



Regulation R18

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

(Autonomous, Accredited by NAAC with 'A+' Grade)

Subject code:2B1AG

## B.Tech I Semester Supplementary Examinations, January 2024 ENGINEERING CHEMISTRY

(Common to ECE & CSE)

**Maximum Marks: 70**

**Date:22.01.2024** Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 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

All the following questions carry equal marks		10x2M=20Marks	Blooms Tx	CO
1.	Explain the magnetic nature of O <sub>2</sub> molecule?		L1	CO1
2.	Write about distribution of electrons in molecules orbitals of N <sub>2</sub> molecule?		L1	CO1
3.	Differentiate temporary and permanent hardness.		L2	CO1
4.	Explain phosphate conditioning.		L2	CO2
5.	Define oxidation potential.		L1	CO2
6.	What are causes of corrosion?		L1	CO2
7.	State Saytzeff rule.		L1	CO4
8.	What do you mean by enantiomers?		L1	CO4
9.	Write any 2 applications of UV spectroscopy.		L1	CO3
10.	What is an absorption spectrum?		L1	CO3

### Part-B

Answer all the following questions		5X10M=50Marks	Blooms Tx	CO
11.	(a) Write the energy level diagram of Benzene and HF. [5M] (b) Explain the crystal field splitting of d – orbitals of tetrahedral complexes with neat diagram. [5M]		L2 L2	CO1 CO1
OR				
12.	(a) What is doping and dopant? Explain how doping effects the conductivity of semiconductor. [5M] (b) Write the energy level diagram of N <sub>2</sub> and O <sub>2</sub> . [5M]		L2 L1	CO2 CO1
13.	(a) Describe the estimation of hardness of water by EDTA method. [5M] (b) Write the specifications of potable water. [5M]		L1 L3	CO2 CO2
OR				
14.	(a) Explain Ion exchange process. [5M] (b) Write a notes on Boiler corrosion. [5M]		L1 L1	CO2 CO2
15.	(a) Explain about construction & working of saturated calomel electrode. [5M] (b) What are Batteries & explain the working of Lead – accumulator? [5M]		L1 L3	CO2 CO2
OR				

16.	(a) Write a note on electro chemical corrosion by absorption of oxygen type mechanism? [5M] (b) Explain about cathodic protection. [5M]	L2 L1	CO2 CO2
17.	(a) Write a note on absolute configuration? [5M] (b) Explain about $SN^1$ & $SN^2$ mechanism in Alkyl halides? [5M]	L1 L2	CO4 CO4
	OR		
18.	(a) What are Addition reactions? Explain the possible mechanism with an example. [5M] (b) What is Markonikoff's rule? Give examples. [5M]	L1 L1	CO4 CO4
19.	(a) Explain about chemical shift. [5M] (b) Applications of electronic spectroscopy. [5M]	L2 L3	CO3 CO3
	OR		
20	(a) What are basic concepts of NMR spectroscopy. [5M] (b) Write applications of IR spectroscopy. [5M]	L1 L1	CO3 CO3