KN-22

BRAHASPATI MAHILA MAHAVIDYALAYA

K.50 Kidwai Nagar Kanpur

Certificate course

Under Aegis Of University Grant Commission New Delhi

New syllabus for Bio-technology

syllabus

VOC131

Subject for B.A./ B.sc./ B.com

Semester	Paper No	Title of Paper	Marks-100
I semester	Unit-1	Introductory Bilogical Chemistry & Evolution	
	Unit -II	Biophysical Chemistry & Tools.	
	Unit- III	Cell Giology & Genetics	
		Practical.	Marks-40
II semester	Unit- I	Bioerergetic & Biomembrane	100
	Unit II	Animals & Plant Physiology	100
	Unit III	Biostatistics & computer	100
		Practical.	Marks-40

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IInd Semester, B.A./ B.Sc./B.com

Syllabus- Bio-technology

Unit-1 **Marks-100**

Bio-energetics and Bio-membranes

Fundamentals of thermodynamics- endergonic and exergonic processes, enthalpy, entropy, activation energy, free energy change, , oxidation reduction reaction, redox potential.

Homolactic fermentation, Citric acid cycle & its regulation, gluconeogenesis.

Fatty acid oxidation - major & minor pathways of fatty acid oxidation, ketone bodies.

Metabolic breakdown of aminoacids, transamination deaminaation, urea cycle.

Biological membrane- Membranes proteins, fluid mosaic model of membrane structure, erythrocyte membrane, plant cell membrane.

Thermodynamics of transport, Kinetics & mechanism of transport, active & passive transport.

Unit-2

Animal & Plant Physiology

Photosynthesis:- Photosynthetic pigments, electron transport.

Plant hormones:- Cytokinins, Gibberellic acid, Auxins, Ethyline Abscissic acid.

Seed germination & dormancy- Vernalization, Blood clotting.

Respiratory system:- Diffusion of oxygen & carbon dioxide, transport of co_2, & chloride shift, various buffer system of the blood , alkalosis, role of lungs & Kidney in regulation of acid base balance.

Kidney- Structure, Organisation and fuction mechanism urine formation.

Digestive system- different components, digestion and absorbtion of carbohydrates, lipids and proteins.

Endocrine- Brief outline of various endocrine glands Nerve cells, nerve fibres, nerve impulse, the reflex action & reflex arc.

Immunity, antigen- antibody, interaction,introduction to antigen presentation, role of MHC, complement system,vaccine.

Unit-3

Bio-statistics & computers

Graphic & Diagrammatictic representations, measures of central tendency &dispersion.

Probability and Distribution, sampling theory &errors.

Analysis of variance, correlation & regression.

Introduction to computers, Hardware, storoge & Memory devices, input & output devises, file management, mouse, keyboards.

Different Types of bootivg , operating System- Single use, multiuser

Internet & E- mail important services provided by internet.

Practical

Marks-40

What is formentantion? describe it's Briefly.

Explain, what is Root Pressure ?

Identifications and Comments on the Plants, Potato and Suqarcane.

Describe pituitary Glands.

What is Colour Blindness ?Explain.

What is Genetic Code?

Types of Protein Explain with Example?

Reference Book Bio-technology

Gupta, M.K.	Handbook of organic framing and Bio- fertilizers
Gupta, M.K.	Handbook of organic framing and Bio- fertilizers
Rawat, Hemant	Agricultural Biotechnology
Thangadurai, D.e.p	Plant stress and Biotechnology
Deshmukh, A.M.	Handbook of Bio-fertlizers and Bio-pesticides
Dyer, John R.	Application of absorption Spectroscopy of organic compounds
Shau, C.K.	Gene flow and molecular Bio-logy Ecological Perspective.
Rawal, Hemant	Environmental Biotechnology
H.M.K.	The Bilogy of fishes.
Sharma, Jagbir, ed.	Bio-inorganic chemistry.
Thangadurai, D.	Dictimary of Bio-technology.
Biswas, s.	Biodiversity conservation.
Kumar singh	A Tesxtbook of Genetics.
Singh, Ranpal	Physical organic Chemistry.
Sharma, ranpal, ed.	Biodiversity conservation.
Singh, Ranpal, ed.	Biotechnology.
Goel, P.K. ed.	Biotechnological Applications in Environment and Agriculture.
Dutt, S.	A Handbook of Agriculture.

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(Bio-technology)

Syllabus

Unit- 1 Introductory Biological Chemistry & Evolution **Marks-100**

General account of the Chemical Nature of Living Cells

Carbohydrates: Classification, Sugar Derivatives & Stroage Polysaccharides.

Amino acid: General Properties, essential & non- essential amino acid.

Lipids: Classification, Properties of lipid aggregates

Proteins Chemistry: Classification, Protein folding, Protein modification.

Enzyme: Nomenclature, apoenzyme & holoenzyme,
Coenzyme, regulation of enzyme activity
enzyme inhibition, isozymes, ribozymes, abzymes.

Vitamins: water & fat soluble vitamins, deficiency & diseases.

Unit-2 Water:- Structure & interactions water as solvent, acid- base reactions, PH and buffers, isoelectric PH.

Photometry:- Basic Principles of UV- Visible spectrophotometry and colorimetry.

Centrifugation:- Principles & application.

Chromatography:- Ion Exchange, Partition, gel filtration

Electrophoresis:- Principles, types (Polyacrylamide & agarose gel electrophoresis).

Microscopy:- Principles and applications of light, phase contrast.

Tracer Technique:- Autoradiography

Unit-3 Cell theory, cell a basic unit of life.

Prokaryotic & eukaryotic cells. Structure function & Integration, micro bodies.

Cell division:- Mitosis & meiosis , cell cycle, its regulation and cancer, Characteristic of cancer cells.

Mendel's law of Inheritance, Gene Interactions. Sex determination, linkage, crossing over, recombination and gene mapping.

Extra:- Chromosomal inheritance, sex linked inheritance in humans.

Gene frequencies in population, Hardy -Weinberg law.

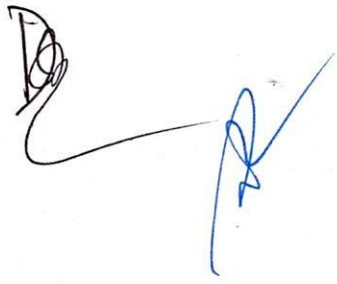
Practical:-

Marks-40

Discribe Blood Group.

Preparation of physiological Buffirs.

Describe with example law of Independent Assortment.



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