

**Indian Maritime University**  
(A Central University, Govt. Of India)  
**End Semester Examination Dec-2019/Jan-2020**  
**B. Tech(Marine Engineering)**  
Semester -VI  
**MARINE ELECTRICAL TECHNOLOGY**  
**UG11T1603/2603**

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Date:04-01-2020

Max Marks: **70**

Time: 3 Hrs

Pass Marks: **35**

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**Part – A (compulsory)**

**Answer the following (10x2=20 Marks)**

1. Name the power generation and distribution systems that are applicable to all tankers.
2. What must be the period of emergency supply for the following loads in Merchant Ships as per rule:
  - (i) Lighting
  - (ii) Steering Gear and Propulsion Equipment
3. Draw the block diagram of self-excitation system in Alternator.
4. What are the advantages of an isolated neutral system during an earth fault?
5. What are the prime functions of a circuit breaker?
6. What is I.P. (ingress protection) code with regard to motor enclosure?
7. Which type of propulsion is preferred in large passenger liners and in smaller vessels?
8. What are the requirements of a typical fire detection system?
9. Draw the power and control circuit of direct- on-line starter of three phase motor.
10. Enumerate steps to be taken against electrical shocks and related hazards.

**Part – B**

**Answer any 5 out of 7 questions (5 x 10= 50 marks)**

11. Draw and explain the Transformer-based static excitation system with a neat schematic.
12. Discuss in detail the function and working of the megger.
13. Give the general distribution scheme onboard a ship and discuss.
14. What is Neutral Grounding Resistor (NGR)? Explain. For a 3.3 kV alternator of 1 MW capacity operated at a power factor of 0.8 lagging, find the value of NGR.
15. Draw the diagram of SF<sub>6</sub> circuit breaker and explain its working
16. With a neat schematic explain the speed control method employed in ship propulsion using cycloconverter.
17. Discuss the measurement of impurity of water using Salinometer. Use a neat sketch.