

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

Date: 17.06.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

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

SECTION A

Each question carries 1 mark.

Q1. Which of the following instruments is used to measure rudder carrier bearing wear down?

- A. Poker gauge
- B. Telescopic feeler gauge
- C. Depth gauge
- D. Trammel

Q2. Normally so called single screw pumps are used as sludge pumps in engine room. What is the correct technical name of these pumps?

- A. Snake Pump
- B. Screw Pump
- C. Progressive cavity pump
- D. Gerotor Pump

Q3. In a Sea Water cooled J.C.W. cooler, the most common cause for loss in cooling efficiency of the cooler is:

- A. Scale formation on J.C.W. side
- B. Mud/silt deposits on J.C.W. side
- C. Scale formation on S.W. side
- D. None of the above

Q4. When running TWO centrifugal Pumps in parallel, Flow rate "Q" is increased.

- A. True
- B. False
- C. May Be
- D. None of the above.

Q5. Wheel operated butterfly valves are operated through a reduction gearbox. The Gear arrangement inside of gear box is of _____ type

- A. Bevel Gear
- B. Rack & Pinion Gear
- C. Planetary Gear
- D. Worm & Worm Wheel

Q6. Over pressurizing of the intercooler casing of air compressor is prevented by

- A. Bursting disc
- B. First stage relief valve.
- C. First stage unloader
- D. After cooler relief valve.

Q7. Expansion of tube bundle in tube and shell type heat exchanger is provided by

- A. Packing and lantern ring.
- B. Shell foundation bolts
- C. Floating tube plate
- D. Directional transverse baffles.

Q8. According to MARPOL, definition of oil includes

- A. Crude oil
- B. Oil refuse
- C. Sludge.
- D. All of these

Q9. The requirement for safely docking the ship in dry dock are

- A. Adequate initial GM
- B. Vessel to be upright
- C. Small or moderate trim by stern
- D. All of these

Q10. An electric motor failure in electro hydraulic steering system would cause the rudder to

- A. Move to mid ship position automatically.
- B. Remain locked in its last position.
- C. Swing 35 degree right or left.
- D. Swing up against the emergency stops.

SECTION B

Each Question carries 2 marks

Q11. State 3 basic criteria for laying out engine room machinery.

Q12. What is bunker delivery note? Who issues to whom and why?

Q13. State the fittings on main air bottle with its respective purpose

Q14. Explain the principle of Rapson's slide in ram type steering gear.

Q15. Why two header tanks are provided in oil lubricated stern tube?

SECTION C

Answer any five. Each question carries 10 marks.

Q16. a. Sketch and describe cartridge type filter. (6 Marks).b. Explain the procedure for cleaning the same.(4 Marks)

Q17. With neat sketch, describe reciprocating pump used on board ship.(10 Marks)

Q18. a. With the help of a block diagram explain how the compressed air is generated & distributed for various operations.(6 Marks) b. What are the reasons for excess carbon deposits on the valves of a reciprocating main air compressor? (4 Marks)

Q19. a. What are the different methods of generating fresh water on board a vessel?(4 Marks) b. Sketch & describe Flash type evaporator used to generate fresh water.(6 Marks)

Q20. a. With a simple sketch, explain a conventional Lubricating oil cooler (shell and tube type) used for Main propulsion Engine.(6 Marks) b. Explain what maintenance is carried out on the cooler.(4 marks)

Q21. a. With the help of a line diagram explain the flow of oil from settling tank to service tank through a centrifugal purifier.(6 Marks) b. Explain the role of a gravity disc in purifier.(4 Marks)

Q22. Explain with neat sketch, the working of swash plate type variable delivery pump, widely used in steering system.(10 Marks)

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