



B.Tech I Semester Supplementary Examinations, April 2022
ENGINEERING CHEMISTRY

(Common to ECE & CSE)

Maximum Marks: 70

Date: 05.05.2022 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 of O₂ molecule?
- 2 Differentiate molecular orbital from atomic orbital?
- 3 How can we remove temporary hardness?
- 4 What is meant by desalination of Brackish water?
- 5 Define single electrode potential and EMF of the cell.
- 6 What is Galvanization?
- 7 Define Saytzeff rule.
- 8 Differentiate enantiomers from diastereomers?
- 9 Write any three applications of IR spectroscopy.
- 10 Write about chromophore and Auxochrome?

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Explain bond order and magnetic properties of O₂ and CO by using molecular orbital energy level diagrams. [10]
OR
- 12 Discuss the crystal field splitting in octahedral complexes in detail? [10]
- 13 Explain the softening of water by using ion exchange process? [10]
OR
- 14 What is break point chlorination and mention its advantages? [10]
- 15 Explain construction and working of glass electrode and how can we determine P^H of Unknown so in by using glass electrode? [10]
OR
- 16 A. Explain the mechanism involved in electrochemical corrosion. [5]
B. Write a note on Cathodic protection? [5]
- 17 Explain about SN¹ and SN² mechanisms in substitution reaction by taking Suitable example? [10]
OR
- 18 Explain the following rearrangement reactions [5+5]
(i) Pinacol- pinacolone rearrangement (ii) Wagner- merwin rearrangement
- 19 Explain about types of vibrations of molecules in IR spectroscopy? [10]
OR
- 20 Explain the theory of NMR spectroscopy and explain about formation of peaks in NMR spectrum? [10]