

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – June 2026

Programme Name: DNS

Semester: I

Subject Code: UD11T6106

Subject Name: Ship Construction and Ship Stability -I

Date: 08.06.2026

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) All questions are Compulsory.
- (iii) Non Programmable Scientific Calculator may be permitted.

Section A

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

1. Summer Displacement is the total mass of the ship when she is

- a. Floating in fresh water at summer draft.
- b. Floating in salt water at summer draft.
- c. Floating in dock water at summer draft.
- d. Floating in salt water at light draft.

2. Air Draft of a ship is

- a. The vertical distance between waterline and highest point of the ship.
- b. The vertical distance between Keel and highest point of the ship.
- c. The vertical distance between Keel and Upper Deck of the ship.
- d. The vertical distance between Upper deck and highest point of the ship.

3. Ship Construction process is an art of constructing or putting together various sections

- a. As a structure
- b. As a unit
- c. As a plant
- d. As a module

4. Sounding Pipe of a Tank extends

- a. Till Bottom of the tank
- b. From top of the tank

- c. Inside the tank only
d. From Port to Starboard of the tank.
5. Which one of the below mentioned is not a dry cargo ship
- a. Bulk Carrier
 - b. Container Ship
 - c. Passenger Ship
 - d. Chemical Ship
6. Load Displacement – Light Displacement = _____
7. The Reserve buoyancy is the volume of the enclosed spaces
- a. Below the water line
 - b. Engine room space
 - c. Above the water line
 - d. in the accommodation area
8. The purpose of double bottom tank in ship construction is
- a. To prevent pollution and damage of cargo
 - b. To prevent mixing of two cargo
 - c. To provide the buoyancy to the ship
 - d. To provide the stability to the ship
9. The amount of load required to sink the ship by one cm is _____.
10. Ratio of waterplane area of the ship to the rectangle having ship's maximum length & maximum breadth is _____.

Section B

Five Questions of 02 Marks each (Total 10 marks)

- 11. Explain the use of Fore Peak tank in ship.
- 12. Sketch and define Rise of Floor.
- 13. Describe the purpose of Air Vent in ship
- 14. Discuss "Block Coefficient" of a Ship.
- 15. Define FWA and state the formula for calculating FWA.

Section C

Five Questions of 10 Marks each. All are compulsory. (Total 50 marks)

16. Sketch Profile View of a Double Hull Oil tanker and label the principal parts of the Ship namely F.P.tank, Aft Peak tank , Engine room, Pump room, Accommodation, cargo tanks, double bottom tanks, Fore mast, Main mast ,Crane.

17. Define Bulkhead in ship and list various types of Bulkheads

18. Write short notes on shell expansion plan.

19. A vessel of displacement 5000 t, KM-7.8 m, KG-7.0 m, No-2 Port DB tank is partly full of FW. If this tank is 15 m long and 9 m broad. Find the fluid GM.

20. (a) A ship has a displacement of 13400 t and an initial KG of 4.22 m. 320 t of deck cargo is discharged from a position Kg 7.14 m. Calculate the final KG of the ship. (5marks)

20. (b) A box shaped vessel 60m x 10 m x 10 m floats in DW of RD 1.020 at an even keel draft of 6m. Find her KB in DW of RD 1.004. (5 marks)



TMI IMU
to me

10:43 AM (8 minutes ago)

----- Forwarded message -----

From: ESE IMU HQ <imuese@imu.ac.in>

Date: Mon, Jun 8, 2026, 10:38

Subject: Clarification - DNS - UD11T6106 - 08.06.2026 - FN - reg.

To: ESE IMU HQ <imuese@imu.ac.in>

Dear Sir/Madam,

With reference to the subject cited above it is informed that Q No 19 under Section C has been replaced with the following question. This is for your kind information and necessary action please. Please inform the concerned cadets.

"19. A ship of 25,000t displacement has a KG of 7.90m. Cargo of 525T (KG 2.5m), 125t (KG 10.25m), and 400t (KG 6.50m) were loaded. Cargo of 365t (KG 7.50m), 560t (KG 1.5m), and 440t (5.50m) were discharged. 100t and 150t of cargoes were transferred by 5.0m upward and 3.75m downwards, respectively. Find the final KG of the vessel. (10 marks)"

Thanks & Regards,

Cmde KD Joshi (IN) (Retd),
Controller of Examinations,
Indian Maritime University,
East Coast Road, Sholinganallur (PO),
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Phone: 044 - 2453 9023.



Dr. R. S. Kumar of Dr. R. S. Kumar

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