

C.E.E. Reg. No. :.....
(To be filled by the Office)

Application No. :.....



VINAYAKA MISSIONS UNIVERSITY

(Vinayaka Mission's Research Foundation)
Deemed to be University
(Declared Under Section 3 of the UGC Act, 1956)
SANKARI MAIN ROAD (NH-47), ARIYANOOR,
SALEM - 636 308, TAMIL NADU, INDIA

Accredited By NAAC

Affix here your
latest colour
passport size
photograph

APPLICATION FORM FOR ALL INDIA COMMON ENTRANCE EXAMINATION - 2016 MBBS DEGREE PROGRAMME

1. Name of the Candidate :
(in BLOCK Letters)
2. Programme applied for : **MBBS**
3. College preferred (✓ Tick) :
 Vinayaka Mission's Kirupananda Variyar Medical College & Hospital, Salem, Tamil Nadu
 Vinayaka Mission's Medical College & Hospital, Karaikal, (U.T. of Puducherry)
 Aarupadai Veedu Medical College & Hospital, Puducherry
4. Entrance Examination Centre Preference (Enter the choice of preference for each centre in the corresponding box.
Exhaust all the preferences 1 - 4)
 SALEM CHENNAI KOLKATA PUDUCHERRY
5. a) Name of the Candidate (in BLOCK Letters) :
- b) Expansion of Initial(s) :
- c) Permanent address with PIN Code :

d) Address for communication with PIN Code (if different from permanent address) :

.....

e) Phone No. with STD Code :

Residence :

Mobile :

f) Email ID :

6. Gender (✓ Tick) : Male Female Other

7. a) Date of Birth :

b) Age as on 31st Dec. 2016 :

c) Place of Birth, District and State :

8. a) Nationality :

b) Religion :

c) Community (✓ Tick) :

ST	SC	MBC	DNC	OBC	BC	OC
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

d) Caste :

e) Special Category (✓ Tick)

(If "yes" attach supporting documents)

Are you a Differently Abled Candidate? Yes No

Do you claim consideration under Sports Proficiency? Yes No

9. Information on Parents / Guardian

DETAILS	FATHER / MOTHER	GUARDIAN
Name		
Occupation		
Designation		
Annual Income	₹.	₹.
E-mail ID		
Name and address of the employer		
Contact Phone No :		

10. Academic qualification for admission to MBBS :

- a. Qualifying examination passed (✓ Tick) : HSC Equivalent
If 'equivalent' specify :
- b. Name and address of the institution last studied :
- c. Name of the Board / University :
- d. Register Number, Month and Year of Passing of qualifying examination : Reg. No. _____
Month : _____ Year : _____
- e. Details of Marks secured in the qualifying examination

SUBJECT	MAXIMUM MARKS	MINIMUM MARKS FOR PASS	MARKS OBTAINED	% OF MARKS OBTAINED
English				
Physics				
Chemistry				
Biology				
Botany				
Zoology				
Biotechnology				

JOINT DECLARATION BY THE CANDIDATE & PARENT

I am aware and I hereby solemnly and sincerely affirm that if I contravene any of the rules and regulations of the University, I am liable to any disciplinary action that the University management may consider necessary and appropriate.

Moreover, I hereby solemnly and sincerely affirm that the details, statements, date of birth and the information furnished by me in the application and enclosures submitted by me are true and correct. Should it, however, be found that any information/particulars furnished therein are untrue on verification at a later date, I am liable for any action taken by the University including forfeiture of my admission. I agree that all disputes are subject to the jurisdiction of the courts at Salem only.

Place :

Date :

Signature of the Candidate

I have fully read the information furnished to the University by the applicant and I affirm that it is true and correct and if found false I am liable for action taken by the University.

Place :

Date :

Signature of the Parent / Guardian



VINAYAKA MISSIONS UNIVERSITY

(Vinayaka Mission's Research Foundation)

Deemed to be University

(Declared Under Section 3 of the UGC Act, 1956)

SANKARI MAIN ROAD (NH-47), ARIYANOUR, SALEM - 636 308, TAMIL NADU, INDIA

ALL INDIA COMMON ENTRANCE EXAMINATION - 2016

MBBS DEGREE PROGRAMME

HALL TICKET

I. Name of the Programme : MBBS

Application No. :

II. College preferred (✓ Tick) :

Vinayaka Mission's Kirupananda Variyar Medical College & Hospital, Salem, Tamilnadu.

Vinayaka Mission's Medical College & Hospital, Karaikal, U.T. of Puducherry.

Aarupadai Veedu Medical College & Hospital, Puducherry.

III. Entrance Examination Centre Preference (Enter the choice of preference for each centre in the corresponding box. Exhaust all the preferences 1 - 4)

SALEM CHENNAI KOLKATA PUDUCHERRY

Affix here your
latest colour
passport size
photograph

Name : _____
(in BLOCK Letters)

Address : _____

PIN

--	--	--	--	--	--

SIGNATURE OF THE CANDIDATE

(FOR OFFICE USE ONLY)

Register Number :

--	--	--	--	--	--

Examination Centre :

Date of Examination :

Time of Examination :

Signature of the issuing authority :

Controller of Examinations

Signature of the Candidate
(To be signed in the Examination Hall)

Note : a) Candidates are instructed to report at the Examination Hall half-an-hour before the scheduled time of starting of the examination, with Hall Ticket, pen, pencil and eraser.

b) If sufficient number of candidates are not available for a particular Examination Centre, the University may divert those candidates to the other nearest examination centre of its choice.



VINAYAKA MISSIONS UNIVERSITY

(Vinayaka Mission's Research Foundation)
Deemed to be University
(Declared Under Section 3 of the UGC Act, 1956)
Salem, Tamilnadu, India
(ACCREDITED BY NAAC)

ALL INDIA COMMON ENTRANCE EXAMINATION - 2016 MBBS

HANDBOOK OF INFORMATION AND GUIDELINES





VINAYAKA MISSIONS UNIVERSITY

(Vinayaka Mission's Research Foundation)

Deemed to be University

(Declared Under Section 3 of the UGC Act, 1956)

Sankari Main Road, (NH-47), Ariyanoor, Salem - 636 308, Tamil Nadu, India

(ACCREDITED BY NAAC)

ALL INDIA COMMON ENTRANCE EXAMINATION - 2016 INFORMATION BROCHURE FOR MBBS DEGREE PROGRAMME

I. INTRODUCTION :

In recognition of its excellence in Educational endeavors Vinayaka Missions was accorded the Deemed University Status in the year 2001 by the Ministry of Human Resource and Development, Government of India. The University is the 48th Deemed University in India. Vinayaka Mission's Research Foundation (VMRF) offers diploma, degree, career oriented UG and PG programmes and Research Programmes in the fields of Medicine, Dentistry, Alternative, Allied & Para Medicine, Homoeopathy, Engineering, Technology, Architecture, Management, Computer Applications and Basic Sciences. The University is in the process of continuously developing and offering job oriented and innovative educational programmes.

Vinayaka Mission's Research Foundation is conducting its Common Entrance Examinations (CEE) every year on an all India basis for admission to its 5^{1/2} year MBBS degree programme, offered in three campuses of the University, namely, Vinayaka Mission's Kirupananda Variyar Medical College & Hospital, Salem , Vinayaka Mission's Medical College & Hospital, Karaikal and Aarupadai Veedu Medical College & Hospital, Puducherry. Candidates who satisfy the eligibility criteria will be admitted to the concerned programmes and institutions through counseling, based on their ranks in the Entrance Examination.

This handbook contains the general information and rules relating to the University Entrance Examination 2016 and relevant details of the programmes offered, examination centres, syllabi, counseling etc. Candidates are required to go through the handbook thoroughly and acquaint themselves with the details relating to entrance examination and subsequent admission. The contents of the handbook are subject to modification as may be deemed necessary by the University.

Course Duration : 4^{1/2} years of study + 1 year of Compulsory Resident Rotatory Internship.

II. ELIGIBILITY FOR ENTRANCE EXAMINATION :

(a) Candidates Should have studied in a recognized School and passed in the HSC Examination (Academic Stream of 10+2 curriculum) of any State Board / CBSE / ISC / any other examination recognized as equivalent thereto, with the group of subjects specified below and obtained the minimum eligibility marks prescribed by the Medical Council of India (MCI).

(b) Candidates who are appearing for HSC (+2) or equivalent examination in March / April 2016 are also eligible to appear for the entrance examination subject to condition as detailed below.

PROGRAMME OF STUDY	GROUP OF SUBJECTS SPECIFIED
MBBS	English, Physics, Chemistry and Biology or (Botany & Zoology) or Biotechnology

(i) Candidates belonging to any State/Union Territory of India only are eligible.

(ii) Candidates who are appearing for the HSC (+2) or equivalent Examination in March/April 2016 **should submit a xerox copy of the HSC (+2) mark statement, immediately on its receipt** to the Registrar of this University either in person or by speed post / courier service. At the top of the HSC Mark statement copy, the candidates should write their "Entrance Examination Registration Number" assigned to them by this University.

III. ELIGIBILITY FOR ADMISSION TO MBBS DEGREE PROGRAMME :

A candidate must possess the qualification prescribed by the Medical Council of India, New Delhi at the time of joining the course.

(a) Qualification Marks :

Candidates must have passed the HSC (+2) /equivalent qualifying examination and obtained in aggregate a minimum of 50% of Marks (40 % in the case of SC/ST & OBC) taking together Physics, Chemistry and Biology (or Botany & Zoology) / Biotechnology with a pass in English.

(b) Age Limit :

Candidates should have completed 17 years of age as on 31st December, 2016. (Date of Birth entered in the Mark Statement of SSLC/HSC/CBSE/ISC or its equivalent Examinations or in the Birth Certificate shall be taken for computing the age of the candidates.)

(c) Eligibility Certificate :

Candidates who have passed in the qualifying examination other than HSC (+2) (Academic Stream) Examination of the Board of Higher Secondary Examinations, Tamilnadu should obtain Eligibility Certificate from the Vinayaka Missions University, Salem and submit the same at the time of admission.

(d) Entrance Examination Mark :

Candidates must also have secured not less than 50% marks (40% in the case of SC/ST & OBC) in the Entrance Examination.

IV. APPLICATION FORM :

Application form can be obtained from the University office in person on payment of Rs. 1100/- by cash, or tendering a demand draft of that value favouring "Vinayaka Missions University" payable at Salem. To obtain the application form by Post a demand draft, as described above, to the value of Rs.1200/- must be sent to the University Office.

Application form can also be downloaded from our website www.vinayakamission.com in which case, the Filled-in application must be submitted along with a Demand Draft for Rs 1100/-. The filled in application with enclosure(s) must reach the following address within the notified last date.

**The Registrar
Vinayaka Missions University
Sankari Main Road (NH-47)
Ariyanoor, Salem - 636 308, Tamil Nadu.
Ph: 0427 - 3987000**

Candidates are advised to send the filled-in applications well in advance to avoid any delay in transit. The University shall not be liable for any postal delay or loss in transit.

Important Dates

Last date for issue of application forms and receipt of filled - in applications	16.05.2016
Date of All India Common Entrance Examination	28.05.2016
Examination Time	10.00 am to 1.00 pm

V. ENTRANCE EXAMINATION CENTRES :

The All India Common Entrance Examination will be conducted in the following Cities:

- 1) Salem 2) Chennai 3) Puducherry 4) Kolkata

In the application form in the box against each centre write your preference number for that Centre. Exhaust all the preferences 1 – 4. Details of Venue of Entrance Examination at the Centre opted by the candidates will be given in the Hall Ticket. Request for change of Centre will not be considered.

If adequate number of candidates is not available for a Centre the candidates who have opted for that Centre will be allocated to any other nearest Centre. The candidates have to appear for the All India Common Entrance Examination only at the Centre allotted to them and at their own cost.

Hall Tickets will be sent by post to all the eligible applicants before **20.5.2016**. Those who do not receive the hall ticket by **22.05.2016** can contact the University office by phone 0427-3987000.

VI. ENTRANCE EXAMINATION :

a. General

The questions for the CEE will be of objective type which may include Matching, Assertion – Reason and Comprehension types also. Multiple answers will be given from which the correct answer is to be chosen.

b. Filling the OMR Sheet

Before filling up the OMR sheet read the Instruction carefully.

Fill up OMR sheet legibly, neatly, correctly and do not fold the OMR sheet.

Filled up OMR sheet with incomplete or insufficient particulars or without the signature of the candidate will be rejected.

c. Method of Answering

Select the correct answer and shade the corresponding bubble using HB pencil or ball pen / pen (of black or blue - black ink).

d. Evaluation of Answer Sheet

Specially designed OMR answer sheets, suitable for computer evaluation, are used. If the number of candidates is small, manual evaluation will be done.

e. Language of the Question paper

The Language of the question paper is English.

f. Hall Tickets

No candidates will be allowed to enter the examination hall without a valid hall ticket.

Candidates should not carry any textual material, printed or written, bits of paper or any other electronic materials except the Hall ticket, pencil, ball pen / pen and eraser. Violators shall be disqualified from appearing in the entrance examination.

g. Declaration of results

- (i) Entrance Examination results shall be published in the University website.
- (ii) There is no provision for rechecking/revaluation of the answer sheets and no query on the subject will be entertained.

VII. Entrance Examination Pattern for MBBS

Duration of the Examination	3 Hours
Maximum Marks of the paper	300
Distribution of number of questions and marks	
Part - I : Physical Science	Physics (P) : 30 questions Chemistry (C) : 30 questions Two marks for each question Total Marks : 120
Part - II : Biology	Biology (B) : 60 questions Three marks for each question Total marks : 180
Whether negative marks for wrong answer	No

a. Nature of Questions

The questions will be of objective type, each with four answers one of which will be the correct answer.

b. Syllabus for the Examinations

The minimum common current syllabus expected to be covered reasonably well in CBSE and State Boards, at the level of Standard XII. The details are given in Appendix –I.

c. Ranking Procedure

The candidates of CEE are ranked based on their CEE marks. Though all candidates may not have distinct CEE marks, all the ranks must be distinct. Ties that may arise between candidates because of equal total marks in the CEE are resolved in one or more steps using the following criteria.

d. Tie- Breaking Criteria

Among the candidates who are “tied-up” with the same total marks in Common Entrance Examinations Higher Priority (Smaller rank) is given to the one(s) with higher mark in the subject of Biology in the CEE. If the tie still persists, similar higher priorities are given to the following, in order, until the tie breaks totally;

Higher mark in Biology or Botany & Zoology in CEE,

Higher total mark in (B+P+C) in the qualifying Examinations (QE), (with the weightages; 200+100+100)

Higher mark in B in QE,

Higher mark in C in QE,

Earlier Date of Birth

VIII. COUNSELING AND OFFER OF ADMISSION :

Candidates obtaining not less than a prescribed cut-off mark in the CEE are called for counseling for selecting the college for admission in the order of their rank.

The Entrance Examination results shall be published in the University website and the call letter for counseling will be sent to the selected candidates. The selected candidates should appear for counseling on the stipulated date and time without fail. The counseling will be held at University campus or its constituent colleges. Seat and college allotment will be done based on the rank list subject to fulfillment of the eligibility criteria.

Candidates who are not present for counseling on the specified date and time do not have any rights to claim any seat.

The candidate should be present for the counseling accompanied by a Parent / Guardian.

Counseling call to a candidate does not guarantee for admission to the programme.

If the originals are not produced, the candidate will not be allowed to attend the counseling, unless allowed for valid reasons.

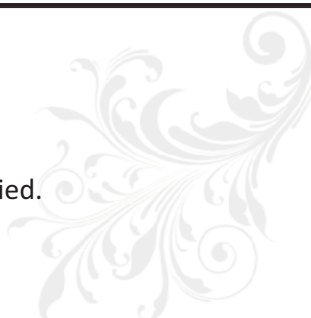
Admission will be made strictly on the basis of merit and availability of seats. As soon as the seats are filled admission will be closed.

IX. ADMISSION AFTER SELECTION :

The candidates selected for admission through counseling should pay the Tuition fees and other fees within the specified date, as prescribed by the University.

If a candidate fails to remit the fee on or before the stipulated date, his/her admission will get automatically cancelled without any notice.

The following original certificates with three sets of Xerox copies should be submitted at the time of counseling, if selected for admission.

- 
1. Mark sheets of HSC (+2) or its equivalent.
 2. Proof of Date of Birth
 3. Transfer Certificate and Conduct Certificate from the institution last studied.
 4. Community Certificate
 5. Eligibility Certificate from this university (if applicable)
 6. Migration Certificate (if applicable)
 7. Physical Fitness Certificate.
 8. Latest Colour Passport size Photo - 8 Nos.

When a candidate accepts the seat allotment, his/her original certificates will be retained by the University, for a period decided by the competent authority.

X. RAGGING :

The University has adopted the Medical Council of India (Prevention and Prohibition of Ragging in Medical College / Institutions) Regulations, 2009 and the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009 and these regulations shall be applicable to all students.

Student of this University shall not directly or indirectly indulge or abet any other to indulge in ragging or teasing in any form. Those who contravene the above stipulation shall be removed from the rolls irrespective of their level of study and will be subjected to appropriate legal actions.

For any disputes arising out of this Prospectus the jurisdiction shall be Salem only.

REGISTRAR

APPENDIX - I

SYLLABUS FOR CEE FOR MBBS PROGRAMME

PHYSICS

Mensuration, units, dimensions and dimensional homogeneity

Kinematics : Motion in straight lines, speed, velocity, acceleration, relative velocity, motion in plane, projectile, circular motion

Laws of Motion : Inertia, force and momentum, Newton's laws, Impulse, law of conservation of linear momentum, equilibrium under concurrent forces, static and Kinetic friction, laws of friction, rolling friction, dynamics of uniform circular motion.

Work, Energy and Power : Kinetic and Potential energies, power, energy of a spring, conservative forces, collision of elastic bodies.

Rotational Motion and Gravitation : Moment of a force, angular momentum, its conservation, Moment of inertia, rigid body rotation, universal law of gravitation, acceleration due to gravity, Kepler's Laes, escape velocity.

Properties of Solids and Liquids : Stress - strain relation, Hooke's law, Young's modulus, bulk modulus, rigidity modulus, fluid pressure, viscosity, surface tension, angle of contact, heat, temperature, thermal expansion, specific heat, conduction, convection and radiation, Newton's law of cooling.

Thermodynamics and Kinetic Theory of Gases : Laws of thermodynamics, reversible/irreversible processes, Carnot engine, equation of state and perfect gas, kinetic energy and temperature, law of equipartition of energy, mean free path, Avogadro number.

Periodic Motion and Waves, period, frequency, periodicity, SHM, oscillations of a spring, force constant, simple pendulum, free, forced and damped oscillations, resonance, longitudinal and transverse waves, superposition of waves, standing waves, harmonics, beats, Doppler effect in sound.

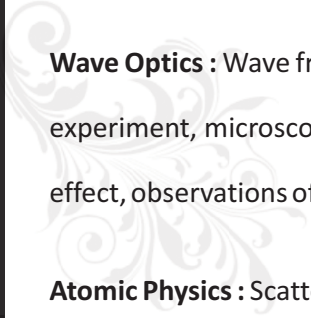
Electrostatics : Charge, Coulomb law, forces between charges, superposition principle : electric field lines, dipole in uniform electric field, . Electric flux, Gauss law, field due to charged infinitely long straight wire, plane sheet and spherical shell, electric potential dipole, equipotential surfaces, conductors and insulators, dielectrics, electrolytic polarisation, capacitors, parallel plate capacitor with / without dielectric medium between the plates, energy in a capacitor.

Current Electricity : Electric current, drift velocity, Ohm's law, resistance, energy power, resistivity, series / parallel combinations of resistors, temperature and resistance, electric cell, internal resistance ρ and emf of a cell, series / parallel combination of cell, Kirchhoff's laws, Wheatstone bridge, meter bridge and potentiometer.

Magnetic Effects of Current and Magnetism : Current in circular loop, Biot-Savart law, Ampere law, infinitely long straight current carrying wire and solenoid, charge moving in uniform magnetic and electric fields. Forces on current carrying conductor in uniform magnetic field, between two parallel conductors, torque on a current loop in uniform magnetic field, moving coil galvanometer, conversion to ammeter and voltmeter, current loop as a magnetic dipole, Earth's magnetic field and magnetic elements, para-dia and ferro-magnetic materials, magnetic susceptibility and permeability, hysteresis, electromagnets and permanent magnet.

Electromagnetic induction, alternating current and electromagnetic waves; Faraday's law, induced emf and current Lenz law, eddy current, self and mutual inductance, alternating current, rms value of alternating current / voltage, reactance, alternating currents rms values of alternating current / voltage, reactance and impedance, LCR series circuit, resonance, power in AC circuit, AC generator and transformer, electromagnetic waves and their characteristics, electromagnetic spectra, applications of electromagnetic waves.

Optics : Reflection and refraction of light at plane and spherical surface, total internal reflection, dispersion by prism, Lens formula, magnification and power, microscope, telescope.



Wave Optics : Wave front, Huygens principle, reflection, refraction and interference, Young's double slit experiment, microscopes, telescopes, polarization. Brewster's law, plane polarized light and Photoelectric effect, observations of Hertz and Lenard, particle, de Broglie relation.

Atomic Physics : Scattering of alpha particle, Rutherford's and Bohr's models of atom, hydrogen spectrum, nucleus atomic masses, isotopes, isobars isotones, radioactivity, alpha, beta, gamma particles, radioactive decay, mass - energy relation, mass defect, binding energy, nuclear fission and fusion.

Electronic and Communication Devices : Semiconductors, semiconductor diode, I-V characteristics in forward and reverse bias, diode as rectifier, LED, photo diode, Solar cell, Zener diode junction transistor, as an amplifier.

Oscillator and switch, logic gates, Propagation of electromagnetic waves, need for modulation, amplitude and frequency modulation, bandwidth of signals and transmission medium.

CHEMISTRY

PHYSICAL CHEMISTRY

Basic concepts : Laws of chemical combination atomic and molecular masses, mole, molar mass, percentage composition, empirical and molecular formulae, chemical equations.

Matter and States : Solid, liquid and gaseous states of matter,

Gas : Boyle's Law, Charles's law, Graham's law of diffusion, Avogadro's law, Dalton's law of partial pressure, Ideal gas equation, Kinetic theory of gases, average, rms and most probable velocities of real gases, Van der Waals equation, liquefaction of gases, critical constants,

Liquid : Vapor pressure, viscosity and surface tension effect of temperature,.

Solid : Molecular, ionic, covalent and metallic solids, amorphous and crystalline solids, Bragg's law, Lattices, packing in solids, voids, electrical, magnetic and dielectric properties.

Atom : electron, proton and neutron, models of Thomson and Rutherford, electromagnetic radiation, photoelectric effects, hydrogen atom, Bohr model, dual nature of matter, Heisenberg uncertainty principle, elementary ideas of quantum mechanics, atomic orbitals as one electron wave function, quantum number, *s*, *p* and *d* orbitals, spin quantum number, Pauli's exclusion principle, Hund's rule, electronic configuration of elements.

Chemical Bonding and Molecular Structure : Kossel-Lewis approach to chemical bond formation. Ionic bonding, lattice enthalpy, covalent bonding, electronegativity, Fajan's rule, dipole moment, VSEPR, Valence bond theory, hybridization involving *s*, *p* and *d* orbitals, resonance, molecular orbital theory, LCAO type of orbitals, sigma and pi-bonds, homonuclear diatomic molecules, bond order, bond length and bond energy.

Chemical Thermodynamics : Fundamentals, extensive and intensive properties, state functions, process types, first law of thermodynamics : work, heat, enthalpy, heat capacity, Hess law : Second Law of thermodynamics

Solutions : Molality, molarity, mole fraction, vapour pressure and Raoult's law, ideal and non-ideal solutions, colligative properties of dilute solutions, determination of molecular mass, van Hoff factor

Equilibria : Physical process equilibria, Henry's law, chemical process equilibria, laws, K_p and K_c , ΔG and ΔG° , equilibrium concentration, pressure, temperature, effect of catalyst, Le Chatelier principle. Ionic equilibrium weak and strong electrolytes ionization, concepts of acids and bases, ionization of water, pH scale, solubility products, buffer solutions.

Electrochemistry : Electrolyte and metallic conduction, conductance in electrolytic solutions, specific and molar conductivities, Kohlrausch law, Electrochemical cells, Galvanic cell, Nernst equation, cell potential and Gibbs energy changes.

Chemical Kinetics : Reaction rate elementary and complex reactions, order and molecularity, rate constant, zero and first order reaction, Arrhenius theory, activation energy

Surface Chemistry : adsorption of gases on Solids, Freundlich and Langmuir adsorption solid catalyst, enzyme catalysts, Colloidal state - Colloids and suspensions, classifications of colloids, Tyndall effect, Brownian movement, electrophoresis, dialysis, coagulation and flocculation, emulsions

INORGANIC CHEMISTRY

Classification of elements and periodicity, modern periodic law, periodic table, s, p, d and f block elements, periodic trends in properties of elements.

Isolation of metals Occurrence of elements in nature, extraction of metals, concentration reduction and refining of Al, Cu, Zn and Fe.

Hydrogen : Position in periodic table, isotopes, preparation properties and uses, water and heavy water, hydrogen peroxide, ionic, covalent and interstitial classification of hydrides.

s-Block Elements : Group 1 and 2 elements, electronic configuration, general trends in physical and chemical properties of sodium carbonate, sodium chloride, sodium hydroxide and sodium hydrogen carbonate.

p-Block Elements : Group 13 to 18 elements, group wise study, d-and f-Block elements : transition elements, inner transition, lanthanides and actinoid.

Coordination Compounds : Werner theory, Ligands, coordination number, dent city chelation, isomerism, crystal field theory, color and magnetic properties.

Environmental Chemistry : Environmental and atmospheric pollution. troposphere, particulate and soil pollution, control strategies.

ORGANIC CHEMISTRY

Organic Component : Purification, qualitative analysis detection of nitrogen, sulphur, Phosphorus and halogens, qualitative analysis - carbon, hydrogen, nitrogen, halogens, sulphur, phosphorous.

Fundamental of Organic Chemistry : Tetravalency of Carbon, simple molecules, Hybridization, classification of organic compounds homologous series isomerism. Covalent bond fission, electronic displacement in covalent bond, common types of organic reactions.

Hydrocarbons : Classification, isomerism, IUPAC nomenclature, preparation, properties and reaction. Alkenes, alkynes, aromatic hydrocarbons.

Organic Compounds with Halogens : Preparation, Properties, reactions and uses, amines diazonium salts.

Organic Compounds with Oxygen : Preparation, Properties, reactions and uses, alcohols, phenols, ether, aldehyde and ketones, carboxylic acids.

Polymers : Classifications, methods of polymerization, rubber, vulcanization, polythene nylon, bakelite and polyser.

Biomolecular : Carbohydrates - classification, monosaccharide, oligosaccharides, polysaccharide, Proteins - amino acids, peptide bond, polypeptide primary, secondary, tertiary and quaternary structure of proteins, denaturation, enzymes Vitamins - Classification and functions.

Nucleic acids - DNA and RNA biological function

Everyday Chemistry : Chemicals in Foods, cleansing agents and medicines.

BIOLOGY

Living World and Diversity of Life : Biology and its meaning, what is living Taxonomic categories, Systematic and Binomial System of nomenclature. Classification of living organism (Two Kingdom and five Kingdom system), major groups of Kingdom and salient features, viruses, Lichens, Plant Kingdom Salient features of major groups from Algae to Angiosperms Animal Kingdom - Salient features of Nonchordates up to phylum and Chordates up to class level .

Cell, Structure and Function :

Cell, wall, cell membrane, Endomembrane system, Mitochondria, plastid, Ribosomes, Cytoskeleton Cilia, and Flagella, Centriole, Nucleus, Micro bodies, Structural differences between prokaryotic, and eukaryotic and between plant and animal cell. Cell cycle, Mitosis, Meiosis, Lipids Bio-Molecules-Structure and function of Carbohydrates, Protein lipids and Nucleic acids. Enzymes - chemical nature, Types - Properties and mechanism, action.

Genetic and Evolution :

Mendelian, inheritance Chromosome theory, Gene interaction, Incomplete dominance, Co-dominance, Complementary genes, multiple alleles, linkage and Crossing over, inheritance patterns of hemophilia and blood groups in human.

Structure and functions of Plant : Morphology of a flowering plant, Tissues and tissue system, Anatomy and function of root, stem, leaf, inflorescence, flower fruit and seed, Types of fruit, Secondary growth, Absorption and movement of water and of nutrients, Translocation of food, transpiration and gaseous exchange, Stomatal movement.

Mineral nutrition - macro and micro - nutrient, deficiency disorders, Nitrogen fixation. Photosynthesis - Light reaction cyclic and non-cyclic photophosphorylation, pathways of carbon dioxide fixation, Photorespiration, limiting factors. Respiration - anaerobic, fermentation, Aerobic, Glycolysis, TCA cycle, electron transport system, Energy relations.

Structure and Function of Animals : Tissue, elementary knowledge of morphology, anatomy and function of earthworm, cockroach and frog.

Human physiology - Digestive system - organs, digestion and absorption, respiratory system - organ, breathing an exchange and transport of gases, Body fluid and circulation - blood, lymph, double circulation, regulation of cardiac activity, hypertension, Coronary artery diseases.

Excretion - urine formation, regulation of kidney function

Locomotion and movement : Skeletal system, joints, muscles, types of movement - control and co-ordination - central and peripheral nervous system, nervous, reflex action and sensory reception, roles or types of endocrine glands, hormone action.

Reproduction and development plant : asexual and sexual reproduction - development of male and female gametophytes.

Pollination, fertilization, Development of embryo, endosperm, seed and fruit, Growth phases, Types of growth regulators and their role in seed dormancy, germination and movement, Apical dominance, Senescence, Abscission, Photoperiodism, Vernalization, types of movements.

Humans : Male and female reproductive systems, Menstrual cycle, Gamete production, Fertilization, Implantation, Embryo development, Pregnancy and parturition, Birth control and contraception.

Ecology and Environment : Meaning of ecology, environment, Habitat and niche. Ecological levels of organization, Characteristics of Species, Population, Biotic Community and Ecosystem, Succession and climax.

Ecosystem - Biotic and abiotic components, Ecological pyramids, Food chain and Food web, Energy flow, Major types of ecosystems.

Ecological Adaptations : Structural and Physiological features in plants and animals of aquatic and desert habitats.

Biodiversity - Meaning types and conservation strategies.

Environmental issues : Air and Water pollution, Global warming and climate change, Ozone depletion, Noise pollution, Radioactive pollution, Pollution control, Deforestation, Extinction of species.

Biology and Human Welfare : Animal husbandry - Livestock, Fisheries, Major animal disease and control, Pathogenes of major communicable diseases of humans caused by fungi, bacteria, viruses, protozoans and helminthes, and their control. Cancer and AIDS, drug / alcohol abuse, Basic concepts of immunology. Plant Breeding and Tissue Culture in crop improvement. Bio-fertilizers, Bio-pesticides, Bio-herbicides.

Microorganisms as pathogens of plant diseases rust and smut of wheat, bacterial leaf blight of rice, late blights of potato, bean mosaic and root-knot of vegetables.

Bioenergy : Hydrocarbon - rich plants as substitute of fossil fuels.

Biotechnology and Application : Microbes and Microbial technology in food processing, industrial production, sewage treatment and energy generation. Steps in recombinant DNA technology - restriction enzymes. DNA insertion, regeneration of recombinants.

Application of R - DNA technology : Production of Insulin, Vaccines and Growth Hormones, organs transplant, Gene therapy. Production of expensive anzymes, strain improvement to scale up bioprocesses. GM crops including Bt crops.

