

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)  
End Semester Examination Dec 2019/Jan 2020  
**B.Sc. (Nautical Science)**  
**Semester -V**  
**UG21T3504- Specialized Cargo Handling and Stowage**

**Date: 16.12.2019**

**Max Marks: 70**

**Time: 3 Hours**

**Pass Marks: 35**

**Q.NO 1 IS COMPULSORY. ATTEMPT ANY SIX OUT OF THE REST.**

All questions carry equal marks.

Non programmable scientific calculator is permitted

- Q1) Define the following: (5 x 2=10 marks)
- a) Stack weight
  - b) Slop tank
  - c) ODMCS
  - d) TLV
  - e) OSV
- Q2) a) Name five heavy lift cargoes. (5 marks)  
b) What are the multipurpose ships? (5 marks)
- Q3) a) Explain the bay plan on container ships. (5 marks)  
b) Explain the securing & lashing arrangement of containers. (5 marks)
- Q4) a) Explain the working of refrigeration system on reefer ships. (5 marks)  
b) How cargo spaces are prepared for loading in reefer ships. (5 marks)
- Q5) a) Describe the procedure for man entry in enclosed spaces on tanker. (5 marks)  
b) Explain the working of ODMCS. (5 marks)
- Q6) a) How heavy lifts does effects the stability of the ship. (5 marks)  
b) How water tight integrity of cargo decks are maintained in RO-RO ship. (5 marks)
- Q7) a) What are the various categories of cargo carried on chemical tankers. (5 marks)  
b) What is the purpose & objective of P & A manual? (5 marks)
- Q8) a) Explain different types of tanks in Gas carriers. (5 marks)  
b) What is re-liquefaction plant? Explain with diagram. (5 marks)
- Q9) An oil tanker has a tank of dimensions 30m x 20m x 20m deep and is loading oil at 38° C. it is desired to leave 2% of the volume of tank for expansion. Calculate the quantity of oil and final ullage assuming that the vessel is at an even keel on completion. Given that R.D of oil at 25° =0.8540. Coefficient of volume expansion =0.0006/°C (10 Marks)

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