



KUVEMPU UNIVERSITY
OFFICE OF THE DIRECTOR
DIRECTORATE OF DISTANCE EDUCATION
Jnana Sahyadri, Shankaraghatta – 577 451, Karnataka



Phone: 08282-256426; Fax: 08282-256370; Website: www.kuvempuuniversitydde.org
E-mails: ssgc@kuvempuuniversity.org; info@kuvempuuniversitydde.org

TOPICS FOR INTERNAL ASSESSMENT ASSIGNMENTS (2008-09)
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, 2 or 3) Each Question carries 10 Marks.*

Paper V: Analytical Chemistry

- What are symmetry elements and symmetry operations? Explain.
 - Give the procedure for classification of molecules into point group.
 - Explain the application of group theory in spectroscopy.
- Explain the basic principles of ESR spectroscopy.
 - Explain zero field splitting and Kramer's degeneracy.
- What is electromagnetic radiation? Explain the width and intensity of spectral lines during interaction of electromagnetic radiation with matter.
 - Discuss the energies corresponding to various kinds of radiations, molecular transitions and selection rules in spectroscopy.

Paper VI: Inorganic Chemistry

- Explain crystal field stabilization of EAN rule. On the basis of EAN rule discuss the structure and stability of Ni, Co, Fe and Mn carbonyls.
- What are electron transfer reactions? With illustrative examples explain the mechanism of inner and outer sphere electron transfer reactions.
- Discuss the structure, stereochemistry and oxygenation of Hb and Mb.

Paper VII: Organic Chemistry

1. Discuss the role of DNA and RNA in protein synthesis.
2. Write a note on Norrish type-I and Norrish type-II reactions and Paterno-Buchi reaction.
3. Explain the different types of molecular rearrangements, write the mechanism and applications of Claisen, Pinacol- inocoline and benzyl-benzilic acid rearrangements.

Paper IV: Physical Chemistry

1.
 - a) Discuss the basic principles of thermal methods of analysis.
 - b) Explain the simultaneous DTA-TGA curves with an example.
 - c) What is DSC? Explain the factors affecting DSC.
2.
 - a) Explain the nuclear fission and fusion reactions.
 - b) Discuss the importance and applications of nuclear models.
 - c) Give an account of nuclear forces, nuclear size, nuclear density, packing fraction and binding energy of the nucleus.
3.
 - a) Classify different types of polymers and polymerization reaction.
 - b) Explain different experiments for determination of molecular weight.