5. Discuss polarization with suitable diagram. What are the factors that favour polarization and covalency as proposed by Fajans? 4+6

6. Explain ionization energies, electron affinity, electronegativity, and oxidation states of atom based on the periodic table. 2+2+3+3

7. Discuss SN1 and SN2 reaction of organic molecules. Discuss E1 and E2 reaction of organic molecules. 5+5

8. Discuss the different types of isomerism of organic compounds. 10

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B.Tech Even Semester Examination, May, 2025

Agricultural Engineering / Computer Science & Engineering Electronics & Communication Engineering

(2nd Semester)

Course No: ASH-201

(Engineering Chemistry)

Full Marks: 50

Pass Marks: 25

Time: 2 hours

Note:

1. Attempt any five questions.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. What are critical constant of a gas? Discuss the PV isotherm of CO_2 molecule. Draw the potential energy diagram of H_2 + F. 3+4+3

2. What is Gibbs free energy? Derive the change in Gibbs free energy of an ideal gas. Write the Nernst equation for Zn^{2+} (aq)/Zn (s) and Fe^{3+} (aq)/Fe^{2+} (aq). 1+5 +4

3. Define Corrosion. What are techniques to prevent corrosion? 2+8

4. Discuss the extraction of metal from their oxides by applying Ellingham diagram. 10