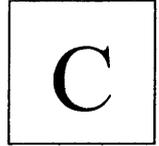


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***B.Tech. Degree IV Semester Supplementary Examination in
Marine Engineering June 2015***

MRE 406 SEAMANSHIP AND NAVIGATION

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. Briefly layout the organization and hierarchy of shipboard staff detailing various departments, ranks, individual duties and responsibilities. (20)

OR

- II. Briefly explain the following requirements concerning navigational lights on board a power driven vessel of length 200 m with sketches where necessary: (20)
- (i) horizontal sectors of visibility
 - (ii) horizontal positioning and spacing
 - (iii) vertical positioning and spacing

- III. What are the different categories of ropes used onboard vessels based on the material of manufacture and type of lay? Please discuss regarding their comparative strengths also. (20)

OR

- IV. Please describe the following terms associated with anchor, with sketches where necessary: (20)
- (i) anchor chain, kenter shackle and bitter end
 - (ii) windlass and gypsy
 - (iii) hawse pipe, bow stopper/guillotine bar and chain locker
 - (iv) patent stockless anchor with its parts labeled.

- V. Briefly explain the working principle of the following navigational equipment with suitable sketches: (20)
- (i) GPS navigator
 - (ii) gyro compass
 - (iii) sextant
 - (iv) radar
 - (v) echo sounder

OR

- VI. (a) What do you understand by the following terms associated with time? (10)
- (i) Zone time
 - (ii) UTC
 - (iii) GMT
 - (iv) Standard time
 - (v) International date line
- (b) Explain how the time is managed on board a vessel going on an easterly course from longitude 090 deg E to 150 deg W. (10)

(P.T.O.)

- VII. Briefly describe the SOLAS requirements regarding the following: (20)
- (i) abandon ship and fire drills
 - (ii) on board training and instructions
 - (iii) weekly and monthly inspection of LSA
- OR**
- VIII. Describe the following requirements on cargo ships as per various regulations of SOLAS chapter III: (20)
- (i) personal LSA
 - (ii) training manual and its contents
 - (iii) mandatory pyrotechniques which need to be carried
- IX. (a) Briefly describe the launching procedures of: (10)
- (i) free fall life boat
 - (ii) inflatable life raft without davit
- (b) List out the equipments which you will find on a life boat of a ship engaged in international voyage. (10)
- OR**
- X. (a) Briefly discuss the various Annexes of MARPOL 73/78. (9)
- (b) Explain the discharge criteria of oil originating from machinery spaces inside as well as outside special areas as per annex I of MARPOL 73/78. Also mention the related entries in the ORB. (5)
- (c) Explain the emission control measures in place as per Annex VI of MARPOL 73/78. What do you understand by the term "SOx Emission control area"? (6)
