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***B.Tech. Degree VI Semester Supplementary Examination in
Marine Engineering June 2022***

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

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Explain with diagram the construction and working of Brushless generator. (10)
(b) With neat diagram explain the working of static automatic voltage regulator. (10)
- OR**
- II. (a) Describe a typical emergency power source on board stating its requirements and the loads fed by them. (10)
(b) With the help of a diagram explain the procedure for giving shore power supply to the ship specifying the requirements. (10)
- III. (a) With a simple sketch, explain the layout of a main switch board. (8)
(b) Explain the star-delta and soft starting of three phase induction motor. (6)
(c) Sketch an Air circuit breaker used on-board and explain how arc is controlled. (6)
- OR**
- IV. (a) Describe the different types of enclosures for motors. (5)
(b) Differentiate between earthed neutral system and insulated neutral system. Explain which system is preferred on board for low voltage and high voltage system with reason. (15)
- V. (a) Explain a navigation light indicator panel on board with regulations and requirements with neat sketch. (10)
(b) Draw and explain the portable oxygen analyser. (10)
- OR**
- VI. (a) Explain the working of a salinometer with a diagram. (10)
(b) Write short note on water tight door operation with relevant figures. (10)
- VII. (a) What are the different types of faults that may occur in a distribution system? (10)
(b) Write short notes on multimeters and insulation testers. (10)
- OR**
- VIII. (a) List and explain briefly the safety survey requirements on-board. (10)
(b) Explain the precautions to be taken to prevent fire and shock hazard. (10)
- IX. (a) Describe and draw one type of electric propulsion system bringing out its advantages. (10)
(b) Explain a typical all-electric steering gear specifying the regulation requirements. (10)
- OR**
- X. (a) Explain how electrical system is designed to meet the requirements according to different types of tankers. (10)
(b) List the various types of explosion protected equipment and explain each. (10)