

**Indian Maritime University**  
**(A Central University, Govt of India)**  
**Supplementary Examinations – March/April 2025**  
**Programme Name: B Sc (NS)**  
**Semester: 2**  
**Subject Code: UG21T5204**  
**Subject Name: SHIP CONSTRUCTION**

Date: 13.03.2025

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

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

**Section A**

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

1. If keel is the backbone of the ship, the frames are considered to be :  
A) Shoulder  
B) Knees  
C) Elbow  
D) Rib-cage
2. Frames are numbered from :  
A) Fwd perpendicular  
B) Aft perpendicular  
C) Midships  
D) collision bulkhead
3. The primary role of longitudinal members is to resist the longitudinal bending stress due to hogging and sagging  
A) True  
B) False
4. Beam knees provides small amount of resistance against racking stresses  
A) True  
B) False
5. Transverse bulkheads primarily provide protection against racking stresses and against spreading of fire  
A) True  
B) False
6. Bilge keels are fitted on ships to .....  
A) assist in dry dock alignment  
B) Improve the vessel's stability  
C) protect the vessel from slamming against piers  
D) reduce the rolling of the vessel

7. The main purpose of collision bulkhead is to limit the damage of a head-on collision of the part of the bow forward to it  
 (A) True  
 (B) False
8. What is distortion of a vessel's structure caused by rolling called  
 (A) Racking  
 (B) Slamming  
 (C) Pounding  
 (D) Heaving
9. What is the pipe which directs the anchor cable from the windlass to the chain locker called  
 A) mooring  
 B) Hawse pipe  
 C) Scupper  
 D) Spurling pipe
10. What is the connectivity plate between a side frame and a transverse deck beam called  
 A) Girder  
 B) Gusset  
 C) Knee  
 D) Stiffener

### **Section B**

Answer all five Question ( 5 x 2 marks = 10 Marks )

11. State any two functions of watertight bulkhead.
12. Sketch and label a beam knee and its adjacent structures.
13. State two advantages of welding over riveting in ship construction.
14. State two functions of double bottom.
15. Name any two types of stern ramps used on RORO ships.

### **Section C**

(Answer any five of the seven questions. 05 x 10marks = 50 Marks)

- 16.
- a) Sketch a transverse framing system and label the following:  
 Centre girder, floor, transverse frame, deck beam and beam knee  
 (05 marks)
- b) Explain 5 nondestructive tests used to check welds. (05 marks)
17. Briefly describe any five problems associated with Ro-Ro ships

18. (a) Sketch and label a stockless anchor.  
(b) Where is chain locker located? Write a short note describing it.

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19. With the aid of a diagram, draw a ship showing all the basic mooring lines used in berthing to a wharf, and describe how each of these lines assist to keep the vessel in position.
20. Sketch a simple propeller and label the following:  
(a) Boss (b) Root (c) Tip (d) face (e) Leading/Trailing edge
21. What are the advantages and disadvantages of a Controller Pitch Propeller (CPP)
22. Name five commonly used Non-destructive testing (NDT) techniques employed in inspection and testing welds. Briefly state each of their capabilities and limitations.

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