



R18 Regulation

Subject code: 2B2AC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, October 2021

Engineering Chemistry

(Common to CE,EEE,ME & IT)

Maximum Marks: 70

Date:15.10.2022 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 which carries 10M.
 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 Doping & explain the n-type semiconductor?
- 2 Detail study about HOMO & LUMO?
- 3 Give two differences between hard water and soft water?
- 4 How do we remove carbonate and non-carbonate hardness?
- 5 Define standard electrode Potential.
- 6 What is pitting corrosion?
- 7 Define chirality.
- 8 List out any two applications of aspirin.
- 9 What is MRI?
- 10 Write the applications of IR?

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 (a) Explain molecular orbital energy level diagram of F_2 molecule.
(b) Explain the crystal field splitting in square planar metal complexes. [5+5]

OR

- 12 (a) Write the postulates of molecular orbital theory.
(b) Explain the crystal field splitting in octahedral metal complexes. [5+5]

- 13 (a) What is reverse osmosis? Bring out the methodology behind it.
(b) Explain the Ion exchange method. [5+5]

OR

- 14 (a) What is boiler troubles? How will you minimize boiler troubles?
(b) Discuss the disinfectant of water by chlorination method. [5+5]

- 15 Explain the composition, applications and advantages of the following cells. [3+3+4]

i) Ni-Cd cell ii) Lithium cell iii) Lead acid cell

OR

- 16 Write a note on (i) Calomel electrode and (ii) Glass electrode. [5+5]

- 17 (a) Explain the reduction reaction of carbonyl compounds using LiAlH_4 .
(b) Construct the synthesis of aspirin and their therapeutic agent application. [5+5]
OR
- 18 (a) Give notes on Markownikoff and anti Markownikoff's additions with its example.
(b) Explain the mechanism involved in SN^1 & SN^2 reactions. [5+5]
- 19 (a) Explain the basic concepts of NMR.
(b) Write any three applications of electronic spectroscopy. [5+5]
OR
- 20 (a) Explain the vibrational spectroscopy of diatomic molecule.
(b) Write a note on chemical shift. [5+5]