**PAPER-II**

**TOTAL MARKS: 100**

(A) **Organic Chemistry**

1. **Structure and Reactivity**

Inductive effect, delocalized chemical bond, resonance effect,

tautomerism, hyper-conjugation, steric effect and hydrogen bonding.

**2. UV and IR Spectroscopy**

Principle of UV-Visible and IR-Spectroscopy, terms involved in

spectroscopy. -max, bathochromic shift, hypsochromic shift, finger print

region, overtones and applications in functional group identification of

organic compounds.

3. **Chemistry of Carbonyl Group**

Preparation and properties of Aldehydes and ketones. Acid and base

catalyzed Aldol condensation reactions and nucleophilic additions to

carbonyl group.

4. **Chemistry of Armatic Compounds**

Mechanism and applications of Electrophilic aromatic substitution

reactions, Arenium ion mechanism, orientation and reactivity. Aromaticity

and condensed simple aromatics systems.

5. **Sterochemistry**

Steroisomerism, conformational analysis of cycloalkanes, chirality and

optical activity, recemization, epimerization and geometrical isomerism.

(B) **Selected Topics in Applied Chemistry**

1. **Bio-molecules**

Introduction, classification, structure and metabolism of carbohydrates.

Primary, Secondary & Tertiary structure of Proteins. Lipids and their

classification.

2. **Chromatography**

Principle and types of chromatography. Thin layer and column

Chromatography with their applications.

3. **Material Chemistry**

Introduction and applications of Polymers, Semi-conductors, composites

and liquid crystals.

4. **Chemicals in Service of Mankind**

Detergents, Pesticides, Dyes, Cosmetics and Pigments.

**RECOMMENDED BOOKS**

1. Physical Chemistry by Ira N. Levane, 5th Edition

2. Inorganic Chemistry by James E. Huheey and Richard I. Kelter, 4th Edition.

3. Physical Chemistry by Moore, Walter S, 5th Edition.

4. Mechanism and Structure of Organic Chemistry by Gould, Edward.

5. Essential of Physical Chemistry by G.D.Tuli, Arun Bahl.

6. Advanced Inorganic Chemistry by Cotton F.A & Wilkinson Groffrey, 3rd Edition

7. Chemistry (Organic & Inorganic) by A.M.H. Shaikh

8. Advanced Chemistry by Philip Matthews.

9. organic Chemistry by Morrison, Robert,Thornton and Boyd. R.N., 2nd Edition

10. Text Book of Inorganic Chemistry for B.Sc. by M. Zafar Iqbal (Revised &

Enlarged Edition)

11. Selected topics in Inorganic Chemistry by G.D. Tuli.

12. Physical Chemistry by Gordon M.Barrow, 5th Edition.