INDIAN MARITIME UNIVERSITY

(A Central University Government of India)

END SEMESTER EXAMINATIONS- JUNE 2019

DIPLOMA IN NAUTICAL SCIENCE

SEMESTER - I

Ship Construction and Stability-I (UD11T4103)

Date: 26-06-2019 Max. Marks: 70

Time: 02 hours Pass Marks: 35

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.

Use of non-programmable scientific calculator is permitted.

All Questions carry equal marks

PART A- Ship Construction

Q1). Sketch and label a profile view of a ship and show following parts (5 x 2 marks)

a) Mast, stern post
b) Bulbous bow
c) Superstructure
d) Poop Deck
e) Cofferdam

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

a) 1) Gooseneck ventilator
   2) Air Pipe
   3) Sounding pipe
   4) Deck Beam
   5) Corrugated Bulkhead(Bulk carrier)

b) Explain why are loadline marks are important for ships.

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

a) Cross section of double bottom tank.(Longitudnal Framing)
b) Draw the Starboard side loadline mark of a ship(including deck line and dimensions)

Q4).Define and sketch (one single Sketch) the following (5 x 2 marks)

a) LOA
b) LBP
c) Length at Waterline
d) Freeboard
e) Forward and Aft perpendicular

Part B -Ship Stability

Q5. Define the following with applicable sketches. (5 x 2 marks)

a) Load Displacement
b) Relative Density
c) Block coefficient
d) Reserve Buoyancy
e) FWA.

Q6. A vessel is lying in a river berth of density 1.010 tonnes per m^3, with her summer loadline 20 mm above the water on the starboard side and 50mm above the water on the port side. Find How much cargo she can load to bring her to her summer loadline in SW, if her summer displacement is 15000 tonnes and TPC is 25. (10 marks)

Q7.a) Construct the TPC curve from the following data: (2 x 5 marks)

Draft(m)	1.0	2.0	3.0	4.0	5.0
TPC	3.44	5.81	7.0	7.62	8.00

b) From the above curve calculate the water plane area at 3.6 m draft in SW ?

Q8.a) A box shaped vessel 120m x 15m x 11m high is floating in DW of RD 1.005 at a draft of 5 m. if her max permissible draft in SW is 6m. Find How much cargo she can now load also, find her reserve buoyancy % in SW. (5 marks)

b) Explain why TPC varies with the draft of vessel. (5 marks)

Q9). A cylindrical drum of 1.2 m diameter and 2m height floats with its axis vertical in water of RD 1.016 at a draft of 1.4 m. Find the max mass of lead shots that can be put in it without sinking it. (10 marks)

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