



R20 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

Subject code:3B2AM

B.Tech II Semester Regular/Supplementary Examinations, October 2022

APPLIED CHEMISTRY

(Electronics and Communication Engineering)

Maximum Marks: 70

Date:13.10.2022 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 bond order for N_2 , O_2 ?
- 2 Give an account of LCAO.
- 3 What is Calgon?
- 4 Define temporary and permanent hardness of water.
- 5 What is standard electrode potential? Give its units.
- 6 Differentiate between primary and secondary cell.
- 7 Define Polarogram give one example.
- 8 Explain principle of Amperometric Titrations with one example.
- 9 State Lambert-Beer law.
- 10 Define term Wavelength and Wave Number.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 a) Explain the crystal field splitting of d- orbitals by the ligands in octahedral complex with coordination number 6. 6M
b) Draw the molecular orbital diagram O_2 molecule and predict the magnetic behavior of it? 4M
- OR
- 12 a) Explain the salient features of CFT? 5M
b) What do you understand by HOMO and LUMO draw MOED of 1,3 butadiene. 5M
- 13 a) Explain the various internal treatment methods of boiler water. 6M
b) Differentiate scales and sludges. How do you prevent boiler corrosion? 4M
- OR
- 14 a) What are the specifications of potable water? 5M
b) Explain the principle involved in the estimation of hardness of water by EDTA method. 5M
- 15 a) Write the construction and working of calomel electrode. 5M
b) Give the chemical reactions involved in the functioning of Hydrogen – Oxygen fuel cell. 5M
- OR

- 16 a) Define battery? Write the applications of batteries? 4M
b) Write the Nernst equation and mention its importance? 6M
- 17 a) Explain the construction and working of DME. 5M
b) What are the Applications of Amperometric Titrations. 5M
- OR
- 18 a) Explain the principle and Instrumentation of D.C Polarography. 7M
b) Write brief account on square wave Polarography. 3M
- 19 a) Define the term Auxochrome and Chromophore? Explain with one example. 5M
b) What are various electronic transitions? Give a brief note on it? 5M
- OR
- 20 a) What are different types of vibrations in IR spectroscopy and explain it? 6M
b) Explain the principle of UV spectroscopy. 4M