Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025	
Date: 17- 12- 2025	**Time:** 09:30am – 12:30pm

School: SOE	**Program**: B. Tech	
Course Code : CHE2503	**Course Name:** Applied Chemistry for Engineers	
Semester: I	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**12**	**14**	**22**	**26**	**26**

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.	Give any two examples of compound semiconductors.	**2 Marks**	**L3**	**CO1**
2.	What are liquid crystals?	**2 Marks**	**L2**	**CO2**
3.	What are photoactive materials?	**2 Marks**	**L2**	**CO2**
4.	What are thermometric sensors?	**2 Marks**	**L2**	**CO3**
5.	Write the mode of charge transport in electrodes and electrolytes.	**2 Marks**	**L4**	**CO4**
6.	What is carbon footprint?	**2 Marks**	**L4**	**CO4**
7.	Name any two principles of Green chemistry.	**2 Marks**	**L4**	**CO4**
8.	Define nanotechnology.	**2 Marks**	**L2**	**CO5**
9.	Write two types of carbon nanotubes.	**2 Marks**	**L2**	**CO5**
10.	Give any two applications of graphene.	**2 Marks**	**L2**	**CO5**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Discuss Czochralski process (CZ) for the production of electronic grade silicon.	**10 Marks**	**L3**	**CO1**
		Or			
12.	**a.**	Explain n-type and p-type semiconductors.	**10 Marks**	**L3**	**CO1**

13.	**a.**	What are OLEDs? Explain the construction and working principles of OLED.	**10 Marks**	**L2**	**CO2**
		Or			
14.	**a.**	Explain the criteria for organic and polymeric semiconductor materials in memory systems.	**10 Marks**	**L2**	**CO2**

15.	**a.**	Write the construction and working principle of electrochemical sensor for glucose with neat diagram.	**10 Marks**	**L2**	**CO3**
		Or			
16.	**a.**	Describe the Components, classification and applications of MEMS.	**10 Marks**	**L2**	**CO3**

17.	**a.**	What is e-nose? Write the working principle of e-nose with materials and applications.	**10 Marks**	**L2**	**CO3**
		Or			
18.	**a.**	What is RFID? Write the classification, materials and applications.	**10 Marks**	**L2**	**CO3**

19.	**a.**	Describe the construction with diagram, working and chemical reactions occurring at the anode and cathode of a hydrogen-oxygen fuel cell.	**14 Marks**	**L4**	**CO4**
	b.	Calculate EMF of the cell given below. $Mg(s) \mid Mg^{+2}\ (1M) \parallel Cd^{+2}\ (7x10^{-11}M) \mid Cd(s)$. Given E^0_{cell}=1.97 V.	**6 Marks**	**L4**	**CO4**
		Or			
20.	**a.**	Explain the working principle of LIB (Lithium-ion battery) with a neat labelled diagram, construction and cell reactions.	**14 Marks**	**L4**	**CO4**
	b.	List out any three differences between battery and fuel cell.	**6 Marks**	**L4**	**CO4**

21.	**a.**	Define a nanomaterial. Give its classification based on dimensionality.	**10 Marks**	**L2**	**CO5**
	b.	Explain in detail the steps involved in manufacturing of semiconductor chips.	**10 Marks**	**L2**	**CO5**
		Or			
22.	**a.**	Explain the steps involved in synthesis of reduced Graphene Oxide by modified Hummer's method.	**10 Marks**	**L2**	**CO5**
	b.	Describe size dependent properties of nanomaterials.	**10 Marks**	**L2**	**CO5**