

INDIAN MARITIME UNIVERSITY

B.Sc NAUTICAL SCIENCES

EXAMINATION AT THE END OF SEMESTER VI

UG21T2603:CARGO HANDLING AND STOWAGE -VI

Date: 14.6.2016

Time-3 hours

Maximum marks:70

Pass Marks : 35

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Question 1 is compulsory. Attempt any 6 questions out of the remaining.

All questions carry equal marks.

Draw neat sketch to substantiate your answer as required.

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1) A weight of 3.5 tonnes is suspended from a derrick, which is 11.5m long and is inclined at 55 degrees to the horizontal. The topping lift block is 10m, while the gooseneck is 1m in height, above the deck. Find the tension in the topping lift at the base as 13m long stay is being used to support the mast at the same height as that of the topping lift block. Also calculate the tension in the stay.

2) Explain the following as per IMDG code

- a) Dangerous goods manifest
- b) Requirement for carriage of explosives

3) Explain the purpose and objective of Procedure & Arrangement manual (MARPOL Annex –II) as required for carriage of chemical cargo.

4) Describe the purpose of having a vapour return line on chemical tankers.

5) An oil tanker has a rectangular tank of dimensions 40m x 25m x 25m deep and is loading oil at 35°C. It is desired to leave 2% of the volume of tank for expansion. The maximum temperature likely to be encountered during the voyage is 40°C. Calculate:

- (a) the quantity of the oil by volume and mass that can be loaded;
- (b) final ullage assuming that the vessel would be on an even keel on completion. Given that R.D. of oil at 15°C = 0.8550. Co-efficient of expansion for volume = 0.0006/°C.

6.Explain the importance of a ship / shore safety checklist as given in ISGOTT guide. List down any ten from the check list and describe briefly about them.

7) Explain the operation of re-liquefaction plant of fully refrigerated gas tankers. Draw a neat sketch to support your answer.

8) Why a wall wash test is conducted on chemical tankers? Describe the inferences that are taken for records after a wall wash test.

9) Write short notes on the following:

- i) O2 Analyser
- ii) Membrane Tanks