Regulation R20 *Subject code: 3B1AN*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, June 2024

CHEMISTRY

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

Maximum Marks: 70 Date:01.07.2024 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=20 Marks)

Q.NO	QUESTIONS	CO	Blooms Tx
1	What is the magnetic nature of 'N_2'molecule?	CO1	Level 2
2	What is meant by Doping in case of Semiconductors?	CO1	Level 1
3	What is calgon conditioning?	CO2	Level 3
4	What is Colloidal conditioning of Water?	CO2	Level 4
5	How do you differentiate a Cell from Battery?	CO3	Level 2
6	What are the Electrodes used in Li- ion Batteries?	CO3	Level 1
7	What is sayetzeff rule?	CO4	Level 1
8	What is meant by chirality? Give some examples.	CO4	Level 3
9	Define Beer –Lambert's law?	CO5	Level 3
10	Write the applications of UV-visible spectroscopy?	CO5	Level 4

Part-B

Answer All the following questions. **(10M X 5=50Marks)**

11	A. Explain molecular orbital diagram for N_2. [5]	CO1	Level 2
	B. Explain the postulates of Molecular Orbital theory.? [5]		Level 3
	OR		
12	A. Explain the salient features of Crystal field theory. [5] B. Explain the crystal field splitting in tetrahedral metal complexes. [5]	CO1	Level 1 Level 4
13	A. Explain the ion exchange process in the softening of water. [5] B. Define carbonate and non-carbonate hardness of water.[5]	CO2	Level 3
	OR		
14	A. What is meant by desalination of water? Explain reverse osmosis? [5] B. What are scales and sludges? Write their disadvantages in Boilers? [5]	CO2	Level 2

15	A. Explain the construction and working of the calomel electrode. [5] B. What is electro chemical series? Write its significance and applications? [5]	CO3	Level 3 Level 2
	OR		
16	A. Explain the fuel cells and mention their applications. [5] B. Explain the Secondary Batteries working with Suitable example. [5]	CO3	Level 3 Level 2
17	A. Explain about Electrophilic addition reactons. [5] B. Write a note on optical isomerism? [5]	CO4	Level 4 Level 3
	OR		
18	A. Explain the SN^1 and SN^2 mechanism with suitable example. [5] B. Explain the hydroboration of olefins. [5]	CO4	Level 2 Level 3
19	A. Explain the principle involved in UV- Spectroscopy. [5] B. Write the applications of NMR (MRI)? [5]	CO5	Level 4 Level 3
	OR		
20	A. What is MRI? [5] B. Write the application IR spectroscopy? [5]	CO5	Level 4 Level 3