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CBCS SCHEME

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BCHEE102/202

First/Second Semester B.E./B.Tech. Degree Examination,June/July 2026
Chemistry for EEE Stream

Time: 3 hrs. Max. Marks: 100

Note: 1. ***Answer any FIVE full questions, choosing ONE full question from each module.***
2. ***M : Marks , L: Bloom's level , C: Course outcomes.***
3. ***VTU Formula Hand Book is permitted.***

		Module – 1	M	L	C
Q.1	a.	What are conducting polymers? Explain the mechanism of conduction in polycetylene.	7	L1	CO2
	b.	Define the term electroless plating. Explain the electroless plating of copper.	7	L1	CO1
	c.	Explain the production of electronic grade silicon by Czochralski process.	6	L1	CO2
		OR			
Q.2	a.	Explain the preparation of graphene oxide and mention their properties and applications.	7	L2	CO1
	b.	Calculate the number average and weight average molecular weight of the following 5 molecules having 1000 molecular weight, 7 molecules having 1500 molecular weight and 9 molecules having 2000 molecular weight.	7	L3	CO2
	c.	Explain the production of electronic grade silicon by Float Zone Method.	6	L2	CO1
		Module – 2			
Q.3	a.	What are Batteries? Explain the construction and working of sodium ion battery?	7	L2	CO1
	b.	What are Fuel cells? Explain the construction and working of methanol-oxygen fuel cell.	7	L2	CO2
	c.	List out any three advantages and disadvantages of solar PV cells.	6	L2	CO1
		OR			
Q.4	a.	What are PV cells? Explain the construction and working of solar PV cells.	7	L2	CO1
	b.	What are Batteries? Explian the classification of batteries with an example.	7	L2	CO1
	c.	Explain the construction and working of Vanadium Redox Flow Battery.	6	L2	CO1
		Module – 3			
Q.5	a.	Define the term corrosion. Explain the electrochemical theory of corrosion with respect to iron.	7	L2	CO1
	b.	What is meant by differential aeration corrosion? Explain water line corrosion.	7	L2	CO1

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	c.	Mention the advantages of recycling of e-waste.	6	L2	CO1
		OR			
Q.6	a.	What is meant by cathodic protection? Explain the sacrificial anode method.	7	L2	CO1
	b.	Explain the steps involved in the extraction of gold from e-waste.	7	L2	CO1
	c.	Mention sources, types and effects of e-waste on environment and human health.	6	L2	CO1
		Module – 4			
Q.7	a.	What are Nanomaterials? Mention and explain the size dependent properties of nanomaterials.	7	L2	CO1
	b.	What are Liquid Crystals? Mention and explain the classification of liquid crystal.	7	L2	CO2
	c.	What are Organic Light Emitting Diodes (OLED)? Mention any two properties and applications of OLED.	6	L2	CO1
		OR			
Q.8	a.	Explain the preparation of nano materials by sol-gel method.	7	L2	CO1
	b.	Mention the properties and applications of nanofibers and nanophotonics.	7	L2	CO1
	c.	Mention the properties and applications of Quantum Light Emitting Diodes (QLED).	6	L2	CO1
		Module – 5			
Q.9	a.	What are Reference Electrodes? Explain the construction and working of Calomel electrode.	7	L2	CO1
	b.	What are Concentration Cells? Explain the construction and working of concentration cell with an example.	7	L2	CO1
	c.	Explain the working principle and instrumentation of colorimetry.	6	L2	CO1
		OR			
Q.10	a.	What are conductometric sensors? Explain the estimation of weak acid verse strong base using conductometry.	7	L2	CO1
	b.	What are ion selective electrodes? Explain the determination of pH using glass electrode.	7	L2	CO1
	c.	Write a note on Optical Sensors.	6	L2	CO1

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