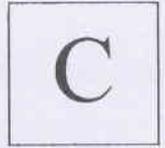


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B.Tech. Degree VI Semester Regular/Supplementary Examination in Marine Engineering June 2023

**19-208-0602 MARINE ELECTRICAL TECHNOLOGY
(2019 Scheme)**

Time: 3 Hours

Maximum Marks: 60

Course Outcome

On successful completion of the course, the students will be able to:

- CO1: Understand the electrical power generation, emergency power and associated controls.
 CO2: Understand the electrical power distribution system on ship and protective devices for machines and motor controls.
 CO3: Acquire knowledge about high voltage system.
 CO4: Illustrate the maintenance and operation of electrical machines and equipments on a ship.
 CO5: Identify various faults in electrical system on ship and acquire knowledge of instruments for fault finding and preventive maintenance.

Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 – Analyze,
 L5 – Evaluate, L6 – Create

PI – Programme Indicators

(Answer *ALL* questions)

(5 × 15 = 75)

		Marks	BL	CO	PI
I.	(a) Describe a brushless alternator system with a diagram and explain how the voltage is regulated through AVR.	8	L2	1	1.4.1
	(b) Explain the rules and regulations governing electrical machinery on board the ships.	7	L1	1	1.4.1
OR					
II.	(a) Describe the procedure for giving shore power supply to the ship stating necessary precautions to be taken.	8	L1	1	1.4.1
	(b) What are the requirements for emergency generators and emergency batteries on board the ship?	7	L1	1	1.4.1
III.	(a) Sketch a typical emergency switchboard arrangement indicating the different loads.	5	L2	2	1.4.1
	(b) Explain different types of AC distribution in ships.	10	L1	2	1.4.1
OR					
IV.	Explain the main parts and working of three-phase induction motors.	15	L1	2	1.4.1
V.	Explain the following with diagrams:	15	L2	3	3.1.1
	(i) Engine order telegraph				
	(ii) Watertight door operation				
	(iii) High and low-level alarms.				
OR					
VI.	Draw and explain a typical circuit diagram of the ship's windlass/capstan control.	15	L2	3	3.2.1

(P.T.O)

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		Marks	BL	CO	PI
VII.	(a) Explain the different types of maintenance procedures followed onboard.	10	L2	4	1.4.1
	(b) Write a short note on Multimeter.	5	L2	4	4.1.3
OR					
VIII.	Describe the survey requirements of the following:	15	L2	4	1.4.1
	(i) Circuit breaker				
	(ii) Generators and governors				
	(iii) Parts of steering gear.				
IX.	Explain DC and AC diesel-electric propulsion systems.	15	L2	5	1.4.1
OR					
X.	List and explain various types of explosion-protected equipment.	15	L2	5	4.1.3

Blooms's Taxonomy Levels

L1 – 31.33%, L2 – 68.67%.
