# Indian Maritime University

(A Central University, Govt of India)

**B Sc (Nautical Science)**

May-June 2018 End Semester Examinations

Semester-IV

**SHIP STABILITY PAPER –II(UG21T3402)**

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Duration:3 Hrs | Max Marks:70 Marks

Date: 06.06.2018 | Pass Marks:35 Marks

Note: Q.1 IS COMPULSORY. ATTEMPT ANY SIX OUT OF THE REST.
ALL QUESTIONS CARRY EQUAL MARKS
Use of M.T Hindship Stability Particular Booklet is Permitted.
Use of Non Programmable Scientific Calculator is permitted.

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Q1) Write formula for the following:- (5 x 2 marks)

a) TrimCalculation
b) Wall sided formula
c) Simpson's rule One
d) TPC
e) Angle of loll.

Q2) The present drafts of a ship 140m long are 8.1m fwd and 9.9m aft. TPC 30,MCTC 250tm,HF 3 m fwd.300 t ballast was pumped out of no.5 DBT COG 50m abaft H.Find the new drafts fwd and aft. (10 marks)

Q3) a) Discuss is the effect of change of density on the trim of the ship. (5 marks)

b) A ship of 6000 tonnes displacement has KB=3M,KM=6M,and KG=5.5M.Find the moment of statical stability at $25^0$ heel. (5 marks)

Q4) a) Draw a curve of statical stability and show the following (5 marks)

i) Maximum value of GZ
ii) Angle of vanishing stability.
iii) Initial GM.

b) Given the following information, find the displacement at 6m draft in SW:

| DRAFT | 6m | 5m | 4m | 3m | 2m | 1m | 0m |
|---|---|---|---|---|---|---|---|
| TPC | 61.5 | 61.7 | 61.8 | 61.8 | 61.7 | 57.4 | 51.3 |

(5 marks)

Q5) a) What are the dangers associated with carriage of timber on deck. (5 marks)

b) What are the intact stability characteristics of any ship carrying grain in bulk. (5 marks)

Q6) a) A vessel has an initial GM of -0.3m and BM of 5m.find the angle of loll.

(5 marks)

b) Derive the formula of FWA. (5 marks)

Q7) M.V Hindship is at a draft of F 8.778m,A 8.792m,LCG 72.34m ford of AP.She Discharges 206 tonnes of cargo from no.5 LTD. Calculate the drafts F and A. (10 marks)

Q8) Find the moment of statical stability of M.V.Hindship at an angle of heel of $7^0$ , when displacing 16133t.KG=7.57m,FSC=0.085m. (10 marks)

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