



R18 Regulation

Subject code:2B2AC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, July 2025

ENGINEERING CHEMISTRY
(Common to CE, EEE, ME & IT)

Maximum Marks: 70

Date:15.07.2025

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=20 Marks)		Marks	CO	BTL
1	What is the bond order and magnetic property of 'CO' molecule?	2M	1	L1
2	Define break point chlorination.	2M	1	L1
3	Write the energy order of crystal field splitting in square planar complexes.	2M	2	L1
4	Why we are using bleaching powder in potable water?	2M	2	L1
5	Write a Nernst equation.	2M	3	L1
6	Explain about pitting corrosion.	2M	3	L1
7	Differentiate enantiomers from diastereomers.	2M	4	L1
8	What is Saytzeff rule? Explain with example.	2M	4	L1
9	Define chemical shift.	2M	5	L1
10	Write any two applications of IR- spectroscopy.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Write molecular energy level diagrams of CO and HF. b) Explain crystal field splitting of octahedral complexes.	5M 5M	1	L2
OR				
12	a) Write molecular orbitals of Benzene. b) Explain crystal field splitting of tetrahedral complexes.	5M 5M	1	L2
13	What is the principle of EDTA titration? How is the permanent hardness of water determined using EDTA method.	10M	2	L2
OR				
14	With a neat diagram explain the ion – exchange process for the purification of water. Discuss the merits and demerits of this process.	10M	2	L2
15	a) How can we determine PH of unknown solution by using Quin hydrone electrode. b) Define corrosion? Explain types of corrosion.	5M 5M	3	L2
OR				
16	a) Explain the factors effecting rate of corrosion. b) Write a note on cathodic protection.	5M 5M	3	L2

17	Explain about SN ¹ & SN ² mechanism in nucleophilic substitution reactions.	10M	4	L2
OR				
18	a) What is Markownikoff rule? Explain with suitable example. b) What is Grignard reagent? Explain the reaction of Grignard reagent with Carbonyl compounds.	5M 5M	4	L2
19	a) Explain about bending vibrations. b) Write the applications of NMR spectroscopy.	5M 5M	5	L2
OR				
20	a) Explain about MRI spectroscopy. b) Write the applications of UV – visible spectroscopy.	5M 5M	5	L2