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***B.Tech. Degree IV Semester Supplementary Examination in
Marine Engineering April 2021***

**MRE 1407 SHIP TECHNOLOGY
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

- I. (a) Define and mark the following parameters on the sketch of a ship (10)
- (i) LBP
 - (ii) LOA
 - (iii) Draft
 - (iv) Free board
 - (v) Forward sheer
- (b) Explain different types of sections used in construction of ships with neat sketches. (10)
- OR**
- II. (a) Explain (i) displacement weight (ii) dead weight (iii) light weight (iv) camber (v) forecastle. (10)
- (b) Explain (i) hogging (ii) sagging (iii) raking (iv) pounding (v) panting indicating the structural arrangements to resist them. (10)
- III. (a) Explain single bottom and double bottom construction of a ship. Where do you use these types of construction. (10)
- (b) Explain different strakes in bottom, sides and deck of a ship indicating their importance. (10)
- OR**
- IV. (a) What are the important water tight bulkheads. Describe the construction of collision bulkhead with a neat sketch. (10)
- (b) Discuss various framing systems used in ships. What is the basis of selection of a particular system in a ship. How does the frame spacing influence the scantlings. (10)
- V. Neatly sketch the mid ship section of a bulk carrier indicating all stiffeners and strakes. (20)
- OR**
- VI. Neatly sketch the mid ship section of a modern tanker indicating all stiffeners and strakes. (20)
- VII. (a) Explain type A and type B ships. (5)
- (b) Prepare the load line markings for a ship having summer draft = 10 m and FWA = 300 mm. Show the calculations. (15)
- OR**
- VIII. (a) Explain Gross Tonnage and Net Tonnage. How do you calculate GT and NT for a ship as per the IMO 1969 convention. (10)
- (b) Calculate GT and NT for a ship having $V = 150000 \text{ m}^3$ and $V_c = 80000 \text{ m}^3$. Draft = 12 m and depth = 16 m. (10)
- IX. (a) What are the functions and features of a drilling vessel. (10)
- (b) Explain (i) dynamic positioning (ii) deep sea diving system (10)
- OR**
- X. (a) What are the functions of a classification society? Explain surveys conducted during construction and during service. (10)
- (b) Explain main feature of MARPOL regulations. What are IBC and IGC code. (10)