

Indian Maritim@e University

(A Central University, Govt of India)

End Semester Examinations – Dec 2024

Programme Name: B Tech (Marine Engineering)

Semester: VII

Subject Code: UG11T4707

Subject Name: Sea Trials, Dry Docking and Shipyard

Date: 30.12.2024 Max Marks: 70

Duration: 03 Hrs Pass Marks: 35

General Instructions

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

Section A

(10 x 1 = 10 Marks) MCQ – Choose the correct answer as applicable.

- Sea trials are conducted at which stage of a ship's lifecycle?
 - Design phase
 - Construction phase
 - Postconstruction phase
 - Decommissioning phase
- The analysis of which data is crucial for assessing a ship's manoeuvrability?
 - Noise levels
 - Fuel consumption
 - Turning circle and zigzag test results
 - Engine temperature
- For which of the following is the Beaufort scale used?
 - Lines plan
 - Speed of ship
 - Geographical location of ship
 - Wind speed
- What is the primary purpose of dry docking?
 - To load and unload cargo
 - To perform maintenance and repairs below the waterline
 - To refuel the ship
 - To conduct sea trials

5. The seaward end of a graving dock is closed off by a dock gate called a

- Bow door
- Graving gate
- Caisson gate
- Wicket gate

6 What is the primary purpose of acid pickling in metal surface preparation?

- To remove rust and scale
- To increase tensile strength
- To enhance conductivity
- To reduce hardness

7. What is typically inspected and maintained during dry docking?

- Hull
- Propeller
- Rudder
- All of the above

8. What is the role of classification societies in dry docking?

- To repair the ship
- To provide crew training
- To verify compliance with standards
- To manage cargo operations

9. What are the primary functions of shipyards?

- Construction, maintenance, and repair
- Cargo handling and storage
- Navigation and piloting
- Crew training and accommodation

10. What is a common safety hazard in shipyards?

- Lack of sunlight
- Heavy machinery operation
- Calm weather conditions
- Excessive noise levels

Section B

(5 x 2 = 10 Marks) Short Answer type questions

- Who are the key stakeholders involved in sea trials?
- Name the three main types of dry docks.
- State two main concerns for ships during docking with cargo onboard.

14. Why is risk assessment important before dry docking?
15. State two main methods of protecting steelwork from corrosion within the marine environment.

Section C

2 Long Questions-Answer Any 5 (05 X 10 Marks)

16. With reference to sea Trials: -
- (a) What are speed trials, and what do they evaluate? (5 Marks).
 - (b) What is the zigzag test, and in which trial it is used? (5 Marks)
17. With reference to Dry Docking: -
- (a) Describe the different types of dry docks and their specific uses. (5 Marks)
 - (b) What is the primary purpose of dry docking, and why is it essential for sea-going ships? (5 Marks)
18. With reference to Dry Docking: -
- (a) What steps are involved in planning for a dry docking operation, and why is each step important? (5 Marks)
 - (b) Identify the key stakeholders involved in the dry docking process and their respective roles. (5 Marks)
19. With reference to Shipyard: -
- (a) What is the first stage of the shipbuilding process? (5 Marks)
 - (b) Which material is most commonly used in modern shipbuilding? (5 Marks)
20. With reference to Sea Trials: -
- (a) What methods are used for analysing sea trial data? (5 Marks)
 - (b) What safety measure is crucial during sea trials? (5 Marks)
21. With the help of neat diagram, explain the construction and operation of a floating dry dock. (10 Marks).
22. Sketch the layout of a shipyard (10 Marks)