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***B.Tech. Degree VI Semester Regular/Supplementary Examination in  
Marine Engineering April 2021***

**MRE 1602 MARINE ELECTRICAL TECHNOLOGY  
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Explain the need for using specialized electrical equipment onboard ships. (8)  
(b) Briefly explain the SOLAS regulations governing electrical machineries on boardships. (12)

OR

- II. (a) Describe a typical static excitation compounded system. State its advantages over other systems. (10)  
(b) Draw and explain the working of static AVR onboard ships. (10)

- III. (a) Sketch and explain a typical 440V MSB on-board indicating different loads. (10)  
(b) Explain the protection methods to be adopted while working with HV installations. (10)

OR

- IV. (a) What is the necessity of a starter for induction motors? List the different types of induction motor starters and explain any one type in detail. (12)  
(b) Write notes on motor enclosures and IP number. (8)

- 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: (i) Engine order telegraph (ii) Water tight door operation (iii) Rudder angle indicator (iv) Salinometer (v) Oxygen Analyzer. (20)

- VII. (a) Describe the method to salvage a motor affected by sea water. (10)  
(b) What is breakdown maintenance? Give its advantages and disadvantages. (10)

OR

- VIII. (a) What are the precautions to be taken against electric shocks and related hazards? (10)  
(b) Describe an instrument used for measuring electrical insulation resistance and explain how is it used to measure the insulation resistance of star connected induction motor. (10)

- IX. (a) Compare the use of induction motors and synchronous motors in propulsion systems. (10)  
(b) Explain a typical AC turbo electric propulsion system. (10)

OR

- X. (a) What are the types of tankers with respect to electrical safety? What are hazardous zones? (10)  
(b) What is meant by EX protection? Explain. (10)