**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE, 2014-15**

**DETAILED MONTHLY PLAN-CLASS X11[PHYSICS]**

|  |
| --- |
| MONTH OF august 2015 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight and toroidal solenoids, force on a moving charge in uniform magnetic and electric fields. Cyclotron.  | Force on a current-carrying conductor in a uniform magnetic field. Force between two parallel current-carrying conductors-definition of ampere.Torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter. | Current loop as a magnetic dipole and its magnetic dipole moment.Magnetic dipole moment of a revolving electronMagnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis.  | Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines;.Earth's magnetic field and magnetic elements. Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths. Permanent magnets*SUBMISSION OF PROJECT WORK* |
| MONTH OF september 2015 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction. Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; er.  | LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, wattless current. AC generator and transformer | Electromagnetic waves .Need for displacement current, Electromagnetic waves and their characteristics (qualitative ideas only). Transverse nature of electromagnetic waves. | Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.[7] METRE BRIDGE-11[8]POTENTIOMETER-11[9] CONCAVE MIRROR |
| MONTH OF october 2015 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula. Magnification, power of a lens, combination of thin lenses in contact, combination of a lens and a mirror.Refraction and dispersion of light through a prism. Scattering of light - blue colour of sky and reddish apprearance of the sun at sunrise and sunset. Optical instruments : Microscopes & astronomical telescopes |  (reflecting and refracting) and theirmagnifying powers.Wave frontandHuygen's principle, reflection & refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit | experiment and expression for fringe width, coherent sources &sustained interference of light. Diffraction due to a single slit, width of central maximum.Resolving power of microscopes and astronomical telescope. Polarisation, plane polarised light, Brewster's law, uses of plane polarised light and Polaroids. Dual Nature of Matter and Radiation Dual nature of radiation. | Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of lightMatter waves-wave nature of particles, de Broglie relation. Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained).[10]SEMICONDUCTOR DIODE[11] TRAVELLING MICROSCOPE |

|  |
| --- |
| MONTH OF november 2015 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus, Radioactivity, alpha, beta and gamma particles/rays and their properties; radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion. | Energy bands in solids (Qualitative ideas only) conductor, insulator and semiconductor; semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; I-V Characteristics of LED, photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator. | Junction transistor, transistor action, characteristics of a transistor, transistor as an amplifier (common emitter configuration). Logic gates (OR, AND, NOT, NAND and NOR). Elements of a communication system (block diagram only); bandwidth of signals (speech, TV and digital data); bandwidth of transmission medium | Propagation of electromagnetic waves in the atmosphere, sky and space wave propagation. Need for modulation. Production and detection of an amplitude-modulated wave. Basic ideas about internet, mobile telephony and global positioning system (GPS)12] LIQUID LENS[13]ZENER DIODE[14]GALVANOMETER[15] LENS COMBINATION |

|  |
| --- |
| MONTH OF december 2015 |
| WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| **DECEMBER** | REVISIONPrelims | REVISION | .  |
| **JANUARY 2015** | REVISIONPrelims |  |  |
| **FEBRUARY** | **PRATICAL EXAMINATION** |  |  |
| **MARCH** | **BOARD EXAM** |  |  |