

DEPARTMENT OF BOTANY

CLASS-B.Sc. Part-I (Biotech)

SESSION: 2020-21

PAPER –I

Biochemistry, Biostatistics' and Computers

MAXIMUM MARKS : 50

NUMBER OF UNIT :V

MINIMUM MARKS : 17

Unit-I

1. Introduction to biochemistry: History, Scope and Development.
2. Carbohydrates: Classification, Structure and function of Mono, Oligo & Polysaccharides.
3. Lipids: Structure, Classification and Function.

Unit-II

1. Amino acids and Proteins: Classification, Structure and Properties of amino acids, types of Proteins and their Classification and Function.
2. Enzyme: Nomenclature and classification of enzyme, Mechanism of enzyme action, Enzyme Kinetics and factors affecting the enzyme action. Immobilization of enzymes and their application.

Unit-III

1. Hormones: Plant Hormones- Auxin and Gibberellins and Animal Hormone-Pancreas and Thyroid.
2. Carbohydrates, Proteins and Lipid Metabolism- Glycolysis, Glycogenesis, Glyconeogenesis and Krebs cycle. Electron Transport Chain and β -oxidation of Fatty acids.

Unit-IV

1. Scope of Biostatistics, Samples and Population concept, Collection of data-sampling techniques, Processing and Presentation of data.
2. Measures of Central Tendency: Mean, Meadian and Mode and Standard Deviation.

3. Probability Calculation : Definition of probability, Theorem on total and compound probability.

Unit-V

1. Computer –General Introduction. Organization of computer, digital and analogue computers, computers algorithm.
2. Concept of Hardware and software, Input and output Devices.
3. Application of computer in co-ordination of solute concentration, pH and Temperature etc. of a fermenter in operation and Internet application.

APPROVED BY THE BOARD OF STUDIES ON

NAME	IN THE CAPACITY OF	SIGNATURE
Dr.J.N.Verma	CHAIRMAN	
Dr. J K Verma	SUBJECT EXPERT(V. C. Nominee)	
Dr. S. Moghae	SUBJECT EXPERT(Principal Nominee)	
Dr.P.K.Saluja	MEMBER OF THE DEPARTMENT	
Dr.Aruna Shrivastava	MEMBER OF THE DEPARTMENT	
Mrs.Deepa Shrivastava	MEMBER OF THE DEPARTMENT	
Dr. V. Acharya	MEMBER OF THE DEPARTMENT	
Dr.B.M.Lall	MEMBER OF THE DEPARTMENT	
Dr. Neetu Harmukh	MEMBER OF THE DEPARTMENT	
Mrs. Vinita Sahu	MEMBER OF THE DEPARTMENT	

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PAPER –II

Cell biology, Genetics and Microbiology

MAXIMUM MARKS : 50

NUMBER OF UNIT :V

MINIMUM MARKS : 17

Unit-I

1. Concept of life, Cell as a basic unit of living system and Cell theory.
2. Diversity of Cell shape and size.
3. Prokaryotic cell structure: Function and ultra structure of cell (Gram positive and Gram negative Bacteria), Plasma membrane, Flagella, Pili, Endospore and Capsule.
4. Eukaryotic Cell: Plant cell wall and Plasma membrane.

Unit II

1. Cytoplasm: Structure and functions of Endoplasmic reticulum, Ribosome, Golgi complex, Lysosomes, Nucleus, Mitochondria and Chloroplast.
2. Cytoskeleton: Microtubules, Microfilaments and Intermediate filaments.
3. Cell division : Mitosis and Meiosis.
4. Programmed Cell Death.

Unit III

1. Mendel's Laws of Inheritance.
2. Linkage and Crossing over.
3. Chromosome variation in number and structure: Deletion, Duplication, Translocation, Inversion and Aneuploidy, Euploidy (Monoploidy and Polyploidy and its importance).

Unit IV

1. History, Scope and Development of Microbiology.
2. Basic techniques of Microbial Culture.
3. Microbial growth & Nutrition of Bacteria: Isolation, media sterilization physical and chemical agents, pure culture pour plate method, streak plate method and spread plate method.
4. General features and Economic importance of Fungi, Algae and Protozoa etc.

Unit V

1. Bacterial Reproduction: Conjugation, Transduction and Transformation.
2. Mycoplasma- History, Classification, Structure, reproduction & Diseases.
3. Viruses- Basic features, Structure, Classification, Multiplication, Bacteriophages (Morphology, life cycle, infection and medicinal importance).

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PRACTICAL SCHEME

B.Sc. Part-I (Biotech) 2020-21

Time–3 hrs.

M.M.:50

S.NO.	TITLE	MARKS
1.	Instrument based experiment (Two) 5*2	10
2.	Experiment based on Culture of micro-organisms	10
3.	Bacterial Growth	07
4.	Biochemical Techniques	08
5.	Bio Statistics	05
6.	Viva-Voce	05
7.	Record/ Sessional	05