False )
  
5. What does the term "load-on-top" refer to in oil tanker operations?
  - a) Loading cargo from the top deck
  - b) A method of loading new oil on top of settled residue in the slop tank to minimize pollution.
  - c) A technique for minimizing oil residue
  - d) Loading containers on top of other cargo
  
6. The \_\_\_\_\_ Code covers the Stowage and Segregation requirements of Dangerous goods on a container ship.
  
7. Cargo Record book is a requirement of \_\_\_\_\_ tankers (Oil/Chemical/Gas)
  
8. What is the significance of the cargo Securing Manual on a container vessel?
  - a) To determine fuel efficiency
  - b) To provide guidelines for stowing and securing containers
  - c) To monitor crew activities
  - d) To ensure proper ventilation in holds

9. What is the Reid Vapor Pressure test used to determine?

- a) Oil viscosity
- b) Vapor pressure of crude oil
- c) Flashpoint of hazardous liquids
- d) Volume of gas in a tank

10. \_\_\_\_\_ tanks holds the residue that remains after oil cargo tanks are washed.

### **Section B**

Five Questions of 02 Marks each

- 11. State any 4 types of Offshore vessel.
- 12. Explain the use of Anti-heeling tanks?
- 13. Define "upper flammable limit" in the context of oil cargo.
- 14. Explain the importance of temperature recording in refrigerated cargo.
- 15. List four precautions while handling Heavy Lifts?

### **Section C**

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

- 16. (a) List 4 different types of containers. What are the contents of the CSC plate? (2+3 Marks)  
(b) Explain the factors affecting container stow (Any five)? (5 Marks)
- 17. Describe the Preparation of the car decks for the loading of trailers and vehicles on a Ro-Ro Vessel?
- 18. Describe the Inert Gas System, including boiler uptake valve, scrubber, blowers, oxygen analyser, deck seal, non-return valve, PV valve, PV breaker, and mast riser.
- 19. A hold 8m x 6m x 4m is to be filled with steel pipes (S.F: 1.06m<sup>3</sup>/t) and paint drums (S.F. 1.85m<sup>3</sup>/t). If the load density of the tank top is 3.20t/ m<sup>2</sup>, upto what height should the steel be loaded so that the hold is filled without exceeding the load density? How many tonnes of steel pipes and paint drums can be loaded?
- 20. a) Sketch and label type A prismatic tank in a fully refrigerated gas carrier.  
b) Explain the purpose and objectives of the IGC Code. (2x5=10 Marks)
- 21. Write Use and purpose of OSVs and DP Vessels
- 22. (a) What are the procedures for opening, closing, and securing bow, stern, and side doors and ramps on Ro-Ro vessels? (5 Marks)  
(b) What is the effect of heavy lifts on the seaworthiness and stability of a ship? (5 Marks)