

**Govt Bilasa Girls PG College, Bilaspur CG
2018-19**

CERTIFICATE COURSE

Part-1 (Biotechnology)

Paper-1 (BIOCHEMISTRY)

UNIT-I

- Biochemistry Definition, aim, scope.
- CBH Classification, structure and functions
- Proteins: Classification, structure and properties.
- Amino acid General properties, essential and non essential amino
- Lipids Chemical Composition. Classification, Glycerides Waxes and acid steroids

UNIT -II

- Enzymes Definition, Co-enzymes & co-factors. Nomenclature. Classification, Mechanism of enzyme action, factors affecting the enzyme action
- Nucleic acid-Structure DNA & RNA.
- Animal Hormones: Definition, Mechanism of hormone action. Structure and functions of Pituitary and Pancreas.
- Structure & function of Thyroid and Adrenal.

UNIT-III

- CBH metabolism Glycogenesis, gluconeogenesis, Glycolysis, Krebs's Cycle.
- Fat Metabolism-Beta-oxidation, conversion of fats into CBH
- Protein Metabolism Conversion of amino acid, decarboxylation, deamination of amino acids, formation of urea.
- Enzyme technology Application of immobilize enzymes, enzyme reactor, biosensors, enzyme engineering.

UNIT - IV

- Principles of Electrophoresis, Application.
- Histochemistry of CBH, Protein and fat.
- Detection of nucleic acids in tissue.
- PH meter principle, application.
- Principles of centrifuge and its application

CERTIFICATE COURSE

Part-1 (Biotechnology)

Paper- II (Cell Biology)

UNIT - I

- 1 Cell Theory and structure of cell
2. Cell wall and Plasma membrane their origin ultrastructure, functions, composition of plasma membrane.
- 3 Nucleus- Structure, Significance. Nucleolus.
- 4 Chromosome-Morphology Ultrastructure, Nucleosome 5
Types of Cyto Skeleton

UNIT - II

- Structure of Microtubule and Microfilaments, Microtubule and mitosis. Microfilament and cell movement.
- Mitochondria - Ultrastructure, biogenesis, functions.
- Role of Endoplasmic Reticulum in post transcription
- Lysosome origin hydrolytic enzymes, structure.
- Ribosome- Ultrastructure, function, biogenesis.
- Cell Division-Mitosis and Meiosis, their comparison.

UNIT - III

- Mendel's Law of inheritance.
- Linkage and crossing over.
- Sex linkage.
- Heterochromatin
- Mutations- gene mutation, mutagens.

UNIT - IV

- Chromosomal aberrations.
- Aneuploidy-Euploidy and significance.
- Replication of DNA.
- Chromosomes and diseases,

PRACTICAL

1. Vital staining of mitochondria by Janus green B
2. Onion Root tip squash preparation.
3. Demonstration of Barr Body.
4. Demonstration of giant chromosome.
5. Microscopic examination of protozoan pond water
6. Preparation of blood smear.
7. Determination of blood groups in human
8. Haemoglobin percentage in Human blood.
9. RBC & WBC counting.
10. Chromatography.

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2017-18**

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2016-17**

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2015-16**

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2014-15**

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