

Indian Maritime University
(A Central University, Govt of India)
Supplementary Examinations – March/April 2024
Programme Name: B Tech (ME)
Semester: III
Subject Code: UG11T4306
Subject Name: Marine Machinery Systems

Date: 15.04.2024

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

01 Mark each

1. Taking samples of oil when bunkering is necessary for a number of reasons. Which one of the following is the recommended manner of obtaining a representative sample?
 - (a) Fill a sample container at ship's manifold by a continuous drip method.
 - (b) Directly from the supplier from shore-side/barge tanks.
 - (c) Fill a sample container at ship's manifold at the end of bunkering.
 - (d) Fill a sample container at ship's manifold at the start of bunkering.
2. The name of the tank which is present in Fresh Water Cooling system used to give constant pressure head at the suction of pumps is called as
 - a. Compression Tank
 - b. Expansion Tank
 - c. Central Fresh Water-Cooling Tank
 - d. Jacket Water Preheater
3. Before Loading of Bunkers, a Plan is to be made by Chief Engineer. This plan is called as
 - a. Discharging Bunker Plan
 - b. Bunker Checklist Plan
 - c. SOPEP Plan
 - d. Pre-Loading Plan for Bunkers
4. A Strainer is usually _____ filter, while Filters are used to remove _____ particles
 - a. Coarse, Finer
 - b. Finer, Finer
 - c. Coarse, Coarse
 - d. Finer, Coarse

5. Which of the following is used for start the compressor at low load?
- Relief valve
 - Unloader
 - Low pressure cut-out
 - Intercooler
6. Intercooling in multistage compression reduces _____.
- Work input to the compressor
 - The volume of free air delivered
 - The pressure of air at delivery
 - the index of compression
7. The Equipment used for generation of Low Pressure inside a Low Pressure Evaporator for generating Fresh Water from Sea Water is called as
- Salinometer
 - Brine
 - Air/ Brine Ejector
 - Overboard Valve
8. Which factor determines the size of the gravity disc for a fuel oil centrifugal purifier?
- Viscosity of Fuel
 - Quantity of water in the Fuel
 - The Specific gravity of Fuel
 - Quantity of Dirt to be removed from Fuel
9. Thrusters [bow & stern] are used to control the movement of the vessel when the vessel speed should be
- high speeds only
 - low speeds only
 - independent of the vessel speed
 - None of the Above
10. Stabilization systems can be broadly classified into
- Modern and Old
 - Active and Passive
 - Stable and Unstable
 - Fixed and Movable

Section B

02 Marks each

11. List atleast 4 types of Filters used on board.
12. Name any 4 pumps placed in the Bottom Platform of a Ship and state their purposes
13. What are the different methods of treatment of distilled water before consumption?
14. Mention the differences between purifier and clarifier?
15. What is the full form of SOPEP? Name at least five items of the SOPEP Locker

Section C

Any 05 questions to be answered

16a. List out atleast 6 Equipments or Machineries which are commonly installed on the Engine Room Bottom Platform – 3 Marks

16b. Explain with the help of a neat sketch, the fresh water hydrophore system installed on board – 7 Marks

17a. With the help of neat cross-sectional diagram of Low-Pressure Evaporator [Fresh Water Generator], identify all the parts of the F.W.G and explain the working of the same -7 marks

17b. State the standard colour codes used in pipeline system of a seagoing vessel - 3 Marks

18a. Explain with the help of a simple sketch the working principle of Centrifugal pump - 6 Marks

18b. With the help of a simple sketch, describe the ALCAP System - 4 Marks

19a. What are the mountings attached on an Air Bottle. State the purposes of each of them - 5 marks

19b. List the safeties and trips fitted in a Two Stage Reciprocating Air Compressor used on Ships- 5 marks

20a. State differences between a Strainer and Filter – 3 Marks

20b. Sketch and Explain the AUTO – KLEAN Filter - 7 Marks

21a. State the risks associated with bunkering of Fuel Oil? - 5 Marks

21b. Draw a layout of Second Platform of a Ship's Engine Room and show different machineries – 5 marks

22a. Discuss with the help of a simple sketch sea water cooling system of a Seagoing vessel - 4 Marks

22b. With a neat sketch explain an Impressed Current Cathodic Protection System fitted Onboard ship - 6 marks

