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***B.Tech. Degree IV Semester Supplementary Examination in  
Marine Engineering June 2023***

**MRE 1406 SEAMANSHIP AND NAVIGATION  
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) What is the topmost deck of a ship known as and what are the important fittings on that deck? (10)
- b) Write short notes on: (10)
- (i) Lookout duties at sea.
  - (ii) Morse code.
  - (iii) Courtesy flag.
  - (iv) Collision bulkhead.
  - (v) Chain register.

OR

- II. (a) Who allocates the day to day work in the engine room and what are the watch keeping timings for the engineers on board? (10)
- (b) Briefly explain the requirements concerning navigational lights on board a power driven vessel of length 200 m with sketches for horizontal sectors of visibility. (10)
- III. (a) With a neat diagram label the various parts of an anchor, explain the circumstances for a vessel requiring to anchor and state the precautions to be exercised while at anchor. (12)
- (b) Explain the use of the following: (8)
- (i) Chain locker.
  - (ii) Windlass / Gypsy.
  - (iii) Hawse pipe.
  - (iv) Bitter End.

OR

- IV. (a) What factors are taken into consideration by the master while proceeding for anchoring at a place? Discuss regarding the scope of anchor chain cable to be paid out based on the depth and type of seabed and holding power of different types of anchors. (12)
- (b) Write short notes on the uses of: (8)
- (i) Overhand knot
  - (ii) Sheep shank
  - (iii) Timber hitch
  - (iv) Bowline on the bite

- V. Briefly explain the working principle of the following navigation equipment with suitable sketches. (20)
- (i) Barometer
  - (ii) Gyro compass
  - (iii) GPS
  - (iv) Radar
  - (v) AIS

OR

(P.T.O.)

- VI. (a) Explain with diagram wherever required: (10)  
(i) GHA.  
(ii) Greenwich meridian.  
(iii) Equinoctial.  
(iv) Position line.  
(v) Declination.  
(b) How can you determine the position of our vessel with a lighthouse? What is the relevance of Polaris? (10)
- VII. (a) Name five life raft equipment. (5)  
(b) What are the marking found on a life boat? (5)  
(c) Explain the procedure for lowering life raft at sea. (10)
- OR**
- VIII. (a) What material is used to manufacture a life boat? (5)  
(b) What is hypothermia? (5)  
(c) Prepare a lifeboat muster list with duties assigned for ship with 2 life boats and a crew of 20 persons. (10)
- IX. (a) What is MARPOL 73/78? (5)  
(b) List the various annexes under MARPOL 73/78 and their date of enforcement. (5)  
(c) What is the criteria for discharge of oil from machinery spaces of a tanker under Annex 1 of MARPOL 73/78? (10)
- OR**
- X. (a) Explain the discharge criteria of oil originating from cargo spaces, inside as well as outside special areas as per Annex 1 of MARPOL 73/78. (10)  
(b) What entries are to be made in Garbage Record Book as per Annex V of MARPOL 73/78? (10)

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