

V26/S01066/EE/20160720

Time : 3 Hours

Marks : 80

Instruction :

1. All Questions are Compulsory.
 2. Each Sub-question carry 5 marks.
 3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
 4. Question paper of 80 Marks, it will be converted in to your programme structure marks.
-

1. Solve any **four** sub-questions.
 - a) A ship 150 m long has half ordinates commencing from aft as follows - 5
0, 5, 9, 9, 9, 7 and 0 meter respectively.
Find the distance of Center of floatation from forward.
 - b) A box shaped barge of 40 meter long has four identical holds each 10 m long. Cargo is loaded level and the Shearing Forces (t) starting from forward end every 5m till the aft are 0, -24.5, -49.0, -24.5, 0, 24.5, 49.0, 24.5, and 0.
Draw the BM curve 5
 - c) When a mass of 25 t is shifted 15m transversely across the deck of a ship of 8000 t displacement, it causes a deflection of 20 cm in a plumb line 4 m long. If KM is 7 m. Calculate the KG. 5
 - d) A box shaped vessel 40m long, 8 m wide and 6m deep floats is SW on even keel at 3 m draft. $GM = 1$ m. Find the new GM if an empty compartment 4 m long and situated amidships is bilged. 5
 - e) A ship of 5000 t displacement enters a dry dock trimmed 0.45 m by the stern, $KM = 7.7$ m, $KG = 6.0$ m and $MCTC = 120$ t.m. the Center of Floatation is 60 m from aft. Find the effective metacentric height at the critical instant before the ship takes the blocks overall assuming that the transverse metacenter rises 0.075 m. 5
2. Solve any **four** sub-questions.
 - a) State the Stability requirements as per Load Line Rules. 5
 - b) Explain synchronized rolling and remedial action. 5
 - c) How will you find the value of Initial Metacentric height from GZ curve? 5
 - d) Define the terms Displacement, Light Displacement, and Deadweight. 5
 - e) Enumerate near ideal conditions for conducting Inclining Experiment. 5

3. Solve any **four** sub-questions.
- a) Describe in brief the sequence of events in the construction of a ship. 5
 - b) What are the High Tensile steels and where are they used? What are their drawbacks? 5
 - c) What are the tabular freeboards for Type 'A' and Type 'B' Ships? 5
 - d) Explain the terms Gross tonnage and Net tonnage. 5
 - e) What are the requirements for crew protection as per Load line rules? 5
4. Solve any **four** sub-questions.
- a) Name any five Class Societies. 5
 - b) Explain Position 1 and 2 on a ship. What are the stipulations for Vent openings and Steel doors in these regions? 5
 - c) What are the special conditions for assignment of freeboard for Type 'A' ships? 5
 - d) Explain Propeller Power Allowance. 5
 - e) What are the fire risks in passenger ships and firefighting arrangements in the accommodation of a large passenger liner? 5

