

Applied Physics (625) Class XI

Time 3hrs. Marks 60

- 1. Units & Dimensions:** M.K.S. fundamentals & derived units, S.I. base units supplementary units and derived units, Dimensions of various physical quantities, uses of dimensional analysis.
- 2. Surface Tension and Viscosity:** molecular forces, molecular theory of surface tension, surface energy, capillary action, concept of viscosity, coefficient of viscosity, principle and construction of viscometers. 2
- 3. Vibrations:** Vibration as simple spring mass system, elementary and qualitative concept of free and forced vibrations, resonance. Effects of vibrations on building bridges and machines members.
- 4. Heat:** Temperature and its measurement, thermoelectric, platinum resistance thermometers and pyrometers. Conduction through compound media and laws of radiations.
- 5. Ultrasonics:** Productions of ultrasonic waves by magnetostriction and piezo-electric effect, application of ultrasonics in industry.
- 6. Optics:** Nature of light, reflection and refraction of a wave from a plane surface. Overhead projector and Epidiascope.

Applied Physics (Practical)

Time 1hr. Marks 40

1. To determine the surface tension of a liquid by rise in capillary.
2. To determine the viscosity of a given liquid.
3. To determine the frequency of tuning fork using a sonometer.
4. To determine the frequency of AC main using sonometer.

Applied Physics (625) Class XII

Time 3 hrs. Marks 60

1. **Electrostatics:** Coloumb's law, electric field, potential, electric flux, gauss theorem and the electric field, around a charged sphere, a long straight conductor and plane charged sheet, potential difference, and potential of a charged sphere and a point charge, principle of capacitor, capacitance of a parallel plate capacitor having a number of media, energy stored in capacitor and combination of capacitor.
2. **Electromagnetism:** Magnetic field around a current carrying conductor and its direction, concept of B & H and permeability, force experienced by a moving charge and current carrying conductor placed in a magnetic field. Magnetic field at the centre of a circular coil, straight conductor and solenoid.
3. **Nuclear Physics:** Nuclear fission and fusion, use of radio isotopes, the application of nuclear fission in nuclear power station, nuclear fuels, radiation hazard.
4. **Basic Electronics:** Semi conductors and their resistivity. Atomic structure of Ge & Si, P & N type materials, formation of P-N and N-P junctions, forward and backward biasing working of semiconductor diode, and its application in half wave and full wave rectifiers, P-N-P and N-P-N transistors and their principles of working.

Applied Physics (Practical)

Time 1hr. Marks 40

1. Draw forward and reverse characteristics of P & N junctions.
2. To find resistivity of a given metal by using meter-bridge.
3. To compare e.m.f. of two cells by using a potentiometer.
4. To determine 'K' of a bad conductor.
5. To determine 'K' of a good conductor.
6. Time period of a cantilever.