R22

ANURAG Engineering College
(An Autonomous Institution)
I B.Tech II Semester Regular/Supplementary Examinations, June/July-2024
ENGINEERING CHEMISTRY
(COMMON TO CIVIL, EEE, ECE & IT)

Time: 3 Hours   **Max. Marks: 60**

Section – A (Short Answer type questions)   (10 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	After boiling the water $Mg(HCO_3)_2$ decomposes into?	CO1	L3	1M
2.	List specifications of Potable water	CO1	L1	1M
3.	Summarize the applications of Solar cells	CO2	L2	1M
4.	Outline the causes of corrosion	CO2	L2	1M
5.	Summarize the advantages of biodegradable polymers	CO3	L2	1M
6.	Outline the synthesis of Butyl rubber	CO3	L2	1M
7.	Summarize the applications of Crystal field theory.	CO4	L2	1M
8.	Discuss bond order in C_2 molecule.	CO4	L2	1M
9.	What is the function of gypsum in the manufacture of cement.	CO5	L1	1M
10.	Illustrate the flash point of lubricants.	CO5	L2	1M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   (5 X 10M = 50M)

			Course Outcome	B.T Level	Marks
11.	A)	i) Summarize the determination of F⁻ ion by ion selective electrode method	CO1	L3	5M
		ii) Define boiler troubles? List out the disadvantages of scales and sludges	CO1		5M

OR

			Course Outcome	B.T Level	Marks
	B)	i) Determine the temporary, permanent and total hardness in ppm units for a water sample which showed the following analysis. Given CaCO3 = 32.4 mg/lit, MgCO3 =29.2 mg/lit, NaCl = 5.85 mg/lit, CaCl2 = 22.2 mg/lit, MgSO4 = 1.2 mg/lit, organic matter = 15.5 mg/lit. Given:(Atomic weight of Ca – 40, H – 1, C – 12, O – 16, Cl – 35.5, S – 32, Mg – 24)	CO1	L3	5M
		ii) Explain how can temporary and permanent hardness be removed?	CO1	L2	5M
12.	A)	i) Classify the different types of batteries with examples.	CO2	L3	5M
		ii) Illustrate the protection of underground pipeline from its corrosion by sacrificial anodic protection.			5M

OR

			Course Outcome	B.T Level	Marks
	B)	Construct a lead – acid storage battery with neat labelling and discuss the working of cell along with discharging and recharging reactions.	CO2	L3	10M
13.	A)	Differentiate addition and condensation polymerization and give one example for each type.	CO3	L3	10M

OR

			Course Outcome	B.T Level	Marks
	B)	Discuss preparation, properties and engineering applications of Bakelite.	CO3	L3	10M

14. A)	Show through a diagram, the splitting of d-orbitals in Octahedral complexes.	CO4	L2	10M
	OR			
B)	i) Based on Molecular orbital theory explain LCAO.	CO4	L2	5M
	ii) On the basis of MOT Explain molecular orbital energy level diagram of F_2.	CO4	L3	5M
15. A)	Outline the engineering applications of Polyacryl amides.	CO5	L2	10M
	OR			
B)	Interpret the mechanism of lubrication	CO5	L2	10M