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***B.Tech. Degree VI Semester Examination in
Marine Engineering June 2014***

MRE 602 MARINE ELECTRICAL TECHNOLOGY

Time : 3 Hours

Maximum Marks :100

(All questions carry *EQUAL* marks)

(5 x 20 =100)

- I. (a) Describe the rules and regulations governing electrical machines on ships. (10)
 (b) Explain static method of alternator excitation in ships, with neat diagrams. What are its advantages over other methods? (10)
- OR**
- II. (a) Describe a brushless alternator, with a neat sketch. (10)
 (b) Write notes on: (i) Emergency batteries in ships (ii) shore supply (10)
- III. (a) Sketch a 440V MSB and explain the important consoles. (10)
 (b) Explain the high voltage distribution system in ships, with diagrams. (10)
- OR**
- IV. (a) Explain insulated and earthed neutral systems. Why is insulated neutral system preferred in ships? Explain. (10)
 (b) Explain different types of enclosures and protective devices for motors. (10)
- V. (a) State the requirements and regulations of navigational lights in ships. (10)
 (b) What are the general requirements of a fire alarm and detection system? (10)
- OR**
- VI. Explain: (20)
 (i) Engine room telegraph
 (ii) Rudder angle indicator
 (iii) Salino meter
- VII. (a) What are the different types of faults that may occur in a distribution system? (10)
 (b) Enumerate the different survey requirements on onboard electrical installation. (10)
- OR**
- VIII. (a) What are the precautions to be taken against electric shock and related hazards? (10)
 (b) Describe periodic survey requirements in (i) Steering gear (ii) Emergency power suppliers. (10)
- IX. (a) Describe a typical diesel electric propulsion system indicating the advantages. (10)
 (b) Explain a typical all-electric steering gear specifying the regulation requirements. (10)
- OR**
- X. (a) Identify the hazardous areas on a ship and describe the type of equipment installed in each location. (10)
 (b) What is 'Ex' protection? Explain the various types of explosion proof equipments. (10)