B.Tech. Degree VI Semester Examination in Marine Engineering May 2018

MRE 1602 MARINE ELECTRICAL TECHNOLOGY
(2013 Scheme)

Time: 3 Hours   Maximum Marks: 100

($5 \times 20 = 100$)

I.	(a)	Sketch and describe a brushless generator with AVR control.	(10)
	(b)	Explain the rule and regulations governing electrical machineries on ships.	(10)

OR

II.	(a)	Explain the different types of emergency batteries with constructional details.	(10)
	(b)	What are the procedures for giving shore power supply to the ship by specifying the requirements? Also draw the necessary diagrams.	(10)

III.	(a)	Describe a typical high voltage generation and distribution system on board.	(10)
	(b)	Explain insulated and earthed neutral systems. Among these, which is preferred in ships and why?	(10)

OR

IV.	(a)	Explain the different protective methods on induction motors.	(10)
	(b)	Explain the difference between the following motor enclosures.	(10)

      (i) Drip proof.   (ii) Totally enclosed.
      (iii) Deck water tight.   (iv) Flame proof.

V.	(a)	Explain how high and low level alarms are monitored in tanks.	(10)
	(b)	Draw and explain the portable oxygen analyzer.	(10)

OR

VI.	Write short notes on:	(20)

      (i) RPM and revolution counter
      (ii) Centralized salinity indicator
      (iii) Navigation lights.

VII.	(a)	Explain different types of faults that may occur in an alternator.	(10)
	(b)	Describe one method of salvaging a motor affected by seawater.	(10)

OR

VIII.	(a)	Explain the microprocessor control and maintenance of electrical fire fighting.	(10)
	(b)	Sketch and describe an instrument used for measuring electrical insulation resistance and explain how it is used to measure the insulation resistance of star connected system.	(10)

IX.	Draw and explain a typical diesel electric propulsion system using synchronous motor as propulsion motor and how the speed and direction of rotation are changed. Also mention its advantages over induction motor.	(20)

OR

X.	(a)	What are the hazardous areas in ships? What type of equipment should be installed in each location?	(10)
	(b)	What is meant by 'Ex' protection? Explain briefly.	(10)

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