

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
May-June 2018-END SEMESTER EXAMINATION
B.Sc (Nautical Science)
Semester: V
NAVAL ARCHITECTURE PAPER – V(UG21T2504)

Date:-09-07-2018
Time:- 3 Hrs

Max. Marks: 70
Pass Marks: 35

SECTION – A (SHIP CONSTRUCTION)

- Note:** i) Q. No 1 is compulsory.
ii) Thereafter, Answer any Two Questions from remaining Three, from this section.
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1. Write Short Notes on:
 - (a) Advantages of Aluminium in Ship building.
 - (b) "Annealing".
 - (c) Body Plan.
 - (d) "Prefabrication" techniques.

(2.5 marks x 4 = 10 marks)
2. Draw Midship Section of a LPG vessel and label, it's various parts.

(10 marks)
3. With the help of a neat sketch , explain all welding defects. (10 marks)
4. List different grades of steel used in ship building. Explain their properties.

(10 marks)

SECTION – B (SHIP STABILITY)

- Note:** i) Question No 5 is compulsory.
ii) Thereafter, Answer any Three Questions from remaining Four from this section.
iii) Use of M.V. Hindship Trim & Stability Particulars and non Programmable Scientific Calculator is permitted.
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5. Write Short Notes on the following:
 - (a) Simpson Second Rule.
 - (b) Stability aspects of a Ship, while loading timber as deck cargo.
 - (c) Centre of Pressure.

- (d) Bilging of a compartment .
- (e) Wall sided formula.

(2 marks x 5 = 10 marks)

6. Find the Thrust and Position of Centre of Pressure from the top of the Bulkhead in following conditions of a deep Tank (12 m high and 6 m broad), which is filled with dock Water (RD 1.015) to Soundings of
(a) 8.0 m (10 marks)

7. A box Shaped vessel 220 m long x 36 m is afloat in SW at an even keel draft of 10m KG = 12 m. An empty DB Tank 1.8 m high 20m long and 18m wide situated centrally is bilged. Find the GM before and after bilging. (10 marks)

8. Discuss the effects of Increasing Beam or Increasing Freeboard on Ship Stability – assuming Length, draft & KG remain unaltered. (10 marks)

9. M.V. 'Hindship' sails in condition No.6. On the voyage, she is expected to consume 230 tonnes of fuel from No. 3 DB tank & No.7 DB tanks. Find the amount to be consumed from each tank to arrive on an even keel. (10 marks)

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