

# CBCS SCHEME

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## Sixth Semester B.E. Degree Examination, June/July 2024 Marine Electrical Technology

Time: 3 hrs.

Max. Marks: 100

**Note:** Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. What are the do's and don'ts of Electrical Safety on board ships? (10 Marks)  
b. List the typical essential services that must be supplied simultaneously from the emergency source of power. (10 Marks)

OR

- 2 a. Draw a system diagram of a typical electrical distribution system showing 3 main generators, emergency generators, shore supply, 440V supply, 220V supply, circuit breakers and transformers. (10 Marks)  
b. What are the different types of explosion protection employed in preventing electrical equipment causing explosions in hazardous areas on tankers? Explain any one in detail. (10 Marks)

### Module-2

- 3 a. Draw and explain insulated and earthed neutral system – single and 3 phased. Explain why are certain ships electrically insulated. (10 Marks)  
b. How is an earth insulated system more effective than an earth system in maintaining continuity of supply to essential services? Explain with a neat diagram. (10 Marks)

OR

- 4 a. Draw and explain a Neutral earthing system in a High Voltage Slip. (10 Marks)  
b. What are the two types of earth fault indicating equipment available on board ships? Explain the working of one with the help of a neat diagram. (10 Marks)

### Module-3

- 5 a. Explain the procedure of insulation testing of a Motor with the help of a neat diagram. (10 Marks)  
b. Explain the parts and working of a general service incandescent lamp with the help of a neat diagram. (10 Marks)

OR

- 6 a. Explain the working of a ionization smoke detector, with a neat sketch. (10 Marks)  
b. Explain the working of a light scattering smoke detector with a neat sketch. (10 Marks)

### Module-4

- 7 a. Explain the working of electrical propulsion system. List its advantages and disadvantages. (10 Marks)  
b. With the help of a neat sketch, explain a two ram electrically controlled, hydraulically operated steering system. (10 Marks)

OR

- 8 a. Explain Water Jet propulsion systems. What are its advantages and disadvantages? (10 Marks)
- b. Explain with the help of a neat sketch, SIMAR drive cycle – The drive with the cyclo converter. (10 Marks)

**Module-5**

- 9 a. Explain the 4 stages of the operation of a lead acid battery with the help of a neat sketch. (15 Marks)
- b. What are the indications that a lead acid battery is fully charged? (05 Marks)

**OR**

- 10 a. Explain with the help of a diagram, the working of an Alkaline cell. (10 Marks)
- b. What are the advantages and disadvantages of lead acid batteries over alkaline batteries? (10 Marks)

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