



R20 Regulation

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

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

Subject code: 3B1AG

**B.Tech I Semester Supplementary Examinations, September 2023**

**Engineering Chemistry**

(EEE)

Maximum Marks: 70

Date: 03.10.2023 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)

- 1 What is the magnetic nature of  $N_2$  molecule?
- 2 What is the bond order of  $O_2$  molecule?
- 3 Define hardness of water and mention its causes.
- 4 What is meant by hardness of water?
- 5 What is electrochemical series write any two applications?
- 6 Define single electrode potential and standard electrode potential?
- 7 Define pitting Corrosion.
- 8 Define Corrosion.
- 9 Define a Fuel.
- 10 Define HCV and LCV.

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  $F_2$  molecules? 10M

- OR
- 12 Explain the effect of doping in semiconductors. 10M
- 13 Describe the estimation of hardness of water by EDTA method. 10M
- OR
- 14 Outline various steps involved in the treatment of potable water. 10M
- 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<sub>2</sub> fuel cell. 10M
- 17 Explain about the Mechanism of Wet Corrosion. 10M
- OR
- 18 Explain about Cathodic protection. 10M
- 19 Explain about the Proximate Analysis of a Coal. 10M
- OR
- 20 Explain about the Fischer Tropsch Synthesis method for the Preparation of Synthatic petrol. 10M