

**Indian Maritime University**  
**(A Central University, Govt of India)**

**Supplementary Examinations – September/October 2024**

**Programme Name: B Tech (ME)**

**Semester: V**

**Subject Code: UG11T4506**

**Subject Name: SHIP STRUCTURE AND MARINE SHAFTING**

Date: 19.10.2024

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

**Answer All Questions**

**10X1=10 Marks**

1. The decks of a vessel are supported by transverse members called \_\_\_\_\_  
a) Trusses    b) Deck longitudinal    c) Deck beams    d) Web frames
2. What is a common composite material used in modern shipbuilding, known for its high strength-to-weight ratio?  
a) Fiberglass-reinforced plastic (FRP)  
b) Aluminium alloy  
c) Plywood fiber  
d) Stainless steel
3. Breast hook is fitted  
a) at hatch opening corners  
b) joining shipside plate to deck  
c) at fore end  
d) at bilge keel
4. What does the term "scantling" refer to in shipbuilding?  
a) The width of a ship's hull at the waterline  
b) The measurements and dimensions of various structural components of a ship  
c) Lighter weight for the ship  
d) The length of the ship from stem to stern
5. The purpose of bilge keel is to \_\_\_\_\_

- a) lower the centre of gravity of the ship
  - b) reduce the amplitude of roll
  - c) reduce pitching
  - d) reduce yawing
6. What is the primary purpose of a swash bulkhead?
- a) To store emergency supplies
  - b) To increase the ship's speed
  - c) To reduce Free surface effect
  - d) To increase draft
7. Classification Society marking is on the
- a) Summer load line
  - b) Tropical zone load line
  - c) Plimsoll line
  - d) Fresh Water load line
8. Panting arrangements are usually found at
- a) Forward of Collision bulkhead
  - b) Aft of collision Bulkhead
  - c) Double bottom
  - d) Machinery space
9. The strake next to the keel is identified as
- a) Bilge strake
  - b) Sheer strake
  - c) Garboard Strake
  - d) Keel Strake
10. The weld joint between two plates of the same strake of hull plating is called
- a) Bracket
  - b) Gusset
  - c) Seams
  - d) Butt

**Section-B**

**Answer All Questions**

**5X2=10 Marks**

- 11. In a ship stern structure, describe what is "deadwood"?
- 12. Define frame spacing?
- 13. Define GT & NT
- 14. What is the purpose of the bulbous bow?

15. Describe role of class surveyor for approving welding standards during ship construction.

**Section - C**

**Answer Any FIVE Questions**

**5X10=50 Marks**

16. a) Distinguish between transverse and longitudinal framing. **(6 Marks)**  
b) Explain racking stress with the help of a neat sketch **(4 Marks)**
17. a) List out the functions of water tight bulkhead. **(6 Marks)**  
b) Which part of the ship is known as 'soft nose' and why ? **(4 Marks)**
18. a) What is a classification society? and list four functions of classification societies. **(5 Marks)**  
b) Mention three salient features of collision bulkhead in terms of location and structural integrity **(5 Marks)**
19. a) Explain Hogging and sagging of a ship in waves with the help of neat sketches **(5 Marks)**  
b) Sketch a solid plate floor and label the following; **(5 Marks)**  
i) Margin plate  
ii) iii) Manhole  
iii) Lightning Hole  
iv) Air Holes  
v) Drain Holes
- 20 a) Write short note on bilge keel **(4 Marks)**  
b) Draw neat sketch of typical midship section of a bulk carrier and label it. **(6 marks)**
21. a) Sketch and label load line marking **(4 marks)**  
b) Sketch a cast stern frame and write any two functions. **(6 marks)**
22. a) Sketch the structural arrangements in the fore-end of ship. **(7 marks)**  
b) Briefly explain types of rudder. **(3 Marks)**

