INDIAN MARITIME UNIVERSITY

(A Central University Government of India)

END SEMESTER EXAMINATIONS- June-July 2019

Diploma in Nautical Science

Semester: I

Ship Construction and Ship Stability - I

(UD11T3103)

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

Time: 2 hours **Pass Marks: 28**

Note: **Answer any SEVEN** questions **out of EIGHT.**

Use of non- Programmable Scientific Calculator is permitted.

Graph paper, if required, to be provided by the examination centre.

If graph used, write scale used on graph.

Ship Construction

Q1). Sketch a profile view of a cargo ship and show following parts (15 marks)
Forepeak tank, collision bulkhead, DB tank, lower hold, Tween Deck, Aft peak tank, engine room, Superstructure, Hatch covers Fore mast.

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

1) Stbd Loadline marks (with dimensions)

2) Cross Section midship showing (Moulded Depth, Moulded Breadth, Freeboard, moulded baseline.

3) LOA, LBP, LWL, Freeboard, Fore & Aft Pendiculars, Summer loadline,

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

1) Double bottom tank(longitudanal framing)
2) Air Pipe

Q4). Sketch and label the following (2 x 5 mark)

a) Corrugated bulkhead (Bulk Carrier)
b) Why are loadline marks important for ships

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 loading in SW dock and is lying with her starboard Winter loadline 60 mm above and port Winter loadline 20mm below the surface of water. If her summer draft in SW is 7.2 m and TPC is 20, find how many tonnes of cargo the vessel can load to bring her down to her Tropical loadline in SW. (10 marks)

Q7.a) A box shaped vessel 120m x 14m x 12m high. If her displacement is 13776 t, find her reserve buoyancy % in SW. (5 marks)

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

Q8). 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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