

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2023
Programme Name: B Tech (ME)
Semester: V
Subject Code: UG11T3505
Subject Name: -Marine Auxiliary Machinery 1

Date: 07.12.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

Section A

Choose the correct answer as applicable.

1. The Sea Water pumps of the Engine room are usually found in the _____ Platform of the Engine room.
2. The Heavy Oil transfer pump transfers oil from
 - a. Bunker tank to Settling tank
 - b. Settling tank to Service Tank
 - c. Bunker tank to Service tank
 - d. Service tank to Mixing Column
3. Purchase of Fuel oils for use on board is governed by the international standard called
 - a. ISO 8712
 - b. ISO 8172
 - c. ISO 8217
 - d. ISO 8174
4. The self-cleaning action of an Auto clean filter can be triggered by
 - a. increased differential pressure across the filter
 - b. decreased differential pressure across the filter
 - c. increased fluid flow rate

d. increased inlet pressure to the filter

5. The capacity of the Air Bottles in the engine room should be sufficient enough to provide at least _____ starts if the Main engine is reversible.

- a. 4
- b. 6
- c. 8
- d. 12

6. The Vacuum in the Fresh Water Generator is effectively maintained by the ejection of _____ and Air.

7. Heavy Fuel Oil is normally heated up to a temperature of _____ deg C for purification.

- a. 50
- b. 75
- c. 95
- d. 145

8. Main Steering Gear System should be capable of moving the rudder from 35° on one side to 30° on the other side in _____ seconds.

9. The Propeller drop is measured by a tool called _____ gauge.

10. The most common electrodes used in MGPS system are

- a. Copper and Titanium
- b. Zinc and Titanium
- c. Copper and Aluminium
- d. Steel and Aluminium

Section B

11. Where is the Emergency Generator located on the ship?

12. List the Samples that need to be collected when bunkering fuel oil.

13. What are the various heads that contribute to NPSH available?

14. What is the purpose of a Mineralizer in a Fresh water system?

15. State the discharge criteria for the various parameters in the Sewage treatment Plant effluent

Section C

Answer any 5

16. Sketch the Middle Platform of the Engine room showing the various components located there. (10 Marks)
17. a. Draw a line diagram showing the Sludge Management on a ship. (5 Marks)
- b. State at least 10 points that should be available in the MSDS supplied by the Bunker Supplier. (5 Marks)
18. a. Explain the various media used as filters on a ship. (5 Marks)
- b. Sketch a diagram of a Motorised Auto back flush filter used on fuel lines. (5 Marks)
19. a. Sketch a Vertical Double acting Reciprocating pump showing the major components (5 Marks)
- b. Name the various Safety devices provided on a Reciprocating 2-Stage Main air compressor. (5 Marks)
- 20a. Explain the operation of Plate type low pressure Fresh water Generator with sketches. (7 Marks)
- b. State the advantages and disadvantages of a Shell and tube heat exchanger over a Plate type heat exchanger. (3 Marks)
21. a. State the discharge regulations for the Engine room bilge water discharged through the Oily Water separator inside and outside special areas. (4 Marks)
- b. Sketch a 4-ram steering gear system showing the redundancy provision for Safematic system. (6 Marks)
22. a. How does the ICCP system protect the ship's hull from corrosion? (5 Marks)
- b. Show all the components of the Shafting system connecting the Main Engine to the Propeller. (5 Marks)

