

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
End Semester Examination Dec 2019
DIPLOMA IN NAUTICAL SCIENCE (DNS)
Semester : II
Ship Construction and Ship Stability – II (UD11T4204)

Date: 12-12-2019
Time: 2 Hrs

Max Marks: 70
Pass Marks: 35

Note: Part–A: Question no.1 is compulsory. Answer any 2 out of remaining 3 questions.

Part– B: Question no.5 and no.6 are compulsory. Answer any 2 out of remaining 3 questions.

All Questions carry equal marks.

Use of non-Programmable Scientific Calculator and M.V. Hindship Stability particulars booklet are permitted.

Part A – Ship Construction

Q.1 Write Short Notes on the following: (5x2= 10 marks)

- (i) Camber of deck
- (ii) Rise of floor
- (iii) Gross Tonnage
- (iv) Hogging
- (v) Pounding

Q.2 (a) Sketch and Label profile view of a typical double hull tanker showing pumproom, engine room, peak tanks, cargo tanks & ballast tanks.

(b) Explain Shearing force and Bending Moments. (2x5=10 marks)

Q.3 (a) Explain “Panting” and list which parts of the Ship are affected.

(b) Sketch a Sounding Pipe arrangement with Striker Plate.

(2x5= 10 marks)

Q.4 (a) Describe Shell expansion Plan

(2x5= 10 marks)

(b) Describe Bilge Piping System of a Cargo Ship.

Part – B Ship Stability

Q.5 Write Short notes on the following: (5x2= 10 marks)

- (a) Centre of Buoyancy
- (b) Righting Lever
- (c) Metacentric height
- (d) Free Surface effect
- (e) Stiff vessel

- Q.6 M.V. "Hindship" floating in condition No.2, loads 400 tonnes of Cargo in No1TD and on the voyage consumes the entire oil in No.2 DB Tanks P&S. Calculate GM (solid & fluid). As change of displacement is negligible, assume FSC Constant. (10 marks)
- Q.7 A vessel of 6000 t displacement, KG7.1m, loads a heavy lift weighting 150 t by her jumbo derrick, whose head is 16 m above the keel. If the weight is placed on the tween deck (KG 8m), find KG when the weight is hanging 1 m above the Tween deck. (10 marks)
- Q.8 A quantity of grain estimated to be 100 t, shifts transversely by 12m and upwards by 1.5m, on a Ship of W 12000 t, GM 1.2m. Find the list caused. (10 marks)
- Q.9 (a) Write Short Notes on "Righting Moment" (2x5=10 marks)
- (b) A Ship of 14000 t displacements is heeled by 8° , the moment of Statical Stability is 400 tm. If KG is 7.3m, find KM.

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