



B.Tech II Semester Supplementary Examinations, January 2024
Applied Chemistry
(Common to CE &EEE)

Maximum Marks: 60

Date: 29.01.2024 Duration: 3 hours

- Note: 1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A			CO	Bloom Tx
All the following questions carry equal marks (10x1M=10 Marks)			CO1	L1
1.	a	Define caustic embrittlement.	CO1	L1
	b	What are the units of hardness of water.	CO2	L1
	c	What is meant by Galvanic corrosion?	CO2	L1
	d	Write the anodic and cathodic reactions of methanol-oxygen fuel cell.	CO3	L1
	e	What are elastomers?	CO3	L1
	f	Write the preparation, properties and applications of Bakelite.	CO4	L1
	g	Define octane and cetane rating?	CO4	L1
	h	Write the Dulong's formula for calculation of HCV.	CO5	L1
	i	What is the composition of Portland cement?	CO5	L1
Part-B				
Answer All the following questions. (5X10M=50Marks)				
2	a)	What is reverse osmosis? What are the advantages of reverse osmosis. [5M]	CO1	L2
	b)	Write a note on scales & sludges. [5M]		L2
OR				
3	a)	Explain EDTA method of estimation of temporary and permanent hardness of water. [5M]	CO1	L2
	b)	Calculate the amount of permanent and temporary hardness of water sample which contains following impurities. Mg (HCO ₃) ₂ = 7.3mg/L, Ca (HCO ₃) ₂ = 16.2mg/L, MgCl ₂ = 9.5mg/L and CaSO ₄ = 13.6mg/L. [5M]		L3
4	a)	Explain the construction and working principle of Lithium-ion battery. [5M]	CO2	L2
	b)	What are the factors affecting the rate of corrosion. [5M]		L2
OR				
5	a)	What are the controlled methods involved in Corrosion. [5M]	CO2	L2
	b)	Write about the theories of chemical and electrochemical corrosion. [5M]		L2
6	a)	Describe briefly about natural rubber and its vulcanization process. [5M]	CO3	L2
	b)	Differentiate between addition and condensation polymerization. [5M]		L2

	OR		
7	a) Describe briefly about conducting polymers. [5M] b) Write the preparation, properties and applications of a) PVC and b) Teflon [5M]	CO3	L2 L2
8	a) Explain about refining of petroleum with the neat diagram. [5M] b) Calculate the gross and net calorific value of a coal sample having the following: [5M] Composition C = 80 %, H = 7 %, O = 3 %, S = 3.5 %, N = 2 %, and ash = 5 %.	CO4	L2 L3
	OR		
9	a) What is cracking and explain types of cracking with diagrams. [5M] b) Explain about the preparation of Bio-diesel by transesterification. [5M]	CO4	L2 L2
10	a) What do you mean by setting and hardening of cement and explain the steps involved with the help of chemical equations. [5M] b) What are the characteristics of a good refractory. [5M]	CO5	L2 L2
	OR		
11	a) What is a lubricant? Explain the mechanism of lubricant. [5M] b) Write the classification of lubricants with examples. [5M]	CO5	L2 L2