

(Physical Chemistry)
B.Sc. III year (Vth sem) Non Med
Ms. Renu Hooda

week 1

(July 16 - July 21) → optical activity, Polarization, Clausius -
Mossotti equation, orientation of dipoles
in electric field, dipole moment

week-2 (July 23 - July 28) → Measurement of dipole moment,
temperature method and refractivity method.
dipole moment and structure of molecule

week 3 - (July 30 - August 4) → Magnetic permeability,
magnetic susceptibility and its determination

week-4 (Aug 06 - Aug 11) → Application of magnetic suscep-
tibility, magnetic properties.

week 5 (Aug 13 - Aug 18) → Paramagnetic, diamagnetic,
Ferromagnetic

week-6 (Aug 20 - Aug 25) → Test, Arrangement, Introduction
of spectroscopy, Electromagnetic Radiation.

Week-7 (Aug 27 - ~~Sept-01~~) → Region of spectrum, basic feature
of spectroscopy, statement of Born-oppenheimer
approximation.

Week 8 (Sept 03 - Sept 08) → Degree of freedom, Diatomic mo-
Energy level of rigid rotator, selection rule.

- Week-9 (Sept-15th - Sept 15) → spectral intensity (Maxwell-Boltzmann distribution) determination of bond length isotope effect
- Week-10 (Sept-17 - Sept-22) → qualitative description of non-rigid rotor. class test.
- Week-11 (Sept-24 - Sept-29) → Infrared spectrum, energy level of S.M.O., selection rule, pure vibrational spectrum, intensity.
- Week-12 (Oct-1 - Oct-06) → force constant & bond energy determination, effect of Anharmonic oscillation
- Week-13 (Oct-08 - Oct-13) → Isotopic effect on spectral line, idea of vibrational frequency of different functional group.
- Week-14 (Oct-15 - Oct-20) → concept of Polarizability, pure rotational & pure vibrational Raman spectra of diatomic molecules, selection rule, quantum theory of Raman spectra.
- Week-15 (Oct-22 - Oct-27) → Black-body radiation, Planck's radiation, photoelectric effect, heat capacity of solids, Compton effect.
- Week-16 (Oct-29 - Nov 3rd) wave function & its significance, Postulates of quantum mechanics, quantum mechanical operator, commutation relations, Hamiltonian operator, Hermitian operator.
- Week-17 (Nov-5 - Nov-17) - Role of operator in quantum, Determination of wave function & energy of Particle in 1-D. (Nov-15th - 17th)
- Week-18 (Nov-19 - Nov-23) - Angular representation & its significance
- Week-19 (Nov-25 - Nov-30) - class test & Revision.