

***B.Tech Degree VI Semester Examination in Marine Engineering
May 2012***

MRE 602 MARINE ELECTRICAL TECHNOLOGY

Time : 3 Hours

Maximum Marks : 100

(5 x 20 = 100)

- I. (a) Explain the different alternator excitation methods.
(b) Draw the circuit of a thyristor-based static AVR and explain its operation.
- OR**
- II. (a) Sketch and describe a Brushless Alternator.
(b) What are the requirements of emergency generators and emergency batteries on board the ship?
- III. (a) Explain different types of AC distribution in ships.
(b) Sketch a typical emergency switch board arrangement indicating the different loads.
- OR**
- IV. (a) What is the significance of earth faults in an earthed neutral system? Explain with suitable diagrams.
(b) Explain the working of a 3ϕ induction motor.
- V. (a) Explain control of winches/windlass on board a ship with a circuit diagram.
(b) Draw and explain the portable oxygen-analyser.
- OR**
- VI. Explain: (i) Engine order telegraph
(ii) Water tight door operation
(iii) Navigational lights.
- VII. (a) Explain different types of faults that may occur in an alternator.
(b) What are the precautions to be taken before work on an electric system is started?
- OR**
- VIII. (a) Explain how an earth fault in a deck light fitting is detected and rectified.
(b) Write a short note on megger.
- IX. (a) Write short note on diesel electric and turbo electric propulsion systems.
(b) What are the types of tankers with respect to electrical safety? What are dangerous zones?
- OR**
- X. (a) What is meant by 'Ex' protection? Explain briefly.
(b) Which are the hazardous areas on a ship and what type of equipment should be installed in each location?