

KASHI NARESH UNIVERSITY, BHADOHI
(National Education Policy-2020)

Minor Elective Paper

of
Biochemistry

(Effective from Academic Session 2026-2027)

Approved by
Board of Studies
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Kashi Naresh University, Bhadohi



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Semester-wise Titles of the Papers in B.Sc. (Biochemistry, Miner)

Year	Sem.	Course Code	Paper title	Theory/ practical	credits
1	II	BIOMD11	Introductory Bioinformatics	Theory	6
2	IV	BIOMD21	Enzymes, Immunity and Human Diseases	Theory	6

Amir

Amir

SB

BIOMD11 (Introductory Bioinformatics)**Semester-II**

Unit	Topics	No. of Lectures (90)
I	Biomolecules (carbohydrates, proteins, lipids and nucleic acids) their role as constitution of human body and health diet	15
II	Structures and functions of carbohydrates, proteins, lipids and nucleic acids. Physiological functions of these biomolecules.	15
III	Dietary requirements for the balanced nutrition and the essential nutrients required by human body.	10
IV	Disease caused due to the deficiency of various nutrients.	10
V	Energy requirement of human body and their storage forms.	10
VI	Healthy eating and change in the quality of food due to presence/absence of a biomolecule.	10
VII	Protein-calorie malnutrition disorders- Kwashiorkor and Marasmus. High quality and Low-quality proteins.	10
VIII	Vitamin and Vitamin deficiency diseases.	10



BIOMD21 (Enzymes, Immunity and Human Diseases)**Semester-II**

Unit	Topics	No. of Lectures (90)
I	Introduction to enzymes • General characteristics of enzymes • Co-factor and prosthetic group, apoenzyme, holoenzyme. Classification and nomenclature of enzymes. • Enzyme activity, specific activity, units to express enzyme activity. Features of enzyme catalysis • Catalytic power and specificity of enzymes (concept of active site), Fischer's lock and key hypothesis • Koshland's induced fit hypothesis.	15
II	Enzyme kinetics • Relationship between initial velocity and substrate concentration Michaelis-Menten equation • Lineweaver-Burk plot, • Eadie-Hofstee and Hanes plot • Determination of K_m and V_{max}, K_{cat}, specificity constant • Effect of pH and temperature on the activity of enzymes.	15
III	Enzyme inhibition and Regulation • Reversible inhibition (competitive, uncompetitive, non-competitive and mixed) • Irreversible inhibition • Substrate inhibition • Allosteric regulation and feedback inhibition (ATPase) • Isoenzymes • Enzyme immobilization and its applications	10
IV	• History and scope of immunology, • Biological threats (parasites, bacteria, virus, fungi etc.) • and their recognition by immune system	7
V	• General features of Cells, Tissues, and organs of the human	10



	immune system, types of immunity (innate vs adaptive and active vs passive immunity), Fundamentals of cellular and humoral immunity	
VI	Basic biology of Filariasis, Tuberculosis, Malaria, Leishmaniasis and Cancer diseases prevalent in the Indian subcontinent	10
VI	Vaccines: Types and mechanism of protection Serology: Basics of immunological Techniques like agglutination, precipitation, ELISA, Widal and VDRL tests.	8
VI	A brief overview of the following categories of diseases: Nutritional diseases: Marasmus, Kwashiorkor, Beri beri, Scurvy, Rickets Metabolic diseases: Diabetes, Obesity, Alkaptonuria, Phenylketonuria, Goitre Parasitic diseases: Dengue, malaria Bacterial diseases: Plague, Diptheria, Typhoid, Bacillary dysentery, Cholera Viral diseases: Measles, Mumps, Chicken pox, AIDS, Hepatitis	15



