

JNU CEEB SYLLABUS

JNU does not provide a syllabus to follow for the CEEB exam. This is a schematic compilation of the actual possible syllabus determined from the pattern of questions.

MATHEMATICS

Sets, Relation and Functions, Mathematical induction, Logarithms, Complex numbers, Linear and Quadratic equations, Sequence and series, Trigonometry, Cartesian system of rectangular coordinates, straight lines and family, Circles, conic sections, permutation and combination. Binomial theorem, Exponential and Logarithmic series. Mathematical logic, Statistics, Three dimensional geometry, vectors, Stocks, Shares and Debentures, Average and partition values, Index numbers, Matrices and Determinants, Boolean Algebra, Probability, Functions, Limits and continuity, Differentiation, Application of Derivatives, Definite and Indefinite Integrals, Differential Equations, Elementary Statistics and Dynamics, Partnership, Bill of exchange, Linear programming, Annuities, application of Calculus in commerce and economics.

PHYSICS

Electrostatics, Gauss's Law and its applications, conductance, capacitance, dielectrics, electromagnetic induction, laws and applications magnetic materials and properties. Study on currents, Ohm's law, Kirchoff law and circuits and related concepts, resonance circuits, Electrostatic devices- diodes, transistors, oscillators and digital electronics. Nuclear fission and fusion, cyclotron and synchronizers, cosmic rays, vector analysis, thermodynamics, laws of thermodynamics and entropy, Ultrasonics, Quantum theory of radiation.

BOTANY

Taxonomy, Brief amount of cytotaxonomy, Elementary account of Ethobotany, Embryology, Micro and mega spore, Ogenesis Monosporic, Bisporic and tetrasporic type of female gametophyte. Monocot and Dicot embryo development, Endosperm and Polyembryony physiology, Photosynthesis, Respiration, Algae, General characters and classification of Algae, Structure, reproduction, life history, General account of lichens, mushroom cultivation, biofertilizers, single cell protein, Bryophytes, General characters and classification of Bryophytes, Gymnosperms, General characters and classification of Gymnosperms. Tissue culture and its applications, Ecology, Basic concepts of Ecology, Energy flow through ecosystem and Ecological Pyramids.

ZOOLOGY

Animal Physiology, Animal Associations Parasitism, Commensalism, Symbiosis, Environments and adaptive features of animals inhabiting pelagic, deep sea caves, desert, Cursorial, Fossorial, Arboreal and Volant life. Environment pollution, Wild life and its conservation, Biology of Invertebrates and Cell Biology- General characters and outline classification of major invertebrates, phyla with examples upto classes, Ultra structure of animal cell. Structure and function of the following cell organelles- Plasma membrane, Endoplasmic Reticulum, Golgi complex, lysosomes, Mitochondria, Nucleus and its components and ribosomes, Biology of Chordates, genetics, evolution and Zoogeography.

CHEMISTRY

CO-ordination Chemistry (Organometallic Compounds) Metal ions in biological system, Heterocyclic compounds, Amino acids, Carbohydrates, Stereochemistry, Colligative properties, Chemical Kinetics, Photo Chemistry, Thermodynamics, Electrochemistry, Chemical bonding, P-Block chemistry, Boron, Carbon, Oxygen, Nitrogen, Halogen groups, Compounds of Noble gases, Principles of analytical chemistry, Bonding in metals, d-block elements, f-block elements, Nuclear Chemistry, Organic chemistry, Structure and reactivity, Nomenclature of Organic compounds, Alkanes, Cycloalkanes, Alkenes and Alkadienes, Alkynes, Arenes, Halogen compounds, Hydroxy compounds, Ethers, Aldehydes and ketones, Carboxylic acid and their derivatives, Organic synthesis based on Carbaions, Nitrogen compounds, Atomic structure, Ionic Equilibria, Gaseous State, Solutions, Solids, Phase Rule Colloids, Macromolecules.

BIOCHEMISTRY

Metabolism of Biomolecules like carbohydrates, amino acids, proteins, lipids, nucleic acids, Basic aspects of nutrition endocrinology, clinical biochemistry, enzymology, biological oxidation. Principles methodology and application of various biochemical techniques used in Biochemistry, physiological role of vitamins and minerals.

MICROBIOLOGY

History of microbiology, principles and working of light and electron microscopy. General characters of viruses, bacteria, algae, protozoa. Methods of sterilization and disinfection. Antibody and their functions. Types of antigen and antibody reaction, hypersensitivity, auto-immunity and vaccines. Soil microorganisms and their importance in carbon and nitrogen cycles. Methods in industrial pathogenesis and properties of pathogenic microbes, epidemiology and diagnosis of infection.

BIOTECHNOLOGY

Fundamentals of Biotechnology- DNA, RNA, proteins and other signal molecules- biochemical techniques, methods of cell disruption, analysis of fractionation- dylasis, centrifugation, chromatography, electrophoresis, respiration and fermenter . Molecular Biology and Genetic Engineering: structure, replication of DNA, RNA. Mutation and damage to DNA- molecular basis, gene expression: transcription and processing of RNA, genetic code-regulation, plasmid and transposable elements. Outlines of DNA technology- enzymes used in gene cloning, vectors genomic DNA and cDNA libraries and expression of cloned genes, applications: immune system and their function, Antibody diversity- vaccines and their production. Purification of antigens and antibodies, Hybridoma technology and Monoclonal antibodies, ELISA, RNA synthesis vaccines. Applications of Biotechnology, Plant Biotechnology, Microbial Biotechnology, Environment Biotechnology.

GENETICS

Genetic analysis: Mendelian principles: Law of Segregation , Law of independent assortment, extension to mendelian segregation patterns, co-dominance, incomplete dominance lethal, gene interaction- Epistasis, multiple allelas, isoalleles and pseudoisoalleles. Chromosomal basis of inheritance, chromosomal changes, inversion, duplication. Recombination in Bacterial, Transduction, Transformation. Recombination in viruses, genetics of sex determination and sex linked inheritance.