Regulation R20 *Subjectcode:3B2AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, September 2023
Material Chemistry
(CE)

Maximum Marks: 70 **Date:16.09.2023** Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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)**

1 Write any two differences between bonding and anti-bonding orbitals?

2 What is doping?

3 What is calgon conditioning?

4 Define break point chlorination.

5 Differentiate cell from battery?

6 Define single electrode potential and stanadard electrode potential.

7 Define The following terms a) Polymer b) Degree of Polymerization?

8 Write the Composition of Portland Cement?

9 What are the applications of UV-visible Spectroscopy?

10 What is the finger print region of IR?

Part-B

Answer All the following questions. **(10M X5=50Marks)**

11 Write about postulates of MOT and Construct the molecular orbital energy level diagram of CO molecule? 10M

OR

12	Explain the crystal field splitting of d-orbital of transition metal in octahedral complexes?	10M
13	Describe the ion-exchange process for the removal of hardness of water with a neat diagram?	10M

OR

14	Outline various steps involved in the treatment of potable water	10 M
15	Explain the construction, working and applications of Li-ion battery?	10M

OR

16	What are fuel cells? Explain the working and applications Methanol-O_2 fuel cell?	10M
17	Explain the preparation, Properties and applications of PVC and Teflon?	10M

OR

18	Explain the preparation, Properties and applications of Bakelite?	10M
19	Explain about the Transitions involved in UV spectroscopy?	10M

OR

20	Explain about the molecular vibrations in IR spectroscopy?	10M