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TOPICS FOR INTERNAL ASSESSMENT ASSIGNMENTS (2010-11)

Course: M.Sc. CHEMISTRY (Final)

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., either 1 or 2) Each Question carries 10 Marks.*

Paper V: Analytical Chemistry

1. a) What is spin-spin coupling? Discuss the factors influencing the spin-spin coupling in NMR spectroscopy.
b) Explain the modes of fragmentation in mass spectrometry.
2. a) Discuss the basic principle of ESR spectroscopy.
b) Compare and contrast fluorescence with phosphorescence.
c) Give the qualitative and quantitative applications of electronic spectroscopy.

Paper VI: Inorganic Chemistry

1. a) Discuss the structure and bonding in ferrocenes.
b) Discuss the mechanism in hydrogenation of olefins using Wilkinson's catalyst.
2. a) Discuss the isomerism in co-ordination compounds.
b) Discuss the theory of Mossbauer spectroscopy.

Paper VII: Organic Chemistry

1. a) Write a note on Jablonaski diagram.
b) Explain the mechanism and synthetic application of Reimer-Tiemann reaction.
2. a) Write a note on electrocyclic reactions.
b) Describe double helical structure of DNA.

Paper VIII: Physical Chemistry

- 1 a) Discuss the principle and instrumentation of Differential Scanning calorimetry (DSC)
b) Explain the concept of Entropy in reversible and irreversible processes.
- 2 a) Discuss the basic principle and application of vibrational spectroscopy.
b) Explain the kinetics of free radical polymerization.