Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2023
Programme Name: B Tech (ME)
Semester: VII
Subject Code: UG11T3704
Subject Name: ADVANCED MARINE TECHNOLOGY

Date: 11.12.2023	Max Marks: 70
Duration: 03 Hrs	Pass Marks: 35

General Instructions

(i) All Sections (A, B & C) are to be attempted.

Section A

Answer all MCQs. Choose the correct answer as applicable.
(10x1=10 marks)

1. Design, construction and equipment requirement for Gas tankers is as specified in -
a. SIGTTO
b. IBC Code
c. IGC Code
d. FSS Code

2. Ballast tanks used in Bulk carrier construction include -
a. Slop tank
b. Type B tank
c. Hopper tank
d. Type 1 tank

3. Distinguished feature of Oil Tanker vessel -
a. Slop tank
b. Bilge tank
c. Cargo ramps
d. Stern thruster

4. Inert Gas System blower capacity should be at least ---- % of maximum rated cargo discharge capacity of an oil tanker -
a. 100
b. 125
c. 150
d. 75

5. Ultimate safety against overpressure for cargo tanks on Gas carrier is provided by -
a. Pilot operated relief valve
b. PV breaker
c. PV valve
d. Mast riser

6. In order to accommodate various sizes of vehicles on Ro Ro vessels -
a. vehicles are stored in upper deck
b. liftable decks are provided
c. all decks are fixed with extra height
d. cargo ramps are provided

7. Boil Off gas consumption typically refers to -
a. LPG tanker
b. LNG tanker
c. Chlorine tanker
d. Product tanker

8. Condition for UMS operation -
a. all Bilge alarms operational
b. all fire detectors operational
c. all standby generators in auto operation mode
d. all of above

9. Common rail pressure for fuel oil in RT Flex engines is maintained at -
a. 100 bar
b. 200 bar
c. 1000 bar
d. 450 bar

10. One component which is NOT a part of Electronically controlled engines-
a. WECS
b. Crank shaft
c. ELFI
d. Chain drive

Section B

Answer all questions. (5 Nos x 2 marks each = 10 marks)

11. Explain risks associated with Ro-Ro vessels.
12. Explain the function of PV breaker.

13. Describe the three important modes of operation in electronically controlled Engines.
14. State necessity of condition assessment in case of bulk carrier vessels.
15. What are the important characters of insulation materials used in the Gas tankers?

Section C

Answer any five questions. (5 Nos x 10 marks each = 50 marks)

16. (a) State different types of Deck seals as employed in Inert Gas system on oil tanker vessels. Explain any one type in detail with an appropriate diagram. (7)
(b) What is IGC Code? (3)

17. (a) Explain Common rail fuel injection system employed in Electronically controlled engines, with illustrative diagram. (6)
(b) What is NOx technical file? (4)

18. Draw the submersible hydraulic pumps used in chemical carrier, Describe its operation. (10)

19. (a) Comment on enhanced survey programme as applicable to bulk carrier vessels. (5)
(b) Sketch and label mid ship section of a bulk carrier vessel. (5)

20. (a) Only sketch and label a block diagram for Bridge control system of main propulsion engine. (4)
(b) Discuss various aspects of Bridge control of main Propulsion machinery and related indicator panel on bridge with an appropriate diagram. (6)

21. (a) Sketch a levelled diagram of compressor and electric motor room for reliquifaction plant on gas tankers. (6)
(b) Describe the safety features of compressor and electric motor room in LPG carrier. (4)

22.(a) Sketch and describe type 'B' spherical cargo containment system in a gas tanker. (6)
(b) How is methane (boil off gas) used as fuel in the propulsive plant of IC Engine on-board. (4)

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