R22 Regulation *Subject code:4H1AH*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, July 2025

ENGINEERING CHEMISTRY

(Common to CSE, CSE(AI&ML) & CSE(DS))

Maximum Marks: 60 Date:16.07.2025 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 (10X1M=10 Marks)		Marks	CO	BTL
1 a	Distinguish between atomic and molecular orbitals.	1M	1	L1
b	Compare Intrinsic and extrinsic semiconductors in terms of doping.	1M	1	L1
c	Differentiate temporary and permanent hardness of water.	1M	2	L1
d	Mention specifications of drinking water.	1M	2	L1
e	Write applications of solar cells.	1M	3	L1
f	Define pitting corrosion.	1M	3	L1
g	What do you understand by knocking?	1M	4	L1
h	What are the advantages of Biodiesel?	1M	4	L1
i	What are the polymers?	1M	5	L1
j	Mention applications of Bakelite.	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Draw and explain Molecular Orbital Energy Level Diagram of CO molecule. Interpret its bond order and predict the magnetic property. b) Discuss the effect of doping on band structure in solids.	5M 5M	1	L2
	OR			
3	a) Mention the postulates of Molecular orbital theory. b) Draw π molecular orbitals of Butadiene and discuss about energy level of the orbitals.	5M 5M	1	L2
4	Describe how potable water is treated before distribution.	10M	2	L2
	OR			
5	a) Give a detailed account on caustic embrittlement. b) Describe desalination of sea water by reverse osmosis.	5M 5M	2	L2
6	a) Discuss the mechanism of electro chemical corrosion b) Write applications of Zn-Air battery.	8M 2M	3	L2
	OR			
7	a) Give an account cathodic protection method. b) Differentiate battery and fuel cell.	5M 5M	3	L2

8	Give a detailed account on proximate analysis of coal and mention it's significance.	10M	4	L2
	OR			
9	Outline Moving bed catalytic cracking process with a diagram.	10M	4	L2
10	Describe mechanism of conducting polymerization of trans-poly acetylene.	10M	5	L2
	OR			
11	Write preparation, properties and applications of Buna-S, Butyl rubber.	10M	5	L2