

CBCS SCHEME

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BCHES102/202

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2026

Applied Chemistry for CSE Stream

Time: 3 hrs.

Max. Marks: 100



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

Module – 1			M	L	C
Q.1	a.	Explain the principle, working and applications of conductometric sensors and Electrochemical sensors.	7	L2	CO1
	b.	Explain Electrochemical gas sensor for (principle and working) i) SO _x ii) NO _x	7	L2	CO2
	c.	Explain construction, working and applications of Li-Ion batteries.	6	L1	CO2
OR					
Q.2	a.	Explain the principle, working and application of optical sensors, and explain disposal sensors.	7	L2	CO1
	b.	Explain Electrochemical sensors for Dissolved Oxygen (DO) and the detection of pharmaceuticals.	7	L2	CO1
	c.	What are Batteries? Explain the construction, working and application of quantum dot sensitized solar cells.	6	L1	CO2
Module – 2					
Q.3	a.	What are Memory devices? Explain the classification of electronic memory devices with examples.	7	L2	CO1
	b.	Explain the types of organic memory devices by taking P-type and n-type semiconductor materials.	7	L3	CO2
	c.	Explain properties and applications of Quantum dot Light Emitting Diodes (QLED's).	6	L2	CO1

OR

Q.4	a.	What are photoactive and electro active materials and explain their working principle in display system.	6	L2	CO1
	b.	Mention any four properties and applications of LC – display.	7	L2	CO1
	c.	What are Nanomaterials? Explain any four properties and applications of polythiophenes suitable for optoelectronic devices.	7	L3	CO2

Module – 3

Q.5	a.	Define Corrosion and explain electrochemical theory of corrosion, taking iron as an example.	7	L3	CO2
	b.	Explain : i) Differential Metal Corrosion ii) Differential Aeration Corrosion	6	L2	CO1
	c.	What are Ion Selective Electrode? Explain construction, working and applications of glass electrode.	7	L2	CO1

OR

Q.6	a.	Explain corrosion control by using i) Galvanization ii) Sacrificial Anode Method	6	L2	CO1
	b.	What are Reference Electrodes? Explain construction, working and application of calomel electrode.	7	L2	CO1
	c.	What is CPR? A thickness of brass sheet of area 400 inch ² is exposed to air near the ocean, after two years period it was found to experience a weight loss of 375 g due to corrosion if the density of brass is 8.73 g/cm ³ . Calculate the CPR in mm/year and mmpy.	7	L2	CO1

Module – 4

Q.7	a.	What are Number average and Wt average molecular mass? A polymer has the following composition, 100 molecular mass of 1000 g/mol, 200 molecules of molecular mass 2000 g/mol and 500 molecular mass 5000 g/mol. Calculate the number and wt average mol. wt.	7	L2	CO1
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	b.	Explain preparation, properties and applications of Kevlar.	6	L2	CO1
	c.	Explain construction, working of solar photo voltaic cell and mention its advantages.	7	L2	CO1
OR					
Q.8	a.	Explain the synthesis and conducting mechanism of polyacetylene and mention its application.	7	L2	CO1
	b.	Explain generation of hydrogen by electrolysis of water and its advantages.	6	L2	CO1
	c.	Explain photovoltaic cell and mention advantages and disadvantages of solar photovoltaic cell.	7	L2	CO1
Module – 5					
Q.9	a.	Explain the recycling of E-waste.	6	L2	CO1
	b.	Explain the ill effects of toxic materials used in manufacturing of electrical and electronic products.	7	L2	CO1
	c.	Explain extraction of Gold from e-waste.	7	L2	CO1
OR					
Q.10	a.	Mention the sources of e-waste and explain the need for e-waste management.	6	L2	CO1
	b.	Explain the recycling of e-waste by hydrometallurgical method.	7	L1	CO2
	c.	Write a note on, the role of stakeholders, for example, producers, consumers, recyclers, and statutory bodies.	7	L2	CO1
