

**Indian Maritime University**  
**(A Central University, Govt of India)**  
**Supplementary Examinations – March/April 2025**  
**Programme Name: B Sc Nautical science**  
**Semester: 1**  
**Subject Code: UG21T6105**  
**Subject Name: Ship Construction**

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Date: 07.03.2025

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

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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. FREEBOARD is the distance -----

- a) from the lower edge of the summer load line to the upper edge of the deck line.
- b) from the upper edge of the summer load line to the lower edge of the deck line.
- c) from the lower edge of the summer load line to the lower edge of the deck line.
- d) from the upper edge of the summer load line to the upper edge of the deck line.

2. AFTER PERPENDICULAR is-----

- a) a perpendicular drawn at the point where the aft side of the rudder post meets the winter load waterline
- b) a perpendicular drawn at the point where the aft side of the rudder post meets the tropical load waterline
- c) a perpendicular drawn at the point where the aft side of the rudder post meets the waterline
- d) a perpendicular drawn at the point where the aft side of the rudder post meets the summer load waterline

3. The lines which indicate the load line shall be – in length

- a) 25 mm
- b) 300 mm
- c) 450mm
- d) 230mm

4. A double hull tanker has ---

- a) segregated ballast tank
- b) Cell guide arrangement
- c) Ramp arrangement
- d) Both a and b

5. Shell expansion plan can be used to identify damaged plates

- a) True
- b) False

6. lower end of the frame may be connected to the tank top or hopper side tank by means of a flanged or edge-stiffened tank side -----

- a) bracket
- b) knees
- c) Margin plate
- d) girder

7. Each cable is fed to the appropriate chain locker compartment through port and starboard -----pipes from the forecastle deck.

- a) hawse
- b) spurling

- c) eductor
- d) air

8 . 'solid plate floors' are fitted to

- a) strengthen the bottom transversely
- b) support the inner bottom
- c) both a and b
- d)none of these

9. Racking stress is caused due to ---

- a) Pitching
- b) Rolling
- c) Heaving
- d) Surging

10.Pounding stress is more in the --

- a) Loaded condition
- b) Partly loaded condition
- c) Ballast condition
- d) None of the above

### **Section B**

Answer all Five Questions (5 x 2 marks = 10 marks)

11. What are the watertight doors?
12. What is the importance of load line and where is the deckline marked?
13. What is a sheer strake?
14. What is the cleating arrangements of hatch covers?
15. Briefly explain the shearing force?

### **Section C**

All the questions compulsory all carries equal marks (5 x 10 marks = 50 marks)

16. Define the following with simple picture (4 x 2.5 marks = 10 marks)

- i) Camber,
- ii) Rise of floor,
- iii) Flare,
- iv) Sheer,

17.

- a) Sketch and label the loadline Marks. (5 marks)
- b) Define Gross tonnage and Net tonnage. (5 marks)

18.

- a) Sketch and label a transversely framed double bottom tank? (5 marks)
- b) What is a shell expansion plan and how are the frames numbered? (5 marks)

19.

- (a) Write short notes on ballast tank air vent head (5 marks)
- (b) Sketch and mark the parts of a balanced rudder (5 marks)

20.

- a) Briefly explain Panting and Pounding? Sketch and label the structure to counteract panting. (5 marks)
- b) Explain Loadicator and the different output data that can be obtained from a Loadicator? Are there any approvals required for the Loadicator? (5 marks)

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