

LESSON PLAN

Course Title: Biology

Course No.: BS-141

Name of the Teacher: Dr. Pushpa Bogra

LECTURE	Topics
1.	Concept and definition of Biology: Characteristic features of living organisms
2.	Structure and functions of Cell Nucleus
3.	Structure and functions of Mitochondria and Chloroplast
4.	Structure and functions of Ribosomes and ER
5.	Difference between Prokaryotic and Eukaryotic cell; Animal and Plant cell
6.	Unicellular and Multicellular organisms. Autotrophs, Hetrotrophs and Lithotrops
7.	Ammonotelic, uricotelic and ureotelic;; aquatic or terrestrial
8.	Molecular taxonomy- three major kingdoms of life
9.	Definition, general classification of Carbohydrates
10.	Lipids Structure and Classification
11.	Proteins Structure and Classification
12.	Nucleic acids (DNA & RNA: Structure and forms)
13.	Primary secondary, tertiary and quaternary structure.
14.	Proteins as enzymes, transporters, receptors and structural elements.
15.	Enzymes; Characteristics and Classification and Effect of temperature and pH
16.	Effect substrate concentrations on the enzyme activity
17.	Elementary concept of cofactors and coenzymes..
18.	Mendel's laws of inheritance..
19.	Variation and speciation. Concepts of recessiveness and dominance
20.	Genetic Disorders: Single gene disorders in human
21.	Genetics of blood groups, Diabetes type I & II.
22.	Mitosis and its significance
23.	Meiosis and its genetic significance
24.	. Evidence of nucleic acids as a genetic material.
25.	Central Dogma of molecular biology
26.	Morphology and pathogenicity of Bacteria beneficial and harmful for human beings. Fungi
27.	Virus and Protozoa

28.	Exothermic and endothermic reactions
29.	Standard free energy and Spontaneity in biological reactions.
30.	Catabolism :Glycolysis
31.	Krebs cycle
32.	Photosynthesis:- Light Reaction of Photosynthesis
33.	Dark Reaction of Photosynthesis, ATP as Energy Currency of the cell
34.	Species and strains of microorganisms, sterilization
35.	Media compositions, growth kinetics
36.	Applications of Biology in Agriculture & Medicine
37.	Role of biology in Information Technology & Forensic Science
38.	Role of biology in Biosensors and Nanotechnology
39.	Role of biology in Micro-electromechanical systems