GBGS SCHEME

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SN	A. S. Carlot			l			N.	BCHEM102/202
DIA		100						

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2024 Applied Chemistry for ME 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	С
Q.1	a.	Define Calorific value. Explain about the determination of Calorific value of fuel using Bomb calorimeter.	7	L2	CO1
	b.	Calculate GCV and NCV of a fuel from the following data : Mass of fuel = $0.75g$, W = $350g$, t = $3.02^{\circ}C$, Mass of water = 1150 and % $H_2 = 2.8$.	7	L3	CO1
	c.	Explain the construction and working of Lithium in Battery along with its applications.	6	L2	CO1
		OR	L		1
Q.2	a.	Explain the production of Hydrogen by Electrolysis method and mention its advantages.	6	L2	CO1
***************************************	b.	Explain Construction, Working of Photovoltaic cell along with its advantages.	7	L2	CO1
	c.	What are the principles of Green Chemistry? What is Power Alcohol? Explain in brief.	7	L2	CO1
		Module – 2		L	L
Q.3	a.	Explain the Electrochemical theory of corrosion in detail taking Iron as an example.	7	1.2	CO2
	b.	Explain i) Differential Metal corrosion. ii) Differential Aeration corrosion.	6	L3	CO2
	c.	Describe Galvanizing and mention its application.	7	L2	CO2
		OR			
Q.4	a.	What is Sacrificial Anodic Protection? Explain.	6	L2	CO2
	b.	What is Metal Finishing? Mention any five of its Technological importance.	7	L2	CO2
	c.	Distinguish between Electro plating and Electro less plating. Explain Electro plating of Chromium (Decorative).	7	L3	CO2
-		Module – 3			1
Q.5	a.	What are Polymers? Explain the different methods of Polymerization.	7	1.3	CO3

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b. Describe the properties and applications of Lubricants. c. What are Composites? Explain the properties and application of Carbon — 7								
OR Q.6 a. Explain the synthesis of Polysterene and mention its applications. Describe the properties and applications of Lubricants. c. What are Composites? Explain the properties and application of Carbon – 7 L2 CO3 based Reinforced composites (Graphene / Carbon nanotube). Module – 4 Q.7 a. Define Phase , Components and Degree of Freedom and Phase rule equation. b. Explain the Principle , Instrumentation and Application of Colorimetry. c. Explain the Principle , Instrumentation and Working of Glass Electrode. 7 L2 CO4 OR Q.8 a. Explain along with diagram Lead – Silver Two Components system. Fig. Explain the Principle , Instrumentation and Application of Potentiometry of L2 CO4 b. Explain the Principle , Instrumentation and Application of Potentiometry of L2 CO4 b. Explain the Principle , Instrumentation and Application of Potentiometry of L2 CO4 b. Explain the Principle , Instrumentation and Application of Potentiometry of L2 CO4 c. Explain the Principle , Instrumentation and Application of Potentiometry of L2 CO4 D. Explain the Principle , Instrumentation and Application of Potentiometry of L2 CO4 D. Explain the Principle , Instrumentation of Copper in Industrial water by using of L2 CO4 Co4 D. Explain the process of estimation of Copper in Industrial water by using of L2 CO4 D. Explain the Synthesis of Nanomaterials by Sol – Gel method. C. Explain the Chemical composition , Properties and Application of 7 L2 CO5 OR Q.10 a. Explain the composites along with properties of Brass and Stainless steel. D. Explain the size dependent properties of Nano materials and with respect to Catalytic , Thermal and Surface area.		b.		6	L2	CO3		
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