BT-MRE-VI-06.16 -0825 Reg. No. | | | | | | | | |

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B.Tech. Degree VI Semester Examination in Marine Engineering June 2016

MRE 1602 MARINE ELECTRICAL TECHNOLOGY

Time: 3 Hours Maximum Marks: 100

(5 × 20 = 100)

I. (a) Electrical apparatus manufactured primarily on land is not suitable for installation in a marine environment. Why? (8)

(b) What are the rules and regulations to be followed for the design, installation, operation and maintenance of electrical equipment on-board? (12)

OR

II. (a) Draw and explain the system diagram of a typical electrical distribution system on-board a ship. (10)

(b) Draw and explain a Brushless Alternator with AVR control (10)

III. (a) Sketch and explain a typical emergency switchboard arrangement on-board indicating different loads. (10)

(b) What is insulated neutral and earthed neutral system? Which system is prevalent on-board ships and why? (10)

OR

IV. (a) Explain the main parts and working of a three phase induction motor. (14)

(b) Write notes on motor enclosures and IP number. (6)

V. (a) State the requirements, regulations and circuit of navigation lights on board a ship. (10)

(b) Explain control of winches/windlass on board a ship with a circuit diagram. (10)

OR

VI. Write short notes on ***any four***: (20)

(i) Engine order telegraph
(ii) Water tight door operation
(iii) Rudder angle indicator
(iv) Salinometer
(v) Oxygen analyzer

VII. (a) Explain the different types of maintenance procedures followed onboard. (10)

(b) Write notes on multimeters and meggers. (10)

OR

VIII. (a) What are the precautions to be taken against electric shocks and related hazards? (10)

(b) Describe periodic survey requirements for the following onboard: (10)

(i) Alternators (ii) ACB

IX. (a) Explain DC and AC diesel electric propulsion system. (14)

(b) How are tankers classified? Explain. (6)

OR

X. (a) What are the hazardous areas in a ship and which type of Ex protected equipment must be used in each area? (10)

(b) List the various types of explosion protected equipment and explain each. (10)

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