

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)

May/ June 2017 End Semester Examinations  
Diploma in Nautical Science - Second Semester  
(From 2009 – February 2015 batches only)

**Ship Operations (UD11T1204)**

**Date : 19.06.2017**

**Maximum Marks: 70**

**Time: 2 Hrs**

**Pass Marks : 28**

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Note: Use of Non Programmable Scientific Calculators and M.V.Hindship  
Stability booklet permitted

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**Section-A**

**(30 Marks)**

Note: Question No.1 is compulsory. Attempt any two of the remaining three.  
All questions carry 10 marks each.

1. Draw a profile view of a Container ship. Label all parts.
2. Discuss in detail the stresses encountered by vessel at sea. Use suitable sketch.
3. Describe the Bilge piping system of a Cargo ship with a simple sketch.
4. Write short notes on the following: (2+2+3+3)  
(a) Hawse pipe (b) Spurling pipe (c) Strum box (d) Bitter end

**Section-B**

**(40 Marks)**

Question No.5 is compulsory. Attempt any three of the remaining Four.  
All questions carry 10 marks each.

5. A ship of W 15000t, KM 9.0m, KG 8.7m is listed 10 deg. to Port. She now loads 150t cargo 7m above the keel and 4m to starboard of the Centre line. Find the final list.

6. M.V.Hindship floating in condition No.7 discharges the entire cargo in No:2 TD and fills in the Bulbous bow with 186.6 tons of water ballast, KG 3.52m. Assuming theoretically that the deck cargo of locomotive was shifted to No:2 TD and also No:4 P & S DB tanks were slackened, increasing the FSC by 0.035m calculate the final GM (fluid) of the ship.
7. State the importance of the following conventions in Merchant shipping.  
(a) SOLAS      (b) Loadline      (c ) STCW 95      (4+3+3)
8. Write short notes on the following:  
(a) Alternators      (b) Purifiers      (c) Oily water separators      (3+3+4)
9. Explain with diagram      (3+3+4)
- a) Stable equilibrium
  - b) Unstable equilibrium
  - c) Angle of loll.

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