

ANURAG Engineering College

(An Autonomous Institution)

I B.Tech I Semester Supplementary Examinations, June/July-2024

**ENGINEERING CHEMISTRY
(COMMON TO CSE & AI&ML)****Time: 3 Hours****Max. Marks: 60****Section – A (Short Answer type questions)****(10 X 1M = 10M)****Answer All Questions**

	Course Outcome	B.T Level	Marks
1. How can we express hardness?	CO1	L1	1M
2. Explain Calgon conditioning method.	CO1	L2	1M
3. Write the components present in Methanol-oxygen fuel cell.	CO2	L2	1M
4. What do you mean by Galvanic corrosion?	CO2	L1	1M
5. Write about Nylon 6,6.	CO3	L1	1M
6. Define conducting polymer & mention one example.	CO3	L1	1M
7. Calculate bond order for Boron (B ₂) molecule.	CO4	L2	1M
8. Explain Crystal Field Splitting (CFT).	CO4	L2	1M
9. Enumerate the chemical composition of Portland cement.	CO5	L1	1M
10. Define Lubricant & Lubrication.	CO5	L1	1M

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

11. A) Determine Fluoride ion concentration in water by ion-selective membrane method.	CO1	L3	10M
OR			
B) How can you soften water by ion-exchange process? Write advantages & disadvantages.	CO1	L3	10M
12. A) Construct Zinc-air battery; explain working process & applications of them.	CO2	L3	10M
OR			
B) Describe the mechanism of electrochemical corrosion.	CO2	L3	10M
13. A) i) Differentiate thermoplastics & thermosetting plastics with examples. ii) Write the preparation, properties & applications of PVC & Teflon.	CO3 CO3	L3	5M 5M
OR			
B) Elaborate the mechanism of conduction in polyacetylene and write any two applications of conducting polymers.	CO3	L3	10M
14. A) Describe LCAO method & construct pi-molecular diagram of butadiene.	CO4	L3	10M
OR			
B) Explain the crystal field splitting pattern in tetrahedral and square-planar complexes.	CO4	L3	10M
15. A) Summarize the process involved in setting & hardening of Portland cement with chemical equations.	CO5	L3	10M
OR			
B) Discuss about the properties of lubricants and its significance.	CO5	L3	10M