

SYLLABUS FOR

PMT–Target (CPMT Type) Combined Test

Date : 21.12.2014 (Part –V)

PHYSICS

Kinematics :

Frame of reference, Motion in a straight line, Position-time graph, speed and velocity, Uniform and non-uniform motion, average speed and instantaneous velocity.

Uniformly accelerated motion, velocity-time and position-time graphs, relations for uniformly accelerated motion (graphical treatment).

Elementary concepts of differentiation and integration for describing motion. Scalar and vector quantities, Position and displacement vectors, general vectors and notations, Equality of vectors, multiplication of vectors by a real number, Addition and subtraction of vectors. Relative velocity.

Unit vector, Resolution of a vector in a plane-Rectangular components. Motion in a plane. Cases of uniform velocity and uniform acceleration-projectile motion. Newtons law of motion.

Unit and Dimensions :

Reflection, Refraction at plane surface and curved surface. Refraction through a lens. Optical instruments, defects of vision, Refraction through a prism, Photon and photoelectric effect. de Broglie wave, Hydrogen Atom, nucleus and nuclear phenomena, semiconductor and semiconductor devices, Logic gate.

Electrostatics :

Coulomb's Law, Electric Field, Electric Dipole, Electric potential, Gauss's Law, Electrostatics of conductor.

Magnetism – Motion of charged particle in magnetic field, force on a current carrying conductor, magnetic moment associated with current induction loop, magnetic field produced by current carrying element.

CHEMISTRY

Chemical arithmetic-laws of chemical combination, Atomic & molecular masses, Mole concept, Percentage composition, Stoichiometry & stoichiometric calculation, Limiting reagent, Empirical formula, equivalent weight, concentration terms, IUPAC nomenclature of organic compound, isomerism, Biomolecules, Polymers, Chemistry in everyday life, solution.

Preparation and properties of alkanes, alkenes, alkynes, E1, E2, carbocation rearrangement, Electrophilic addition –syn & anti, benzene: structure and electrophilic substitution reactions, theory of orientation in mono and di substituted benzene. Alkyl/aryl halide, S_N1 and S_N2 , alcohol, phenol

Solid state, atomic structure, gaseous state.

Chemical bonding, periodicity, Transition metals, coordination compound. $K_2Cr_2O_7$, $KMnO_4$, lanthanides, Group 1, 2, 13, 14 and 15.

BOTANY

Life Cycle of plants, Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms, Reproduction in Flowering plants, Cytology. Plants physiology.

ZOOLOGY

Living things, Complete Classification, Protozoa, Porifera & Coelenterata, Helminthes, Animal tissue, Nematodes and Earthworm, Insecta, Bodywall and body cavity of mammals, digestive system.