

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

**June 2016 End Semester Examinations**  
**B.Sc. (Nautical Science) - 2013 batch onwards**  
**Semester I**  
**Naval Architecture Paper – I**  
**(UG21T2110)**

**Date : 30.06.2016/F.N**

**Time: 3 Hrs**

**Maximum Marks: 70**

**Pass Marks : 35**

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NOTE: Attempt any SEVEN questions. All questions carry equal marks **7x10=70**

Use of Non-programmable scientific calculator is allowed. Question No. 1 is Compulsory and Answer any six from the balance.

**1** Sketch the midship section of a bulk carrier and label all the parts.

**2** A barge 45m long has a uniform transverse cross section throughout, which consists of a rectangle above a triangle. The rectangle is 8m broad and 4m high. The triangle is apex downwards, 8m broad and 3m deep. If the displacement of the barge is 1620t, find the position of its COB with reference to the keel and also with reference to the after end, if it is upright and on an even keel in Fresh Water.

**3** A vessel floats in DW RD 1.016 with her winter loadline 100mm below water on the portside and 180 mm below water on the stbdside. If her FWA is 200mm TPC is 24 and summer load draft is 9.6m find DWT available.

**4** Find the Hydro Static particulars of M.V. Hindship at a displacement of 9540t.

**5** A ship of 2000t displacement and KG3.66m loads 1500t (KG5.5m), 3500t(KG 4.6m) and takes 1520t bunkers (KG.060m). She discharges 2000t cargo (KG2.44m) and consumes 900t bunkers (KG 0.4m). Find the final KG

**6** Define following and explain their relevance in ship stability

- (a) Reserve Buoyancy
- (b) TPC
- (c) FWA

**7** A hollow plastic cylinder of 1.0 m diameter and 10 m length floats in FW at a draft of 0.2 m with its axis horizontal. Find its mass.

**8** Write short notes on the following

- (a) Duct Keels
- (b) Hutch Covers
- (c) Cargo gear

**9** Define the following (a) Sheer (b)Freeboard (c) Camber (d) Rise of floor