



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – May / June 2026

Date: 27 -05-2026

Time: 09:30am – 12:30pm

School: SOCSE	Program: B Tech	
Course Code : CHE2501	Course Name: Chemistry of Smart Materials	
Semester: II	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	10	10	14	36	30

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

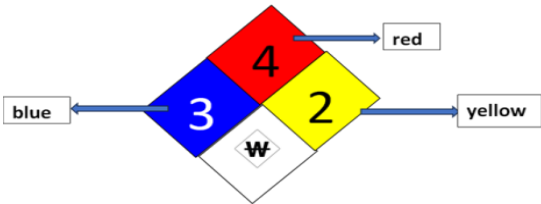
10Q x 2M=20M

1.	Mention the types of solar cells.	2 Marks	L1	C05
2.	State any two characteristics of lithium in lithium battery.	2 Marks	L2	C05
3.	Mention any two effects of e-waste on human health.	2 Marks	L1	C04
4.	Give two examples of natural biodegradable polymers.	2 Marks	L1	C04
5.	What are chemiresistor sensors?	2 Marks	L1	C03
6.	What is nanotechnology? List two size dependant properties of Nanomaterials.	2 Marks	L2	C03
7.	What is carbon footprint? List out the steps involved in Carbon Capture and sequestration.	2 Marks	L2	C04
8.	Mention two advantages and disadvantages of supercapacitors.	2 Marks	L2	C05
9.	What is single electrode potential?	2 Marks	L1	C05
10.	Mention the components of a battery.	2 Marks	L2	C05

Part B

Answer the Questions.

Total Marks 80M

11.	a.	The following MSDS label was found for a chemical. Discuss in detail the information obtained by colors and numbers for safety measures. 	10 Marks	L3	CO1
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Or

12.	a.	Identify and discuss along with neat labelled diagram, the intermolecular forces present in (a) Acetone (b) NaCl dissolved in water	10 Marks	L3	CO1
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13.	a.	What are memory devices? Explain the classification of electronic memory devices along with materials used, conditions and examples.	10 Marks	L3	CO2
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Or

14.	a.	What are LEDs? Explain in detail the construction and the steps involved in working of LED with a neat labeled diagram.	10 Marks	L3	CO2
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15.	a.	List out the requirements for the synthesis of CNT by modified chemical vapor deposition method along with neat labelled diagram.	10 Marks	L3	CO3
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Or

16.	a.	What are the sensors? Explain the construction, working principle along with balanced chemical reactions of how Electrochemical sensors are used to detect glucose in blood sample with neat labelled diagram.	10 Marks	L3	CO3
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17.	a.	What are biocompatible polymers? What is PHBV? Discuss its synthesis with along with relevant chemical reaction, key properties, degradation behavior, and applications.	10 Marks	L3	CO4
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Or

18.	a.	What are biodegradable polymers? Discuss synthesis of PLA with along with relevant reaction mechanism. List two properties and applications of PLA.	10 Marks	L3	CO4
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19.	a.	What is Green Chemistry? List out the 12 principles of Green Chemistry and calculate the percentage of atom economy for the following chemical reaction: $\text{Fe}_2\text{O}_3 + 3\text{CO} \longrightarrow 2\text{Fe} + 3\text{CO}_2$	20 Marks	L4	C04
Or					
20.	a.	Define E-waste. Describe in detail the steps involved along with balanced chemical reactions and neat labelled diagram for the Hydrometallurgical process of extraction of Copper from PCBs.	20 Marks	L3	C04
21.	a.	What are batteries? Discuss the classification of batteries with examples. Explain in detail the construction, working with balanced chemical reactions and applications of LiMnO_2 battery.	20 Marks	L3	C05
Or					
22.	a.	What are photovoltaic cells? With a neat labelled diagram, explain the construction and working of photovoltaic cells. List the advantages, disadvantages and applications of solar cells.	20 Marks	L3	C05