



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 (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., either 1, 2 or 3) Each Question carries 10 Marks.*

Paper I: Analytical Chemistry

- What is error? How is it classified?
 - Discuss the significance of the following terms of analysis:
 - Accuracy, ii) Precision, iii) Mean, iv) Median, v) Standard deviation
- With suitable examples explain the theory of indicators.
 - Discuss the theoretical basis for various titrimetric analyses, classification of titrimetric methods.
 - What is gravimetric analysis? Explain.
- Discuss the factors influencing the solubility of the precipitates.
 - Describe the instrumentation and applications of HPLC.
 - Explain the principle and applications of ion exchange chromatography.

Paper II: Inorganic Chemistry

- Discuss the band theory of solids and explain how the materials are classified into insulators, conductors and semiconductors.
- What are the postulates of VESPER theory? Explain with suitable example. What are inter halogen compounds? With suitable examples explain the preparation, structure and bonding.
- Describe the preparation, structures and applications of silicones and silicone polymers.
 - What are metal carbides? Give the classification and write their important applications.

Paper III: Organic Chemistry

1. Describe any two methods for the investigation of amino acid sequence in polypeptides.
2. What are polysaccharides? Explain the structural determination of cellulose and starch.
3. Describe the mechanism and stereochemistry of SN_1 , SN_2 and SN_i reactions.
 - a) Explain the aromaticity of the following compounds: cyclopropyl cation, cyclopentadienyl anion and tropylium cation.
 - b) Discuss the mechanism of aromatic halogenation, sulphonation and alkylation reactions.

Paper IV: Physical Chemistry

1.
 - a) Explain why the quantum theory comes after classical theory.
 - b) Discuss the Bohr's theory of hydrogen spectrum.
 - c) What is electrode potential? Discuss the applications of standard electrode potentials.
2.
 - a) Discuss all the four postulates of quantum mechanics.
 - b) Deduce the method for finding out e/m value of an electron.
 - c) Explain the significance of wave equation in quantum mechanics.
3.
 - a) Explain the importance and limitations of thermodynamics.
 - b) Deduce the expression for work done in isothermal and adiabatic processes.