Code No: R201115 **R20** SET - 1

I B. Tech I Semester Regular Examinations, April - 2022

APPLIED CHEMISTRY

(Common to ECE, EIE, ECT, CSE-AI&ML, CSE-AI, CSE-DS, CSE-AI&DS, AIDS, CSD)

Time: 3 hours Max. Marks: 70

Answer any five Questions one Question from Each Unit
All Questions Carry Equal Marks

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UNIT-I

1.	a)	Explain any two moulding techniques.	(7M)
	b)	Discuss role of carbohydrates and proteins as biopolymers.	(7M)
		Or	
2.	a)	Explain the role of different constituents added during compounding of plastics.	(7M)
	b)	Write a note on extrinsically conducting polymers.	(7M)

UNIT-II

3.	a)	Differentiate primary and secondary battery. Discuss the working of Li-ion battery.	(7M)
	b)	Discuss the constituents added to paints? Mention their functions.	(7M)
		Or	
4.	a)	Explain chemical theory of corrosion.	(7M)
	b)	Discuss the types of fuel cells.	(7M)

UNIT-III

5.	a)	Explain distillation and zone refining methods for preparation of pure semiconductors.	(7M)
	b)	Discuss the types and applications of liquid crystals.	(7M)
		Or	
6.	a)	Explain the applications of carbon nanotubes.	(7M)
	b)	Write notes on electrical insulators.	(7M)

UNIT-IV

7.	a)	Explain the theory of electronic spectroscopy.	(7M)
	b)	Discuss the working procedure of magnetic resonance imaging.	(7M)
		Or	
8.	a)	Discuss the instrumentation of FT-IR.	(7M)
	b)	Discuss the applications of UV spectroscopy.	(7M)

UNIT-V

9.	a)	Discuss the importance of computational chemistry.	(7M)
	b)	Explain an autonomous light-powered molecular motor.	(7M)
		Or	
10.	a)	Discuss characteristics of molecular motors and machines.	(7M)
	b)	Write notes on molecular elevator.	(7M)
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Code No: R201115 **R20** SET - 2

I B. Tech I Semester Regular Examinations, April - 2022

APPLIED CHEMISTRY

(Common to ECE, EIE, ECT, CSE-AI&ML, CSE-AI, CSE-DS, CSE-AI&DS, AIDS, CSD)

Time: 3 hours Max. Marks: 70

Answer any five Questions one Question from Each Unit
All Questions Carry Equal Marks

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UNIT-I

1.	a)	Discuss properties and applications of poly vinyl chloride.	(7M)
	b)	Explain the importance of biopolymers.	(7M)
		Or	
2.	a)	Mention (i) some plastic materials used in electronic gadgets (ii) Applications of FRP's.	(7M)
	b)	Discuss compression moulding technique to prepare plastic materials.	(7M)

UNIT-II

3.	a)	Discuss the construction of standard hydrogen electrode.	(7M)
	b)	Discuss the factors influencing rate of corrosion.	(7M)
		Or	
4.	a)	Distinguish cathodic coatings and anodic coatings.	(7M)
	b)	Mention the uses of electrochemical series.	(7M)

UNIT-III

5.	a)	Discuss junction transistors.	(7M)
	b)	Explain various steps involved in sol-gel method.	(7M)
		Or	
6.	a)	Discuss laser ablation method to prepare carbon nanotubes.	(7M)
	b)	Explain Hall effect and its applications.	(7M)

UNIT-IV

7.	a)	Discuss the applications of FT-IR.	(7M)
	b)	Explain the laws of absorption.	(7M)
		Or	
8.	a)	Discuss Frank-condon principle.	(7M)
	b)	Explain the working and applications of CT scan.	(7M)

UNIT-V

9.	a)	Write notes on molecular modelling and docking studies.	(7M)
	b)	Explain linear motions in rotaxanes.	(7M)
		Or	
10.	a)	What is prototype? Discuss its types.	(7M)
	b)	Discuss an acid-base controlled molecular shuttle.	(7M)
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Code No: R201115 **R20** SET - 3

I B. Tech I Semester Regular Examinations, April - 2022

APPLIED CHEMISTRY

(Common to ECE, EIE, ECT, CSE-AI&ML, CSE-AI, CSE-DS, CSE-AI&DS, AIDS, CSD)

Time: 3 hours Max. Marks: 70

Answer any five Questions one Question from Each Unit
All Questions Carry Equal Marks

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UNIT-I

1.	a)	Explain any Two methods of the polymerization processes.	(7M)
	b)	Discuss the fabrication of plastics by the Compression method.	(7M)
		Or	
2.	a)	Write a note on the synthesis of BUNA-S, properties, and its applications.	(7M)
	b)	What are the conducting polymers, explain the suitable examples.	(7M)

UNIT-II

3.	a)	Discus the standard hydrogen electrode.	(7M)
	b)	Define the corrosion, Explain electrochemical theory.	(7M)
		Or	
4.	a)	Write a note on the H_2-O_2 fuel cell and its applications.	(7M)
	b)	Explain about Paints, constituents, functions and special paints.	(7M)

UNIT-III

5.	a)	What junction transistor and p-n junction diode.	(7M)
	b)	Explain scanning electron microscopy.	(7M)
		Or	
6.	a)	Discuss on Hall effect and its applications.	(7M)
	b)	What are Type –I Superconductors, characteristics, and applications?	(7M)

UNIT-IV

7.	a)	Derive the Frank-Condon principle.	(7M)
	b)	Write a brief note on geothermal power and tidal energy conversion.	(7M)
		Or	
8.	a)	Design, working, schematic diagram photovoltaic cell.	(7M)
	b)	What is CT scan procedure, explain its applications.	(7M)

UNIT-V

9.	a)	Explain computational chemistry.	(7M)
	b)	What is an acid-base controlled molecular shuttle.	(7M)
		Or	
10.	a)	Write a brief note on the characteristics of molecular motors and machines	(7M)
	b)	Discuss the molecular docking studies.	(7M)
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Code No: R201115 **R20** SET - 4

I B. Tech I Semester Regular Examinations, April - 2022

APPLIED CHEMISTRY

(Common to ECE, EIE, ECT, CSE-AI&ML, CSE-AI, CSE-DS, CSE-AI&DS, AIDS, CSD)

Time: 3 hours Max. Marks: 70

Answer any five Questions one Question from Each Unit
All Questions Carry Equal Marks

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UNIT-I

1.	a)	Explain fabrication of Plastics	(7M)
	b)	Discuss about bio degradable Polymers..	(7M)
		Or	
2.	a)	Write a note on the synthesis of BUNA-S, properties, and its applications.	(7M)
	b)	What are the conducting polymers, explain the suitable examples.	(7M)
		UNIT-II	
3.	a)	Discus the standard Calomel electrode.	(7M)
	b)	Define the corrosion, Explain electrochemical theory.	(7M)
		Or	
4.	a)	Fuel cell and its applications.	(7M)
	b)	Explain about special paints and their properties	(7M)
		UNIT-III	
5.	a)	What junction transistor and p-n junction diode.	(7M)
	b)	Explain Transmission electron microscopy.	(7M)
		Or	
6.	a)	Discuss on Hall effect and its applications.	(7M)
	b)	What are Type –I Superconductors, characteristics, and applications?	(7M)
		UNIT-IV	
7.	a)	Describe FT-IR and its applications	(7M)
	b)	Write a brief note on Hydro power and tidal energy conversion.	(7M)
		Or	
8.	a)	Design, working, schematic diagram photovoltaic cell.	(7M)
	b)	What is CT scan procedure, explain its applications.	(7M)
		UNIT-V	
9.	a)	Explain computational chemistry.	(7M)
	b)	What is an acid-base controlled molecular shuttle.	(7M)
		Or	
10.	a)	Write a brief note on the characteristics of molecular motors and Rotoxanes	(7M)
	b)	Discuss the molecular docking studies.	(7M)
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