Crash Course Schedule 2017 (w.e.f. 17-03-2017)

Lecture	Date	Day	Physics	Chemistry	Botany	Zoology
Lecture - 1	**17-Mar-17**	**Friday**	**Units and Measurements** Length, mass & time measurements, Accuracy & Precision, Errors, Significant figures	**Some Basic Concepts of Chemistry-I** Laws of chemical combination, Dalton's atomic theory, Mole concept	**The Living World** What is living? ; Biodiversity; Need for classification; Three domains of life; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature; Tools for study of Taxonomy – Museums, Zoos, Herbaria, Botanical gardens	**Animal Kingdom-I** Salient features and Classification of animals-Non chordates upto platyhelminthes
Lecture - 2	**18-Mar-17**	**Saturday**	**Motion in a Straight Line-I** Uniformly accelerated motion (horizontal & vertical)	**Some Basic Concepts of Chemistry-II** Empirical and molecular formula, stoichiometry and calculation based on stoichiometry	**Biological Classification-I** Kingdom systems of classification, Salient features and classification of Monera and Protista	**Animal Kingdom-II** Aschelminthes to Echinoderms
	19-Mar-17	**Sunday**	OFF	OFF	OFF	OFF
Lecture - 3	**20-Mar-17**	**Monday**	**Motion in a Straight Line-II** Graphs	**Structure of Atom-I** Spectrum, equations of K.E., P.E., T.E. Velocity and radius, Quantum numbers	**Biological Classification-II** Salient features and classification of Fungi into major groups.	**Animal Kingdom-III** Chordates (Upto Pisces)
Lecture - 4	**21-Mar-17**	**Tuesday**	**Motion in a Plane-I** Projectile Motion	**Structure of Atom-II** Aufbau principle, Pauli Principle, Hund's rule, Quantum numbers, Electronic configuration	**Biological Classification-III** Lichens, Viruses and Viroids.	**Animal Kingdom-IV** Amphibians to Mammals
Lecture - 5	**22-Mar-17**	**Wednesday**	**Motion in a Plane-II** Circular Motion, Relative Velocity	**Classification of Elements & Periodicity in Properties** Radii, I.E., Electron gain enthalpy, Electronegativity	**Plant Kingdom-I** Salient features and classification of plants into major groups, Algae–Comparative study of green, brown and red algae; Bryophytes - Salient and distinguishing features and examples	**Structural Organisation in Animals-I** Morphology, anatomy and functions of digestive, circulatory, respiratory, nervous and reproductive system of cockroach
Lecture - 6	**23-Mar-17**	**Thursday**	**Laws of Motion** Three laws of motion, conservation of linear momentum	**Chemical Bonding and Molecular Structure-I** Ionic bond, covalent bond, Lewis structure, VBT	**Plant Kingdom-II** Pteridophytes, Gymnosperms and Angiosperms-Salient and distinguishing features and examples	**Structural Organisation in Animals-II** Animal Tissue-Epithelial, Muscular, Connective, Nervous tissues
Lecture - 7	**24-Mar-17**	**Friday**	**Laws of Motion** Friction	**Chemical Bonding and Molecular Structure-II** Resonance, VSEPR theory, Hybridization	**Morphology of Flowering Plants-I** Root, stem, leaf, inflorescence- cymose and recemose, Flower	**Biomolecules-I** Biomolecules-Structure and function of Protein, Carbohydrates

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Lecture	Date	Day	Physics	Chemistry	Botany	Zoology
Lecture - 8	**25-Mar-17**	**Saturday**	**Laws of Motion** Circular motion dynamics, Banking	**Chemical Bonding and Molecular Structure-III** Molecular orbital theory, Hydrogen bonding	**Morphology of Flowering Plants-II** Fruit, seed and families	**Biomolecules-II** Lipids, Nucleic acid, Enzymes-types, properties, enzyme action
	26-Mar-17	**Sunday**	OFF	OFF	OFF	OFF
Test-1	**27-Mar-17**	**Monday**	**3 hours test on the syllabus covered in Lecture - 1 to Lecture - 8 (8:00 AM to 11:00 AM)** **Discussion (11:30 AM to 2:30 PM)**			
Lecture - 9	**28-Mar-17**	**Tuesday**	**Work, Energy & Power** Work-Energy theorem, Vertical circular motion, Collisions	**States of Matter:Gases and Liquids** Ideal gas equation, Deviation from ideal behavior, Critical temperature, Viscosity, Surface tension	**Anatomy of Flowering Plants** Tissues, Tissue system, Anatomy of different parts of flowering plants	**Digestion and Absorption-I** Alimentary canal and digestive glands, role of digestive enzymes
Lecture - 10	**29-Mar-17**	**Wednesday**	**System of Particles and Rotational Motion-I** Centre of mass and conservation of momentum, Moment of inertia	**Thermodynamics-I** Ist law and 2^{nd} law of thermodynamics, Extensive and intensive property. Different forms of enthalpy of reaction	**Anatomy of Flowering Plants** Secondary growth	**Digestion and Absorption-II** Gastrointestinal hormones, Peristalsis, Digestion, absorption and assimilation of proteins, carbohydrates and fats.
Lecture - 11	**30-Mar-17**	**Thursday**	**System of Particles and Rotational Motion-II** Rigid body rotation, conservation of angular momentum	**Thermodynamics-II** Entropy, free energy, spontaneous and non-spontaneous process, third law of thermodynamics	**Cell: The Unit of Life** Cell Theory- Prokaryotic cell, Eukaryotic cell, Cell organelles-structures and functions, nucleus-nuclear membrane chromatin, nucleolus	**Digestion and Absorption-III** Caloric value of proteins, carbohydrates and fats. Egestion, Nutritional and digestive disorders-PEM, indigestion, constipation, vomiting, jaundice, diarrhoea
Lecture - 12	**31-Mar-17**	**Friday**	**System of Particles and Rotational Motion-II** Rolling kinetic energy	**Equilibrium-I** Chemical Equilibrium: Law of mass action and equilibrium constant, Factors affecting K_C, degree of dissociation & numericals	**Cell Cycle & Cell Division-I** Cell cycle and mitosis	**Breathing & Exchange of Gases-I** Respiratory system in humans; Mechanism of breathing and its regulation in humans-Exchange of gases
Lecture - 13	**1-Apr-17**	**Saturday**	**Gravitation** Kepler's law, Newtons law of gravitation, Gravitational potential energy, Escape speed, Satellite motion	**Equilibrium-II** Ionic Equilibrium: pH of weak acids, weak bases, buffer solutions, hydrolysis of salts and mixture of acids & bases	**Cell Cycle & Cell Division-II** Meiosis and their significance	**Breathing & Exchange of Gases-II** Transport of gases and regulation of respiration Respiratory volumes; Disorders related to respiration-Asthma, Emphysema, Occupational respiratory disorders.
	2-Apr-17	**Sunday**	OFF	OFF	OFF	OFF

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Lecture	Date	Day	Physics	Chemistry	Botany	Zoology
Test-2	**3-Apr-17**	**Monday**	**3 hours test on the syllabus covered in Lecture - 9 to Lecture - 13 (8:00 AM to 11:00 AM) Discussion (11:30 AM to 2:30 PM)**			
Lecture - 14	**4-Apr-17**	**Tuesday**	**Mechanical Properties of Solids and Fluids** Elasticity, Flow of non viscous liquid, Viscosity, Surface Tension, **Thermal Properties of Matter** Temperature scales, Thermal expansion Calorimetry, Heat Transfer	**Redox Reaction** Oxidation Number and n-factors of oxidizing & reducing agent, Balancing of equations	**Transport in Plants** Introduction-Means of transport, Diffusion, facilitated diffusion, active transport, plant water relations, Long distance transport of water, transpiration, uptake and translocation of mineral nutrients, Transport of food (phloem transport)	**Body Fluids & Circulation-I** Human circulatory system-Structure of human heart and blood vessels; Cardiac cycle, cardiac output,
Lecture - 15	**5-Apr-17**	**Wednesday**	**Thermodynamics, Kinetic Theory** First law & Second law Kinetic Theory of Gases	**Solid State-I** Classification of solids based on binding forces, amorphous and crystalline solids, packing efficiency, Different types of unit cells, Voids	**Minerals Nutrition** Essential minerals and their role, Deficiency symptoms, Mineral toxicity; Hydroponics, Nitrogen metabolism	**Body Fluids & Circulation-II** ECG, Double circulation; Regulation of cardiac activity; Disorders of circulatory system-Hypertension, Coronary artery disease, Angina pectoris, Heart failure.
Lecture - 16	**6-Apr-17**	**Thursday**	**Oscillations** SHM, Free & forced oscillations	**Solid State-II** Point defects, electrical and magnetic properties, Band theory of metals, conductors, semiconductors & insulators	**Photosynthesis-I** Site of Photosynthesis, pigments involved, cyclic and non-cyclic photophosphorylation, chemiosmotic hypothesis	**Excretory Products and their Elimination-I** Modes of excretion- Ammonotelism, ureotelism, uricotelism; Human excretory system-structure and function; Urine formation, Osmoregulation
Lecture - 17	**7-Apr-17**	**Friday**	**Waves-I** Speed of sound waves, Progressive wave Equation	**Solutions** Solubility of gas in liquid, Expression of concentration of solutions, colligative properties, Raoult's law, Non-ideal solutions, azeotropes, Abnormal colligative properties	**Photosynthesis-II & Respiration in Plants** Photorespiration, Comparative account of C_3 and C_4 pathways, Factors affecting photosynthesis **Cellular respiration**-Glycolysis and Fermentation (anaerobic)	**Excretory Products and their Elimination-II** Regulation of kidney function-Renin-angiotensin, Atrial Natriuretic Factor, ADH and Diabetes insipidus; Role of other organs in excretion; Disorders; Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney.
Lecture - 18	**8-Apr-17**	**Saturday**	**Waves-II** Superposition, Standing waves, beats, sonometer, organ pipes, Dopplers Effect	**Electrochemistry** Products of Electrolysis, Nernst equation, Kohlrausch's law, specific & molar conductance	**Respiration in Plants** TCA cycle and ETS (aerobic), Energy relations, Amphibolic pathways, Respiratory quotient	**Locomotion & Movement** Types of movement- ciliary, flagellar, muscular; Skeletal muscle- contractile proteins and muscle contraction, Skeletal system and its functions; Joints; Disorders of muscular and skeletal system-Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout.

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Lecture	Date	Day	Physics	Chemistry	Botany	Zoology
	9-Apr-17	Sunday	OFF	OFF	OFF	OFF
Test-3	10-Apr-17	Monday	3 hours test on the syllabus covered in Lecture - 14 to Lecture - 18 (8:00 AM to 11:00 AM) Discussion (11:30 AM to 2:30 PM)			
Lecture - 19	11-Apr-17	Tuesday	**Electric Charges and Fields** Coulomb's law, Superposition Principle, Electric field, Dipole, Gauss's Theorem	**Chemical Kinetics & Surface Chemistry** Factors affecting rate of reaction, Determination of order of reaction, Different graphs for different order of reactions, catalyst, Adsorption isotherm, colloidal state, Tyndall effect, Electrophoresis, emulsions	**Plant Growth and Development** Phases of plant growth and growth rate sequence of developmental process in a plant cell, Comparitive study of growth regulators, Seed germination and dormancy, photoperiodism	**Neural Control & Coordination-I** Neuron and nerves; Nervous system in humans (central nervous system)
Lecture - 20	12-Apr-17	Wednesday	**Electrostatic Potential and Capacitance** Electric Potential, Capacitors	**Organic Chemistry: Some Basic Principles and Techniques-I** Method of purification, qualitative and quantitative analysis, Stability of different reaction intermediates, Electron displacement in covalent bond, IUPAC nomenclature	**Reproduction in Organisms & Sexual Reproduction in Flowering Plants-I** Reproduction, Modes of reproduction Asexual and Sexual, Development of male and female gametophytes, Pollination-types.	**Neural Control & Coordination-II** Peripheral nervous system and visceral nervous system; Generation and conduction of nerve impulse; Reflex action
Lecture - 21	13-Apr-17	Thursday	**Current Electricity** Ohm's law, Cell, Kirchhoff's law, Wheatstone bridge, Potentiometer	**Organic Chemistry: Some Basic Principles and Techniques-II** Substitution, Addition and Elimination reactions, Saytzeff and Hofmann rule, Electrophiles & nucleophiles	**Sexual Reproduction in Flowering Plants-II** Pollination-agencies and examples; Outbreeding devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events, Development of seed and formation of fruit, apomixis	**Neural Control & Coordination-III** Sense organs; Elementary structure and function of eye and ear
Lecture - 22	14-Apr-17	Friday	**Moving Charges and Magnetism-I** Biot-Savart's law, Ampere's law and its applications	**Hydrocarbons-I** Isomerism: structural, geometrical, conformation, Preparations and chemical properties of alkane and alkenes Preparations and properties of alkynes and aromatic hydrocarbons, **Environmental Chemistry :** Acid rain, effect of depletion of ozone layer, green chemistry	**Principle of inheritance & Variations-I** Mendelian inheritance: 1 gene & 2 genes interaction, Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups; Pleiotropy; Polygenic inheritance	**Chemical Coordination and Integration-I** Endocrine glands and hormones; Human endocrine system Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas,

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Lecture	Date	Day	Physics	Chemistry	Botany	Zoology
Lecture - 23	**15-Apr-17**	**Saturday**	**Moving Charges and Magnetism-II** Force on moving charge, Force on current, Moving coil Galvanometer (Ammetre and Voltmetre)	**Haloalkanes & Haloarenes-I** Preparation and properties of Haloalkanes & optical rotation	**Principle of inheritance & Variations-II** Chromosome theory of inheritance; Sex determination, Linkage and crossing over, sex-linked inheritance	**Chemical Coordination and Integration-II** Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorders (Common disorders e.g. Dwarfism, Acromegaly, Cretinism, goiter, exopthalmic goiter, diabetes, Addison's disease)
	16-Apr-17	**Sunday**	OFF	OFF	OFF	OFF
Test-4	**17-Apr-17**	**Monday**	**3 hours test on the syllabus covered in Lecture - 19 to Lecture - 23 (8:00 AM to 11:00 AM)** **Discussion (11:30 AM to 2:30 PM)**			
Lecture - 24	**18-Apr-17**	**Tuesday**	**Magnetism & Matter** Bar Magnet, Earth's magnetism Dia, Para & Ferromagnetism, Electromagnets & Permanent magnets	**Haloalkanes & Haloarenes-II** Haloarenes, Substitution reactions and nature of C-X bond, DDT	**Principle of inheritance & Variations-III** Mendelian disorders, chromosomal disorders, Pedigree analysis	**Human Reproduction-I** Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis & oogenesis; Menstrual cycle
Lecture - 25	**19-Apr-17**	**Wednesday**	**Electromagnetic Induction** Faradays law of EMI, Lenz's law, Eddy Currents, Self & Mutual induction	**Alcohols, Phenols & Ethers** Preparations & Properties of alcohol, difference between 1°, 2° & 3° alcohols, Preparations & Properties of Phenol & ethers	**Molecular Basis of Inheritance-I** Search for genetic material and DNA as genetic material, structure of DNA and RNA, DNA packaging	**Human Reproduction-II** Fertilisation, embryo development upto blastocyst formation, implantation
Lecture - 26	**20-Apr-17**	**Thursday**	**Alternating Current** AC series LCR circuits, resonance, power consumption, wattless current, LC oscillations, AC generators, Transformer	**Aldehydes, Ketones & Carboxylic Acids-I** Relative reactivity of different aldehydes & Ketones for nucleophilic addition reaction, condensation reaction	**Molecular Basis of Inheritance-II** DNA replication, Central Dogma, Transcription, genetic code	**Human Reproduction-III** Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea)

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Lecture	Date	Day	Physics	Chemistry	Botany	Zoology
Lecture - 27	**21-Apr-17**	**Friday**	**Electromagnetic Waves** Displacement current, EM waves & their characteristics, Electromagnetic spectrum	**Aldehydes, Ketones & Carboxylic Acids-II** Oxidation & Reduction, Relative reactivity order of acid derivatives, HVZ reaction, Beckmann rearrangement, Heating effect on carboxylic acids	**Molecular Basis of Inheritance-III** Translation, Gene expression and regulation, Genome and Human genome project, DNA fingerprinting	**Reproductive Health** Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control-Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies – IVF, ZIFT, GIFT
Lecture - 28	**22-Apr-17**	**Saturday**	**Ray Optics and Optical Instruments** Reflection & Refraction, Optical Instruments	**Organic Compounds containing Nitrogen** Gabriel-phthalamide reactions, Hoffman bromamide reactions, Reduction of nitro-compounds, oxidation of amines, basic nature of amines and effect of substituent on it.	**Strategies for enhancement in food production** Plant breeding and tissue culture, single cell protein, Biofortification;	**Evolution-I** Origin of life; Biological evolution and evidences for biological evolution from Paleontology, comparative anatomy, embryology and molecular evidence
	23-Apr-17	**Sunday**	OFF	OFF	OFF	OFF
Test-5	**24-Apr-17**	**Monday**	**3 hours test on the syllabus covered in Lecture - 24 to Lecture - 28 (8:00 AM to 11:00 AM) Discussion (11:30 AM to 2:30 PM)**			
Lecture - 29	**25-Apr-17**	**Tuesday**	**Wave Optics** Interference	**Biomolecules** Reaction of glucose and its structure, Isoelectric points	**Microbes in Human Welfare** Microbes in household food processing, industrial production, sewage treatment, energy generation, biocontrol agents and biofertilizers.	**Evolution-II** Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolution-Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection;
Lecture - 30	**26-Apr-17**	**Wednesday**	**Wave Optics** Diffraction, Polarization, Resolving Power	**Polymers, Chemistry in Everyday Life** Mode of polymerization, Monomers of different polymers, Food preservatives and drugs	**Organisms and Population-I** Organisms & its environment, Major abiotic factors and their response	**Evolution-III** Gene flow and genetic drift; Hardy-Weinberg's principle; Adaptive Radiation, Human Evolution

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Lecture - 31	**27-Apr-17**	**Thursday**	**Dual Nature of Radiation and Matter** Photoelectric effect, Matter waves	**Hydrogen, s-block** Occurrence, isotopes, preparation, hydrides, H_2O, H_2O_2 etc., s-block elements	**Organisms and Population-II** Population and ecological adaptations, Population attributes, Population interactions	**Human health & Disease-I** Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis. Typhoid, Pneumonia, common cold, amoebiasis, ring worm)
Lecture - 32	**28-Apr-17**	**Friday**	**Atoms** Bohrs' Model	**p-block elements (XI Class)** Group-13 & 14	**Ecosystem-I** Productivity and decomposition, Energy flow-pyramid of number, biomass and energy	**Human health & Disease-II** Basic concepts of immunology-vaccines; Cancer
Lecture - 33	**29-Apr-17**	**Saturday**	**Nuclei** Radioactivity, Binding Energy	**General Principles and Processes of Isolation of Elements** Different methods of purification of impure metals, Ellingham diagram	**Ecosystem-II** Nutrient cycling and Ecological succession	**Human health & Disease-III** AIDS; Adolescence, drug and alcohol abuse
	30-Apr-17	**Sunday**	**OFF**	**OFF**	**OFF**	**OFF**
Test-6	**1-May-17**	**Monday**	**3 hours test on the syllabus covered in Lecture - 29 to Lecture - 33 (8:00 AM to 11:00 AM)** **Discussion (11:30 AM to 2:30 PM)**			
Lecture - 34	**2-May-17**	**Tuesday**	**Semi-conductor Electronics** Energy bands, diodes	**p-block elements (XII Class)** Group-15 - 18 : Acidic nature order, Interhalogen compounds, Psuedohalide ions, Polyhalide ions, Important reactions of HNO_3, H_2SO_4, Cl_2, NH_3, SO_2	**Biodiversity** concept, pattern, Importance, loss and conservation; Hot spots, endangered organisms, extinction, Red data book, Biosphere reserve, National parks and sanctuaries	**Strategies for Enhancement in Food Production** Animal husbandry

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Lecture	**Date**	**Day**	**Physics**	**Chemistry**	**Botany**	**Zoology**
Lecture - 35	**3-May-17**	**Wednesday**	**Semi-conductor Electronics** Transistors	**d & f block elements** Properties and some important compounds of transition elements, Lanthanoids, Actinoids	**The Environmental Issues** Air pollution, Water pollution, Agrochemicals and their effects	**Principles and process of Biotechnology** Genetic engineering (Recombinant DNA technology)
Lecture - 36	**4-May-17**	**Thursday**	**Semi-conductor Electronics** Logic gates	**Coordination Chemistry** Werner's Theory, Isomerism, VBT, CFT, Organometallic compounds, synergic bonding	**The Environmental Issues** Solid waste management, Radioactive waste management, Green house effect and global warning, ozone depletion, deforestation	**Application of Biotechnology** in health and agriculture: Human insulin and vaccine production, gene therapy; Genetically modified organisms-Bt crops; Transgenic Animals; Biosafety issues-Biopiracy and patents
Test-7	**5-May-17**	**Friday**	**3 hours test on Complete Syllabus XI & XII on NEET Pattern (8:00 AM to 11:00 AM)** **Discussion (11:30 AM to 2:30 PM)**			