

Physics :

1. Mathematical Physics
2. Classical Mechanics
3. Quantum Mechanics
4. Statistical Mechanics
5. Atomic and Molecular Physics
6. Solid State Physics
7. Electronics

Chemistry :

A. Physical Chemistry

- 1) The gaseous state and the kinetic theory of gases.
- 2) Thermodynamics: principles and its applications to
 - a) Chemical equilibrium (including ionic equilibrium).
 - b) Phase equilibrium (upto one and two component systems).
 - c) Properties of solutions (electrolyte and non-electrolyte).
 - d) Redox equilibrium and electrochemical cells.
 - e) Surface equilibrium.
- 3) Chemical kinetics and catalysis.
- 4) Molecular spectroscopy.

B. Organic Chemistry

- 1) Spectrochemistry of organic compounds:
Unit – 1(c), Paper I (group B), Part – I
Unit – 1(a), Paper III (group B), Part - II
Unit – 2, Paper V (group B), Part - III
of Calcutta University syllabus.
- 2) Application of UV, IR and ^1H NMR
Spectroscopic methods in organic chemistry
Unit – 1(b), Paper III, group B, Part – II of C.U.
- 3) Organic synthesis including reaction mechanism and retrosynthetic analysis.
Bonding Features of organic molecules:
Unit – 1(b), Paper I, group B, Part – I of C.U.

C. Inorganic Chemistry

- 1) Redox reactions & theory of acids & bases.
- 2) Atomic structure and periodic property
- 3) Chemical Bonding.
- 4) Theory of coordination chemistry.
- 5) Bio-inorganic & organometallic chemistry.

6) Analytical principles: Oxidimetry, Reductivmetry, Acidimetry-alkalimetry, Complexometry and Qualitative Inorganic Analysis.

English :

1. Essay (One out of four) : 30 marks
(On Literary Topics)
2. Critical Appreciation of Poem : 20 marks