BT-MRE-VI(S)-06.16.0818 Reg. No. | | | | | | | | |

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B.Tech. Degree VI Semester Supplementary Examination in Marine Engineering June 2016

MRE 602 MARINE ELECTRICAL TECHNOLOGY

Time: 3 Hours Maximum Marks: 100

(5 × 20 = 100)

I. (a) Differentiate between static and rotory excitation system used on board. Which type is best suited where heavy and frequent load surges arise? (10)

(b) Name main components in AVR and explain how it is used to regulate output voltage of an alternator. (10)

OR

II. (a) Explain rules, regulations and requirements of emergency batteries. (10)

(b) What are the dangers associated with giving 60 Hz supply to 50 Hz ship's system? (4)

(c) Give a procedure for giving shore power to the ship indicating precaution taken. (6)

III. (a) Name different types of faults that occur in the ships' distribution system. (3)

(b) Describe why protection devices are essential in an electrical distribution system. (6)

(c) Differentiate between earthed neutral system and insulated neutral system and explain which system is preferred on board with reasons. (11)

OR

IV. (a) Describe a main switch board on board and explain the safety measures incorporated. (10)

(b) Name different types of starters used for induction motors used on board. (4)

(c) Draw the circuit diagram of a star delta starter with its advantages. (6)

V. Explain the following with diagrams.

(i) Engine order telegraph. (7)

(ii) Water tight door operation (7)

(iii) High and low level alarms. (6)

OR

VI. (a) Explain rules and regulations for providing navigational light on board. Describe a navigation light indicator panel in wheel house. (10)

(b) Draw and explain typical circuit diagram of ship's windlass/capstan control. (10)

VII. (a) Draw and explain a circuit diagram of a megger and explain how it is used to find the insulation resistance of a motor. (10)

(b) Describe the survey requirements for the following. (10)

(i) Circuit breaker

(ii) Generators and governors

(iii) Parts of steering gear

OR

(P.T.O.)

VIII.	(a)	Explain the maintenance and precautions taken to prevent fire and explosion hazard on board.	(10)
	(b)	Explain the maintenance done on a motor contaminated with sea water.	(10)
IX.	(a)	Describe advantages of electric propulsion over conventional system.	(6)
	(b)	Describe with diagram a diesel electric propulsion system and state how speed and direction of rotation are controlled.	(14)

OR

X.	(a)	Explain what is meant by Ex-protection.	(2)
	(b)	Explain how electrical system is designed to meet the requirements according to different types of tankers, hazardous gases, types of equipments and temperature class.	(12)
	(c)	Explain how testing is carried out in hazardous areas.	(6)

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