

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2022
Programme Name: B Tech (ME)
Semester: V
Subject Code: UG11T3505
Subject Name: -Marine Auxiliary Machinery 1

Date: 19.12.2022

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 Intermediate Shaft bearing in the Bottom Platform is normally lubricated by the
 - a. Stern Tube Lube Oil System
 - b. Main Engine Lube Oil System
 - c. Auxiliary Engine Lube Oil System
 - d. Steering Gear Lube Oil System

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 us 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
- increased differential pressure across the filter
 - decreased differential pressure across the filter
 - increased fluid flow rate
 - increased inlet pressure to the filter
5. Wear ring is a component that is found in a
- reciprocating pump
 - lobe pump
 - screw pump
 - centrifugal pump
6. 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.
- 4
 - 6
 - 8
 - 12
7. Heavy Fuel Oil is normally heated up to a temperature of _____ deg C for purification.
- 50
 - 75
 - 95
 - 145
8. The Auxiliary steering gear should be capable of turning the rudder 15° on one side to 15° on the other in not less than _____ seconds.
- 28
 - 38
 - 48
 - 60
9. Propeller drop is measured by using
- Screw Gauge
 - Vernier Caliper
 - Poker Gauge
 - Feeler gauge
10. The most common electrodes used in MGPS system are
- Copper and Titanium
 - Zinc and Titanium
 - Copper and Aluminium
 - Steel and Aluminium

Section B

11. Where is the Emergency Fire pump located on the ship?
12. Name the tests carried out on board 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 Bottom Platform of the Engine room and justify the reason for the machineries to be located there. (10 Marks)
17. a. With a neat line drawing explain the Sludge management of an Engine room showing the various options available for disposal. (5 Marks)
b. State at least 10 points that form part of the Bunker Pre-transfer checklist. (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. Name and explain the various Safety devices provided to safeguard the 2-Stage Main air compressor (5 Marks)
b. Draw a Centrifugal pump showing its major parts. (5 Marks)
20. a. 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)

