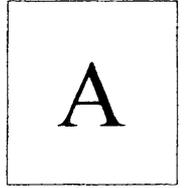


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***B. Tech. Degree VI Semester Examination in
Marine Engineering June 2015***

MRE 602 MARINE ELECTRICAL TECHNOLOGY

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Draw and explain a brushless alternator system and explain how it is different from conventional type. (10)
 (b) Differentiate between error operated and functional type AVR. (10)
- OR**
- II. (a) Draw the diagram and explain the procedure for giving shore power supply to the ship specifying the requirements. (12)
 (b) Explain the dangers associated with giving 60Hz shore supply to a 50Hz ship's system. (8)
- III. (a) Explain the safety devices and protections incorporated in MSB for the protection of main generators indicating why such protections are given. (10)
 (b) Sketch an ACB used onboard and explain how the arc is controlled. (10)
- OR**
- IV. (a) Differentiate between insulated and earthed neutral system and system followed in tankers indicating reasons. (12)
 (b) State different types of AC/DC motors used onboard indicating their applications. (8)
- V. (a) With reference to power operated watertight doors that employ electromechanical means for their operation. (10)
 (i) Show with the aid of a sketch how the doors are operated normally from local position.
 (ii) Show how the doors may be opened on power failure.
 (iii) State with reasons, the type of motors that may be used for such duty.
 (b) Explain how high and low level alarms are monitored in tanks. (10)
- OR**
- VI. (a) Sketch and explain a navigation light indicator panel on board with regulations and requirements. (10)
 (b) Sketch and describe a typical windlass/capstan control with built in overload protection and E/M brake. (10)
- VII. (a) List and explain the routine maintenance required on main generator. (12)
 (b) Explain the dangers associated in the vicinity of the bus bars. (8)
- OR**
- VIII. (a) Explain different maintenance systems followed on board indicating which type is best suited on board the ship. (10)
 (b) List and explain briefly the safety survey requirements on board. (10)
- IX. Draw and explain a typical diesel electric propulsion system using synchronous motor as propulsion motor and how the speed and direction of rotation are changed and its advantages over induction motor. (20)
- OR**
- X. (a) Explain special requirements for tankers with regard to electrical installations. (10)
 (b) How are testing and maintenance of electrical equipments in hazardous areas carried out? (10)