

# INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examination Dec 2019/Jan 2020

B. Sc. (Nautical Science))

Semester-IV

UG21T2409– Naval Architecture - IV

Date: 20.12.2019

Max Marks: 70

Time: 3 Hours

Pass Marks: 35

Note: Use of non-programmable Scientific Calculator is permitted  
Use of M.V.Hindship Table is permitted.

## Part– A (Ship Construction)

Marks: 35

Note: Question No. 1 is Compulsory and Carries 15 marks.

Answer any **Two** of the remainder & they carry **10 marks** each.

- Q1. (a) What is "Panting" of a vessel at Sea? Explain. (5 marks)  
(b) Draw Midship Section of an OBO Vessel and Label the parts. (10 marks)
- Q2. (a) With a sketch, explain "Pounding" of a Vessel at Sea. (5 marks)  
(b) Sketch a Labelled diagram of a "BALANCED RUDDER". (5 marks)
- Q3. (a) What are the role and functions of Classification Societies? Name few of the Classification Societies. (5 marks)  
(b) List the Surveys, which are required to be done for the retention of the Classification Society. (5 marks)
- Q4. (a) Explain "Painting method" for the Corrosion Control on Ships. (5 marks)  
(b) Sketch and describe "IMPRESSED CURRENT TYPE" Corrosion Control System. (5 marks)

## Part– B (Ship Stability)

Marks: 35

Note: Question No. 5 is Compulsory and Carries 15 marks.

Answer any **Two** from the remainder & they carry **10 marks** each.

- Q5. (a) Discuss, why trim of a vessel changes, while a vessel goes from water of one density to another. (5 marks)  
(b) A vessel of length 120m, displacement 8200t, FWA 16 cms, LCB=55m, LCF=59m is floating in SW at a draft of 4.35m for'd and 4.80m aft. MCTC=80. Calculate her drafts F & A on proceeding to FW. (10 marks)
- Q6. (a) Sketch "Curve of Statical Stability" of a typical Merchant ship. (5 marks)  
(b) List down informations which are found out from this curve. (5 marks)
- Q7. M. V. 'Hindship' is at an even keel draft of 9.35m in dock water of RD 1.004. Calculate her drafts F & A on reaching the Sea. Assume fuel & fresh water consumption to be negligible. (10 marks)
- Q8. Explain following :  
(a) "Document of Authorization" while loading Grain in Bulk. (5 marks)  
(b) Precautions required to be taken with respect to Ship Stability, while loading Cargo on deck. (5 marks)