

Syllabus For IIT -Target (Advanced Type)

Date : 30.11.2014

PHYSICS

Unit, dimension and error, motion in one dimension and two dimensions, Relative velocity, Graphs, Newton's Law of motion, friction, circular motion.

Electric field and electric potential

Calorimetry, Heat transfer, Thermal expansion, Heat and thermodynamics.

Reflection and refraction at a plane surface and a curved surface, Refraction through a thin lens, lens formula and combination of lenses, Refraction through a prism and dispersion of light, Achromatic combination of lenses, Photon and photoelectric effect, de-Broglie wave, hydrogen atom, nucleus and nuclear phenomena, x-rays.

Motion of charged particle in magnetic field.

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

Solid state, atomic structure, gaseous state.

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

MATHEMATICS

Algebraic equations and inequations .

Trigonometry– Identities and Equations, Inverse trigonometric functions, Relation between Sides and Angles of a triangle.

Straight Lines, Family of straight lines, Circles.

Functions, Limits, Continuity and Differentiability.

Progressions.

Matrices and Determinants.

Vector addition, Vector Product.