

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)

June 2017 End Semester Examinations
Diploma in Nautical Science – First Semester

Ship Construction & Ship Stability – I (UD11T 3103)

(August 2015 batch onwards)

Date: 17.06.2017

Maximum Marks : 70

Time: 2 Hrs

Pass Marks : 35

Scientific Calculator is allowed in the Exam Hall.

SECTION A: SHIP CONSTRUCTION

Question no.1 is compulsory. Answer any two from the remaining questions.

1. a. Draw a neat profile view of a gearless bulk carrier showing 5 holds. (5 marks)
b. Label the following parts on the above diagram:
Forepeak and After Peak tank (2 marks)
Hatch coaming and Hatch cover (2 marks)
Double Bottom tanks (2 marks)
Rudder stock and Rudder (2 marks)
Forward and Aft Perpendiculars (2 marks)
2. Draw the Loadline Marks of a ship 120 m long, as seen from her starboard side and mark all dimensions clearly. Statutory freeboard is 1.20 m. Her Load displacement is 6400 t, TPC (SW) 10 t/cm and the summer draft is 6.72 m. **(Drawing to scale not required)** (10 marks)
3. a. Why are ventilators necessary? (3 marks)
b. Draw and label a Cowl ventilator found on board a ship. (7 marks)
4. Draw and label a sounding pipe and ballast tank air-pipe found on board a ship. (5+5 marks)

SECTION B: SHIP STABILITY

Question no.5 is compulsory. Answer any two from the remaining questions.

5. Define the following. Draw sketch if required: (15 marks)
- i) Load displacement
 - ii) % Reserve buoyancy
 - iii) FWA
 - iv) Deadweight available
 - v) Block coefficient
6. A deep tank 10m x 16m x 6m has a cylindrical trunkway on top (axis vertical) Height :4m Diameter: 6m Find the following:
- a. Tonnes of oil of RD 0.92 it can hold if a space equal to 2.5% of the volume of the complete tank is allowed for expansion. (5 marks)
 - b. Thrust experienced by the tank bottom. (5 marks)
7. From the following details calculate DWT available.
LOA: 225 m. Present Freeboard: 3.2 m. FWA 220mm. TPC (SW): 28.
Statutory Summer Freeboard 2.80 m, Summer draft 9.56 m.
Classification Society : LR. The ship is loading in RD 1.015. (10 marks)
8. A ship's extreme water plane dimension while loaded to her summer draft is 150m x 20m . Her summer draft is 7.5m. Given C_w 0.75 and C_b 0.80, calculate her Fresh Water Allowance. (10 marks)
