

**Indian Maritime University**  
(A Central University, Govt of India)  
**End Semester Examinations- June-July 2019**  
**B.Tech ( Marine Engineering)**  
**Semester – VI**  
**MARINE ELECTRICAL TECHNOLOGY**  
**(UG11T2603)**

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**Duration: 3 Hrs**  
**Date:28-6-2019**

**Max Marks: 100**  
**Pass Marks: 50**

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**PART - A**

**(10 × 3 = 30 Marks)**

**(Answer all the Questions)**

1. (a) Write the advantages of AC power distribution system over the DC system.
- (b) What are the indications of a fully charged lead acid battery?
- (c) Why is an Insulated Neutral System preferred on board ships?
- (d) What do you understand by IP (Ingress Protection) Code, pertaining to motor enclosures?
- (e) Write a short note on Engine Room Telegraph?
- (f) Write five preventive steps taken before attending to electrical fault finding & repairs.
- (g) List out the advantages of Azipod system over the conventional system of Electric Propulsion for ships.
- (h) What is intrinsically safe circuit? Where are these circuits used on tanker?
- (i) State the points to be observed before carrying out a safe watch-keeping.
- (j) List out the advantages of using High Voltage onboard ships.

**PART - B**

**(5 × 14 = 70 Marks)**

**(Answer any five Questions)**

2. (a) With the help of a block diagram, explain the working of a thyristor-based electronic automatic voltage regulator. (10)
- (b) Static Excitation system for Generators is more efficient than the Rotary Excitation. Justify. (4)
3. (a) With a neat diagram explain the method of supplying emergency power onboard a ship. (7)
- (b) What is the difference between Arc flash & Arc blast? (7)

4. (a) Draw a neat Single-line diagram of a typical Low Voltage Ship's Electrical Distribution System, highlighting all Switch-gears and Protection features. (7)
- (b) With the help of neat sketches, explain the Radial and Ring-main Distribution Systems of electrical power. (7)
5. (a) List out various protections provided for shipboard motors. Draw & explain the working of a Thermal Overload Relay used for motor protection. (7)
- (b) Draw the zener-barrier circuit which is subjected to an over voltage at the input and explain the function of its components. (7)
6. (a) With the help of a neat sketch, explain the working of a Rudder Angle Indicator. (6)
- (b) With a neat circuit diagram, explain the working of an Electrical Salinometer? If temperature of the condenser increases from 25°C to 40°C due to rise in sea water temperature, what will be its effect? How the errors will be taken care of? Explain briefly. (8)
7. (a) A squirrel cage induction motor got flooded with sea water. When measured, the insulation resistance was found to be 200Ω. What will you do in order to put back the motor into service? (7)
- (b) Describe the Causes of Electrical Faults and the Fault Limiting Devices to protect the electrical equipment. (7)
8. a) Explain about Electro-Hydraulic steering gear systems with neat diagrams? (7)
- b) What are Azipods? What are their advantages in shipping? (7)

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