

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
END SEMESTER EXAMINATIONS- DECEMBER 2018
B.Sc. (Nautical Science)
SEMESTER-V
Ship Stability - I (UG21T3302)

Date: 28.12.2018
Time: 3 Hrs

Max Marks - 70
Pass Marks - 35

Note: Question No. 1 is compulsory, attempt any six questions from remaining seven. All carry equal marks 10 each.

1. Define the following: (2x5 = 10)
 - (a) Displacement
 - (b) T. P. C
 - (c) Block Co-efficient
 - (d) Stable Equilibrium
 - (e) List

2. (a) A homogeneous rectangular log long 10 m, wide 1.5 m, high 1.0 m has RD - 0.72, find it's draft in fresh water. (5)

- (b) A box shaped vessel of dimension 60mX10mX10m floats in DW of RD 1.020 at an even keel draft of 6m, find her KB in DW of RD 1.004. (5)

3. (a) The length and breadth of the water plane of a ship are 100 m & 12 m. If the co-efficient of fineness of the water plane is 0.7. Find her TPC in SW & FW. (5)

- (b) A vessel of displacement 14000 t, is 160 m long, 20 m wide at water plane. If she is floating in SW at a draft of 6.1 m. Find her block co-efficient. (5)

4. (a) On a vessel 6000 t displacement, KG 7.4 m, how many tonnes of cargo may be discharged from lower hold (KG 2.0 m) in order to have a final KG of 8.0 m. (5)

- (b) A ship is floating in FW at a draft of 6.8 m. If her maximum FW draft is 7.0 m, her SW TPC is 40. Find the DWT available. (5)

5. (a) What do you understand by term "Metacentric Height". Explain with neat sketch. (5)
- (b) State types of equilibrium and explain unstable equilibrium with sketch. (5)
6. A vessel displacement of 10000 t, KM 10.0 m, loads 1000 t cargo in No-2 LH KG 4.0 m, loads 2000 t in No 4 LH KG 5.0 m. Her FSC is 0.209 m. Find her New KG and GM Fluid. (10)
7. M. V. Hindship at a displacement of 14240 t had a FSC of 0.087 m. Find the FSC after Discharging 3210 t of cargo, assuming the tank sounding remained unchanged. (10)
8. A weight of 20 t, when moved transversely through a distance of 18 m, causes M. V. Hindship to list 2.6 deg, when floating at a draft of 5.92 m, FSC 0.082 m. Find her GM fluid. (10)
