

**INDIAN MARITIME UNIVERSITY**  
(A Central University Government of India)  
**END SEMESTER EXAMINATIONS- DECEMBER 2018**  
**DIPLOMA IN NAUTICAL SCIENCE**  
**SEMESTER - I**  
**SHIP CONSTRUCTION AND SHIP STABILITY-I**  
**(UD11T4103)**

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Date: 28-12-2018

Max. Marks: 70

Time: 02 hours

Pass Marks: 35

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**PART A=Q.No 1 is compulsory. Answer any 2 out of the remaining 3 Questions.**

**Use of non-programmable scientific calculator is permitted.**

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**PART A- Ship Construction**

Q1. Sketch the following parts of the ship. (10 x 1 marks)

- a) Aft peak tank
- b) Hatch coamings
- c) Holds
- d) Fuel tank
- e) Hatch cover
- f) Bridge
- g) Pump room
- h) Engine room
- i) Steering gear room
- j) Fore peak tank.

Q2. Sketch and label the following. (2 x 5 marks)

- a. i) Air pipe ii) Sounding pipe iii) bulkhead iv) wing tank v) Frame
- b. Draw a draft mark showing 7.20m as draft.

Q3. Sketch and label the following (2 x 5 marks)

- a. Deep tank.
- b. Draw the loadline mark on the Port side of ship.

Q4. Define and sketch the following

(5 x 2 marks)

- a) Forward perpendicular
- b) Extreme breadth
- c) Moulded depth
- d) Length between perpendicular
- e) keel.

**Part B-Ship Stability**

**(Q.No 5 is compulsory. Answer any 3 out of the remaining 4 questions)**

Q5. Define the following with sketches as appropriate.

(5 x 2 marks)

- a) Deadweight
- b) TPC
- c) Water plane coefficient
- d) FWA
- e) Relative density

Q6. A rectangular tank measuring 20m x 10m x10m has an ullage pipe extending 0.5m above the tank top. If the tank is 98% full of FW, find the mass of FW and state its ullage.

(10 marks)

Q7.a) Construct the displacement curve from the following data:

(2 x 5 marks)

draft(m)	2.0	4.0	4.2	4.7	5.0	5.5
Displacement(T)	2700	3260	3800	4450	5180	6060

b) If the above ship's light draft is 2.0 m and load draft is 5.5m find the deadweight?

Q8.a) A ship 100m long and 20m wide having block coefficient of 0.8, floats in SW at the mean draft of 8.0m. calculate the difference in displacement when floating at the same draft in FW.

(5 marks)

b) What is the effect of water density on the draft of the ship. (5 marks)

Q9).A vessel floats in DW RD 1.016 with her winter loadline 100mm below Water On the port side and 180 mm below water on the starboard side,if her FWA Is 200mm TPC is 24 and summer load draft is 9.6m,find the DWT available.

(10 marks)

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