

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – June 2024
Programme Name: B Tech (ME)
Semester: V
Subject Code: UG11T3502

Subject Name: SHIP STRUCTURE AND CONSTRUCTION

Date: 10.06.2024	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

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. The term strake is used in reference to
 - a. hull plating
 - b. anchor gear
 - c. vessel framing
 - d. rudder mountings

2. The term "margin plate" is associated with the
 - a. Engine room
 - b. Double bottom
 - c. Crew's quarters
 - d. Main deck

3. Keel scantlings of any vessel are greatest amidships because
 - a. connections between fore body and after body are most crucial
 - b. of maximum longitudinal bending moments
 - c. resistance to grounding is at a maximum amidships
 - d. of severest racking stresses

4. A bilge keel is used to reduce/ damp a ship's tendency to
 - a. Roll
 - b. Pitch
 - c. Heave
 - d. All of these

5.bulkheads located not less than 5% or more than 8% of the ship's length abaft the stem at load water line.
 - a. Watertight
 - b. Collision
 - c. Corrugated
 - d. Transverse

6. Main reason for panting is
 - a. Ship side plates are weak
 - b. Expansion of tanks due to temperature variation
 - c. Altering course of the ship as a part of Navigation
 - d. Fluctuating water pressure as the bow passes through successive waves

7. What is bitter end?
 - a. The first link of each chain is called the bitter end
 - b. It prevents accidental slipping of the cable in case of failure of the brake arrangement
 - c. The last link of each chain is called the bitter end
 - d. It is the sprocket wheel in a windlass, used for heaving in the anchor

8. Why a ship is usually classed
 - a. To describe the type of the ship
 - b. To assert the ships construction and operation standards
 - c. Because it is mandatory by IMO
 - d. To increase the ships safety

9. Explain what (IACS) stands for?
 - a. International Association of Class and standards
 - b. Indian Association of Class and standards
 - c. International Association of Classification society
 - d. International Association of Class and standards

10. The Certificate of Freeboard is the
 - a. Certificate of Inspection
 - b. Forecastle Card
 - c. Load Line Certificate
 - d. Admeasurer's Certificate

Section B

Five Questions of 02 Marks each

11. What exactly is a 'Bulbous bow', and where does it fit in a ship? Discuss the drawbacks of incorporating it into a ship.
12. Distinguish between light weight and dead weight.
13. What exactly is a Dynamic Positioning Vessel?
14. How many different kinds of keels are there?

15. What exactly are "Half-beams"? Where do you look for them in a ship?

Section C

Seven Questions of 10 Marks each of which any 05 questions to be answered.

16. Discuss Racking, Pounding, and Panting in depth. How can the deformation of a ship structure be avoided as a result of their impacts in each case? (10 Marks)
17. Explain the numerous non-destructive testing performed on welds in the context of ship building. (10 Marks)
18. Draw and identify a neat drawing of a bulk carrier's mid-ship section. (10 Marks)
19. With a drawing, describe the plating system for a ship's shell. (10 Marks)
20. (a) List the names of six classification societies that will perform ship-related surveys. (5 Marks)
- (b) What is the job of a classification surveyor in the construction of a ship? (5 Marks)
21. (a) A general cargo ship has a length of 200 meters. What kind of double bottom framing will you recommend, and why? Mention the stiffeners necessary for the purpose, as well as their spacing in the machinery space. (5 Marks)
- (b) Sketch and name the following members connections to the adjoining Structure/member. (i) Hold frame at its lowest point. (ii) The Hawse pipe (iii) Beam knee (5 Marks)
22. (a) Describe a rudder carrier bearing with a sketch. (7 Marks)
- (b) Name various types of rudder pintles you know and their use. (3 Marks)

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