

**ANURAG Engineering College**

(An Autonomous Institution)

I B.Tech I Semester Supplementary Examinations, Jan/Feb-2024

**APPLIED CHEMISTRY – I  
(COMMON TO CIVIL & MECH)****Time: 3 Hours****Max. Marks: 75****Section – A (Short Answer type questions)****(25 Marks)****Answer All Questions**

	<b>Course Outcome</b>	<b>B.T Level</b>	<b>Marks</b>
1. Why do we express hardness of water in terms of CaCO <sub>3</sub> equivalent?	CO1	L2	2M
2. What is boiler corrosion.	CO1	L1	3M
3. What is Electrochemical series?	CO2	L1	2M
4. Define Equivalent conductance and give its units.	CO2	L1	3M
5. Differentiate primary and secondary cells.	CO3	L2	2M
6. Write the Engineering applications of batteries	CO3	L2	3M
7. Define Corrosion? Why do metals corrode?	CO4	L2	2M
8. What is Electro plating?	CO4	L1	3M
9. Distinguish between Physisorption and chemisorption.	CO5	L2	2M
10. Mention the applications of Colloids in Industry.	CO5	L1	3M

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

11. A) Describe the complexometric method to determine the hardness of water?	CO1	L3	10M
<b>OR</b>			
B) Discuss the Ion-exchange process for softening of water	CO1	L3	10M
12. A) Describe the construction and working of Calomel electrode.	CO2	L3	10M
<b>OR</b>			
B) State and explain Kohlrausch's law of ionic mobilities. What are the applications of the law?	CO2	L3	10M
13. A) Explain the construction and working of the lead-acid cell	CO3	L3	10M
<b>OR</b>			
B) What is fuel cell? Describe the construction, working and advantages of H <sub>2</sub> -O <sub>2</sub> fuel cell.	CO3	L3	10M
14. A) Explain the mechanism of Electrochemical corrosion?	CO4	L3	10M
<b>OR</b>			
B) Write a brief account on Cathodic protection	CO4	L3	10M
15. A) Derive Langmuir adsorption isotherm.	CO5	L3	10M
<b>OR</b>			
B) Explain the preparation of nano particles by the sol-gel method.	CO5	L3	10M

