

INDIAN MARITIME UNIVERSITY
(A Central University, Govt. of India)

B.Tech. (Marine Engineering) - Semester - VIII
December 2015 End Semester Examinations

Advanced Marine Technology
Subject Code: UG11T1804

Time: 3 hrs
Date: 4.1.2016

Max Marks: 100
Pass Marks: 50

Part - A

(3x10 = 30 Marks)

Compulsory Question

1. (a) Expand the following abbreviations :-

MARVS, IBC, TLV, OCIMF, IAPP

- (b) Name the various insulation materials used in Gas Carriers.
- (c) What is the difference between a PV Breaker and a PV valve?
- (d) Explain condition monitoring system employed on board ships.
- (e) What are the objectives of using Crude Oil Washing of cargo tanks in a crude carrier?
- (f) Describe Category X, Y, Z and OS chemical cargos.
- (g) Draw the Mollier Diagram for a single stage direct re-liquefaction cycle of a semi-pressurised gas carrier.
- (h) What is intrinsically safe equipment?
- (i) With reference to oil tankers, what are the hazardous and non- hazardous areas?
- (j) What is condition assessment of Bulkcarriers?

Part - B

Answer any five of the following questions (**5 X 14 = 70 Marks**)

- 2. (i) Sketch and describe an Inert Gas System as installed in a Crude oil Carrier. (8)
- (ii) Name all the safety equipments fitted in the above Inert Gas System. (6)
- 3. (i) With a simple sketch, explain the arrangement of "Compressor room/electric motor room" on a Gas carrier. (9)
- (ii) Explain briefly ESD (Emergency Shut –down) systems as used on Gas Carriers. (5)
- 4. (i) List the advantages of using submersible type of centrifugal cargo pump in chemical tankers. (5)
- (ii) With the help of line diagram, explain the cargo pumping arrangement of one cargo tank in a chemical tanker. (9)
- 5. (i) Name the cargos usually carried in a bulk carrier with associated hazards. (6)
- (ii) Sketch and describe a cargo hold structural arrangement of a Bulk carrier. (8)

6. With reference to a Car carrier,
- (i) Explain the ventilation arrangements provided in the car decks. (7)
 - (ii) With the help of a simple sketch, explain the arrangement provided for loading the vehicles on board. (7)
7. (i) With reference to a crude oil tanker, sketch and describe a “Free Flow System” for cargo loading and un-loading operations. (9)
- (ii) What are the advantages and disadvantages of the above system compared to other Systems. (5)
8. (i) Explain a Common Rail Fuel Injection system as installed in a modern marine Slow speed diesel engine. (10)
- (ii) What are the advantages of the above system compared to methods adopted in conventional engine. (4)
