



R20 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code:3BIAG

B.Tech I Semester Supplementary Examinations, March/April 2023

ENGINEERING CHEMISTRY (EEE)

Maximum Marks: 70

Date:10.04.2023 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

- 1 What is the bond order in 'O₂' molecule? (10x2M=20 Marks)
- 2 Write any two differences between bonding and anti-bonding molecular orbitals?
- 3 How can you remove temporary hardness?
- 4 What is reverse osmosis?
- 5 Write the overall reaction of lead – acid storage battery
- 6 What is electro chemical series?
- 7 Define Cetane number?
- 8 Write any two applications of LPG.
- 9 What is the difference between Gross and net calorific value?
- 10 Define proximate analysis?

Part-B

Answer All the following questions.

- 11 a) Explain the salient features of Crystal field theory? [5]
b) Explain about MOED of O₂. [5] (5X10M=50Marks)
- 12 a) Explain band theory of solids. [5]
b) Explain the crystal field splitting in tetrahedral metal complexes. [5] OR
- 13 What is the principle of EDTA titration? How the permanent hardness of water is determined using EDTA method. [10]
- 14 a) Explain the treatment of potable water. [5]
b) Explain in detail about boiler corrosion. [5] OR
- 15 Explain the construction, working and applications of Zn-air battery. [10]
- 16 What are the Secondary Batteries? Explain their working with Suitable example. [10] OR

- 17 a) Write a note on cathodic protection. [5]
b) Explain the factors effecting rate of corrosion. [5]
OR
- 18 a) Explain dry corrosion mechanism. [5]
b) Explain about Galvanic corrosion with examples. [5]
- 19 Explain about Ultimate analysis of coal. [10]
OR
- 20 What is synthetic petrol? Discuss any one method to prepare synthetic petrol. [10]