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***B.Tech. Degree IV Semester Supplementary Examination in  
Marine Engineering June 2022***

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

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Define six important dimensions of a ship with the help of neat sketches. (10)  
 (b) Explain different types of sections used in construction of ships with neat sketches. (10)
- OR**
- II. (a) Explain (i) hogging (ii) sagging (iii) raking (iv) pounding (v) panting indicating the structural arrangements to resist them. (10)  
 (b) Explain (i) displacement weight (ii) dead weight (iii) light weight (iv) camber (v) forecastle. (10)
- III. (a) Explain single bottom and double bottom construction of a ship with suitable examples. (10)  
 (b) Explain the different strakes in bottom, sides and deck of a ship indicating their importance. (10)
- OR**
- IV. (a) What are water tight bulkheads and why is it important to a ship? 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? (10)
- V. Neatly sketch the mid ship section of an oil tanker indicating all stiffeners and strakes. (20)
- OR**
- VI. Neatly sketch the mid ship section of a bulk carrier indicating all stiffeners and strakes. (20)
- VII. (a) What is freeboard explain with a sketch? Explain type A and type B ships. (10)  
 (b) Prepare the plimsoll markings for a ship having summer draft = 12 m and FWA = 400 mm. Show the calculations. (10)
- 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  $V = 160000 \text{ m}^3$ ,  $V_c = 90000 \text{ m}^3$ , draft = 12 m and depth = 16 m. (10)
- IX. (a) What are the functions and features of a drill ship? (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 features of MARPOL regulations. What are IBC and IGC code? (10)