

Candidate's Name:

**Ports and Maritime Organization**  
**Seafarers' Examination and Documents Directorate**

**Exams Code: CMSS - 948**

**Subject : Ship Stability & Construction**

**Date :1394.11.25**

**Rank : Chief Mate (GT≥3000 )**

**Time Allowed : 3.0 Hrs**

**(Pass mark: 60)**

**Q.1) -** A vessel 120 m long with present drafts fwd= 5.00 m and aft= 6.00 m, the center of floatation amidships, is required to load to her summer load draft of 9.0 m. She has 3 empty holds with maximum capacity of 4000 tons each and ready for loading with following

**Hold No.1** LCG 110 m forward of Aft Perpendicular (AP)

**Hold No.3** LCG 60 m forward of AP

**Hold No.5** LCG 10 m forward of AP

With refer to Deadweight Scale available, **find** how much cargo to be loaded in each hold to complete loading at summer load draft with 65 cm trim by astern. **Also** calculate final drafts. **(20M)**

**Q.2) -** A box shaped vessel with length=100m, breadth=12 m is floating on even keel draft of 5.2 m in sea water and her GM = 1.5 m. **Find** the new GM if an amidships empty compartment 10m in length and extending full breadth of the vessel is bilged. **(20M)**

**Q.3) -** With the aid of suitable sketches, explain the effect of free surface of liquid inside a double bottom tank on ship's stability. **(20M)**

**Q.4) -** With the aid of sketches, describe purpose and construction of **After Peak bulkhead**. **(14M)**

**Q.5) -** Describe the open/close mechanism of a watertight doors and where these doors are placed. **(14M)**

**Q.6) -** Describe how the safe conditions of following items are examined/ checked in dry docks

a) - Shell Plating

b) - Rudder

c) - Anchors and chain cables

**(12M)**