

**INDIAN MARITIME UNIVERSITY**  
(A Central University Government of India)  
END SEMESTER EXAMINATIONS-June/July 2019  
**B.Sc Nautical Science**  
**Semester-I**  
**Specialised Cargo Handling and Stowage**  
**(UG21T3504)**

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**Date: 15-07-2019**

**Maximum Marks: 70**

**Duration: 3 hrs.**

**Pass Marks: 35**

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**Note : Question No. 1 is compulsory.**

**Answer any 6 questions from remaining 8 questions (each of 10 marks). All Candidates are requested to read and understand the questions well prior to answering them.**

**Scientific Calculator is permitted if required.**

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**Q.1**

**(2 x 5 =10 marks)**

- (a) What are multi-purpose cargo ships ?
- (b) State the types of cargoes that reefer and refrigerated vessels carry.
- (c) State the differences between a Ferry and a Cruise ship.
- (d) State the types and sizes of Crude Oil and Product tankers.
- (e) State how a particular container can be traced on board a container ship.

**Q2.**

- (a)** Describe in brief the various types of ships and the cargoes that they carry. (5 marks)
- (b)** Describe in brief the different types of hatch covers and derricks fitted on multi-purpose ships and the types of cargoes carried. (5 marks)

**Q3.**

- (a)** Mention important points which are to be considered on a container vessel prior proceeding to sea after loading. (5 marks)
- (b)** State in brief how container ships are designed to load containers, the standard size of containers and name the different items used in the loading and lashing of a container on board a ship. (5 marks)

**Q4.**

- (a) Explain the preparation of holds and precautions to be taken whilst loading, carriage and discharging Reefer and Refrigerated cargoes. (5 marks)
- (b) Name the types of Off shore vessels and their utility and usage. (5 marks)

**Q5.**

- (a) Explain safety precautions and procedures to be followed for man entry into a cargo tank or enclosed space on an oil tanker. (5 marks)
- (b) Explain procedure for Crude Oil Washing (C O W) – checks and precautions to be taken, before , during and after the operation. (5 marks)

**Q6.**

- (a) State in brief purpose and arrangements on a Heavy Lift ship. (5 marks)
- (b) State in brief the type of cargoes Multi-purpose ships and Ro-ro vessels carry on board. (5 marks)

**Q7.**

- (a) State the different categories of Chemicals and types of Chemical tankers. (5 marks)
- (b) Explain the hazards and precautions to be taken when carrying / handling Chemical cargoes. (5 marks)

**Q8.**

- (a) State and explain different types of Gas Tankers. (5 marks)
- (b) State and explain different types of tanks on Gas Carriers. (5 marks)

- Q9.** A tank of length 20m, breadth 10m, and height 10m is to be loaded with density 0.90 t/m<sup>3</sup> at 15<sup>0</sup> C. How many tonnes can be loaded if the tank is allowed to load only 97% by volume leaving 3% volume for expansion considering the highest temperature of oil as 30<sup>0</sup> C. The temperature at the load port is 20<sup>0</sup> C. Density correction factor is 0.0005 t/m<sup>3</sup> /<sup>0</sup> C. (10 marks)

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