

Candidate's Name:

Ports and Maritime Organization
Seafarers' Examination and Documents Directorate

Exams Code: CMSS - 944

Subject : Ship Stability & Construction

Date : 1394.06.08

Rank : Chief Mate (GT≥3000)

Time Allowed : 3.0 Hrs

(Pass mark: 60)

Q.1) - A vessel 120 m long with present drafts fwd= 4.50 m and aft= 5.50 m, the center of floatation is amidships and required to load to her summer load draft of 9.20 m. She has 3 empty holds with maximum capacity of 4500 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 36 cm trim by astern. **Also calculate** final drafts. (20M)

Q.2) - A box shaped vessel with length =120m, breadth =14 m is floating on even keel draft of 6.4 m in sea water and her GM = 1.2 m. **Find** the new GM if an amidships empty compartment 12m in length and extending full breadth of the vessel is bilged. (20M)

Q.3 - With the aid of suitable sketches, discuss the change in draught due to heel. (20M)

Q.4) - With the aid of sketches, explain formation of corrosion cell and describe how corrosion is prevented in ballast tanks on board a ship. (14M)

Q.5) - Describe the following;

a) - Harmonized system of ship survey and certification (6M)

b) - Condition Assessment Scheme (CAS) for oil tankers (6M)

Q.6) - With the aid of sketches explain **how** the water tightness and strength of water tight bulkheads are maintained where **longitudinals** and **pipes** have to pass through them. (14M)