

YVUCET - 2018: SYLLABUS

TEST - 101: ADVANCED LIFE SCIENCES

COMMON ENTRANCE EXAMINATION – 2018 FOR ADMISSION INTO M.Sc. BIOCHEMISTRY/BIOTECHNOLOGY/GENETICS & GENOMICS/ MICROBIOLOGY

Section – A (Marks - 30)

Biomolecules : Carbohydrates: Classification, Structure and biological importance of monosaccharides, disaccharides and structural polysaccharides. **Amino Acids:** Classification, structure, stereochemistry, chemical reactions of amino acids. Peptide bond -nature and conformation. **Proteins:** Classification and functions. **Lipids:** Classification, Structure and Properties of fats and oils . **Nucleic acids:** Nature, Structure of purines and pyrimidines, nucleosides, nucleotides. DNA and RNA. **Enzymes:** Nomenclature and classification of enzymes. Interaction between enzyme and substrate-lock and key, induced fit models. Definition of holo-enzyme, apo-enzyme , coenzyme, cofactor. **General characters and classification** of Protozoa, Porifera, Annelida, Helminthes, Arthropoda, Echinodermata, Pisces, Reptiles, Avian, Mammals. **Composition and functions of blood**, Coagulation of blood. **Animal hormones**-pituitary,thyroid,Adrenal and pancreatic. **General Microbiology:** Isolation and growth of Bacteria. Gram's staining- Gram positive and Gram negative bacteria. Sterilization and disinfection techniques,culture media. Introduction to Biochemical Techniques.

Section – B (Marks – 30)

Cell Biology and Genetics: Cell theory and cell as the basic unit of life; Structure of prokaryotic (bacteria) and eukaryotic cell (Plant cell and animal cell), Structure and function of cell organelles- Endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; Cytoskeleton, cilia, flagella, centrioles, Nucleus–nuclear membrane, chromatin, nucleolus. Cell division : Cell cycle, mitosis, meiosis and their significance. DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Transcription, genetic code, translation. Mendelian principles of inheritance; General account of mutations and their significance. **General characters and classification** of Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms. **Photosynthesis:** Light and Dark reactions, Calvin cycle, C₄ Pathway. **Plant hormones:** Types and Functions. **Metabolism:** Glycolytic pathway, Citric acid cycle, Gluconeogenesis., oxidative phosphorylation, and fermentation, **Nitrogen metabolism:** Biological nitrogen fixation, nitrate reduction. Introduction to Immunology Types of Immunity: Cells and organs of Immunesystem, Antigens , Anti bodies, Antigen- Antibody Reactions, Vaccines.

Section – C (Marks - 40)

Inorganic Chemistry – Atomic Structure, Periodic Properties, Chemical Bonding, s-Block Elements, p-Block Elements, Chemistry of noble Gases. **Organic Chemistry** - Structure and Bonding, Mechanism of Organic Reactions, Stereochemistry of Organic Compounds, Alkanes and Cycloalkanes, Alkenes, Cycloalkenes, Dienes and Alkynes, Arenes and Aromaticity and Alkyl and Aryl halides. **Physical Chemistry** - Gaseous State, Liquid State, Solid State, Colloidal State and Chemical Kinetics & Catalysis.

TEST -101- ADVANCED LIFE SCIENCE
COMMON ENTRANCE EXAMINATION FOR ADMISSION INTO
(M.Sc. BIOCHEMISTRY/BIOTECHNOLOGY/GENETICS & GENOMICS/ MICROBIOLOGY
MODEL QUESTION PAPER

1. The best method to determine the homozygosity and heterozygosity of an individual is

- (a) Self fertilization (b) Back cross
(c) Test cross (d) Inbreeding

ఒక జీవి యొక్క సమయుగ్మజస్థితి మరియు విషమ యుగ్మజస్థితిలను నిర్ధారించడానికి ఉత్తమ పద్ధతి

- (a) ఆత్మ ఫలదీకరణం (b) పశ్చనంకరణ
(c) పరీక్ష సంకరణ (d) అంతఃప్రజననం

2. The di-hybrid test cross ratio is

ద్విసంకర సంకరీకరణ పరీక్ష యొక్క నిష్పత్తి

- (a) 9:3:2:1 (b) 9:3:2:2 (c) 1:1:1:1 (d) 9:3:3:1

3. The genotype of an individual with Turner's syndrome is

టర్నర్స్ సిండ్రోమ్ కలిగిన జీవి జన్యు రూపం

- (a) YO (b) XXY (c) XO (d) XXX

4. The universal blood donors for the ABO system are type

ABO రక్త వ్యవస్థలో విశ్వజనీన రక్తదాతలు

- (a) A (b) B (c) O (d) AB

5. Chromosomes other than those involved in sex determination are known as

- (a) Nucleosomes (b) Heterosomes
(c) Alleles (d) Autosomes

లైంగిక నిర్ధారణలో పాల్గొనని క్రోమోజోములు ఏవి?

- (a) న్యూక్లియోజోములు (b) హెటెరోజోములు
(c) యుగ్మవికల్పాలు (d) అటోజోములు