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TOPICS FOR INTERNAL ASSESSMENT ASSIGNMENTS (2009-10)
Course: **M.Sc. CHEMISTRY** (Previous)

Note: Students are advised to read the separate enclosed instructions before beginning the writing of assignments.

Out of 15 Internal Assignment marks per paper, 5 marks will be awarded for regularity (attendance) to Counseling/ Contact Programme/ Practical classes pertaining to the paper. Therefore, the topics given below are only for 10 marks each paper.

Answer ANY ONE Question from each paper (i.e., 1, 2 or 3) Each Question carries 10 Marks.

Paper I: Analytical Chemistry

- What is error? Distinguish between Accuracy and Precision.
 - What are significant figures? Explain F-test, and t-test.
 - Explain (i) R_f value (ii) Equivalence point (iii) Coprecipitation (iv) Biological Oxygen Demand.
- What is chromatography? Explain the theoretical principles of Chromatography.
 - Describe the principle and applications of HPLC.
- Discuss the different steps involved in gravimetric analysis. Explain the mechanism of precipitation.
 - Discuss the classification of solvent extraction.

Paper II: Inorganic Chemistry

- Discuss the crystal field splitting in square planar complexes.
 - What are noble gas compounds? Discuss the structure and bonding in X_eF_6 and $X_2O_2F_2$.
- What are semiconductors? Explain n-type and p-type semiconductors.
 - Discuss the classification of silicates.
 - What are Zeolites? Give the uses of Zeolites.
- Discuss the preparation, structure and bonding of Diborane.
 - Discuss the preparation, structure and bonding of Phosphazenes.

Paper III: Organic Chemistry

- Discuss the general reactions of monosaccharides.
 - Write a note on primary and secondary structure of proteins.

P.T.O.

2. a) Compare and contrast Saytzeff and Hoffmann rules with examples.
b) Discuss the synthesis and reactivity of pyrrole.

3. a) What is Chirality? Write a note on elements of symmetry.
b) Differentiate between the enantiomers, diastereomers and epimers using suitable example.

Paper IV: Physical Chemistry

1. a) Discuss the Bohr's Quantum theory of hydrogen atom.
b) Discuss the postulates of quantum mechanics.

2. a) Deduce the expression for the work done in isothermal compression of an ideal gas.
b) Discuss the Arrhenius, Lowry and Bronsted and Lewis concept of acids and bases.

3. a) Discuss the principle, theory and working of Polarography.
b) Discuss the general characteristics of Catalytic reactions.
c) What is rate law? Give the importance of it.
