INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

May/ June 2017 End Semester Examinations

B.Tech. (Marine Engineering) Sixth Semester

(AY 2009-2014 batches)

Marine Electrical Technology (UG11T1603/ UG11T2603)

Date : 16.06.2017 Maximum Marks: 100

Time: 3 Hrs Pass Marks : 50

PART A **(10 × 3 = 30 Marks)**

Answer all the Questions

1. (a) Discuss the merits of using AC system on board.

   (b) State any three SOLAS Regulations as applied to Electrical Installations on board.

   (c) List down various starting methods employed for AC Induction motors?

   (d) What is the significance of Ladder diagrams in the ship-board controls?

   (e) What do you understand by the code '**IP**' related to an Induction Motor?

   (f) Categorize Navigational lights on board?

   (g) Write 5 precautions **(Don'ts)** taken before attending to Electrical fault finding & repairs.

   (h) Write the maintanance requirements for a Motor Starter panel.

   (i) How an Earth Fault is caused on board?

   (j) A 500/1000V Megger is not used to check IR value of High Voltage system. Why?

PART B (5 × 14 = 70 Marks)

Answer any five from the following

2. (a) State the advantages of Brushless Excitation on board (5 Marks)

(b) A ship Alternator of 1500kW, 1500 RPM, 440V, 60Hz is delivering power to various services. It is seen that its speed got reduced to 1480 rpm & voltage to 420V. Sketch the system which will keepthe Voltage & speed to the rated value. (9 Marks)

3. (a) What are the precautions normally adopted while taking Shore supply? (7 Marks)

(b) Discuss the maintenance checks on Batteries & Battery rooms (7 Marks)

4. Draw a neat Single Line Diagram of a typical Low Voltage ship's Electrical distribution system, marking all Equipments, Switch-gears, Transformers, Services & safety components. (14 Marks)

5. a) Explain with a working example, what is Sequential Starting. (7 Marks)

b) Explain with a neat sketch the working of an Oxygen Analyzer. (7 Marks)

6. (a) Describe the salvaging process of an Induction Motor. (7 Marks)

(b) Describe the survey requirements of a Main Generator. (7 Marks)

7. (a) Discuss the Hazardous zones in Tanker vessels. Describe the types of Electrical Equipments/circuits used in Hazardous ships

(7 Marks)

(b) Write a short note on any one type of Diesel Electric Propulsion with a neat sketch.

(7 Marks)

8. (a) Describe the steps adopted for Firefighting when there is an occurrence of Fire due to Electrical origin.

(7 Marks)

(b) Discuss the difference in design features of High Voltage Installations compared to Low Voltage installations

(7 Marks)

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