Syllabus For
IIT -Target (Advance Type Test)
Date : 28.12.2014

PHYSICS

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

Work energy theorem, power; conservation of mechanical energy

Pressure due to a fluid column; Pascal's law and its applications; Bernoulli's principle and its applications

Electric field and potential; Electric flux, Gauss's law and its applications

Heat, temperature, thermal expansion; specific heat capacity; calorimetry; change of state, latent heat.

Heat transfer conduction, convection and radiation, Newton's law of cooling

Thermal equilibrium; Zeroth law of thermodynamics; concept of temperature

Heat, work and internal energy; First law of thermodynamics; Second law of thermodynamics: reversible and irreversible processes; Carnot engine and its efficiency

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. Magnetic Field, Magnetic Field due to a Current, 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, Biomlecules, Polymers, Chemistry in everyday life, solution.

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

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, Differentiation.

Tangents and Normals, Increasing and Decreasing Functions, Maxima and Minima.

Complex Numbers, Progressions, Matrices and Determinants,

Vector addition, Vector Product.

Three dimensional coordinate geometry, Permutations and Combinations.