FACULTY OF LIFE SCIENCES

SYLLABUS

Of

B. Sc. Home Science (Semester-V & VI)

Session: 2023-24

The Heritage Institution

KANYA MAHA VIDYALAYA, JALANDHAR
(Autonomous)

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Home Science)

Session: 2023-24

Semester V							
Course Code	**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
			Total	**Ext.**		**CA**	
				L	**P**		
BHSL-5063	Basic Nutritional Biochemistry	C	50	40	-	10	3

C-Compulsory

Bachelor of Science (Home Science) Semester-V
Session: 2023-24
Course Code: BHSL-5063
Basic Nutritional Biochemistry
(Theory)

Time: 3 Hrs. **Max. Marks: 50**
Theory: 40
CA: 10

Course Outcomes:

After completing this course, student will be able to

CO1: Understand the concept of carbohydrates.
CO2: Understand metabolism of carbohydrates.
CO3: Understand basic concepts of fats.
CO4: Understand basics of inorganic elements and their dietary sources.

Bachelor of Science (Home Science) Semester-V
Session: 2023-24
Course Code: BHSL-5063
Basic Nutritional Biochemistry
(Theory)

Time: 3 Hrs. **Max. Marks: 50**

Theory: 40
CA: 10

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks.

Unit-I

Carbohydrates: Introduction, monosaccharides: Families of monosaccharides: aldoses and ketoses, trioses, tetroses, pentoses, and hexoses, disaccharides and polysaccharides: storage polysaccharides - starch and glycogen; Structural Polysaccharides - cellulose, and chitin; Heteropolysaccharides: Peptidoglycan, Proteoglycan, glycoproteins.

Unit-II

Intermediary metabolism of carbohydrates: Biosynthesis and degradation of carbohydrates, Glycolysis, TCA Cycle, gluconeogenesis. Structural formula of fatty acids, triglycerides and phospholipids. Rancidity of fats and its prevention.

Unit-III

Acid value and saponification value of fat. Essential fatty acid. Study of intermediary metabolism of fat oxidation and biosynthesis of fatty acids.

Unit-IV

Inorganic elements (calcium, phosphorus, magnesium and iron): Dietary source, daily requirement, biochemical function and metabolism.

Books Recommended:

1. Jain, J. L., Jain, S. and Jain. N. (2016). Fundamentals of Biochemistry, S. Chand & Company Ltd., New Delhi.

2. Sharma, D. C. (2017). Nutritional Biochemistry, CBS Nursing Publishers.
3. Voet, D., Voet, J.G. (2012). Fundamentals of Biochemistry, John Wiley and Sons, New York.
4. Nelson, D.L. and Cox, M.M. (2017), Lehninger Principles of Biochemistry, 7th Edition,WH Freeman, New York.

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SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Home Science)

Session: 2023-24

Bachelor of Science (Home Science) Semester-VI							
Course Code	**Course Name**	**Course Type**	**Marks**				**Examination Time (in Hours)**
			Total	**Ext.**		**CA**	
				L	**P**		
BHSM-6066	Applied Nutritional Biochemistry	C	50	25	15	10	3+3

[3]Marks of these papers will not be added in total marks and only grades will be provided.

C-Compulsory

AC- Audit course

Bachelor of Science (Home Science) Semester-VI
Session: 2023-24

Course Code: BHSM-6066
Applied Nutritional Biochemistry
(Theory)

COURSE OUTCOMES:
After passing this course the student will be able to:
CO1: Study about general metabolism of protein
CO2: Have knowledge about B.M.R. and factors affecting B.M.R.
CO3:Get knowledge about the urine composition and their normal and abnormal constituents
CO4: Study the water and electrolyte balance

Bachelor of Science (Home Science) Semester-VI
Session: 2023-24

Course Code: BHSM-6066
Applied Nutritional Biochemistry
(Theory)

Time: 3 Hrs. **Max. Marks: 50**

Theory: 25
Practical: 15
CA: 10

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 5 Marks.

SECTION-A

Structural formulae of amino acids peptide bonds.

·Hydrolytic breakdown of protein and essential amino acids.
·Nitrogen balance
·Protein efficiency ratio and biological value of protein.
·Elementary study of general metabolism of protein, building up of amino acid pool. General reaction of amino acid metabolism.
·Urea cycle
·Essential amino acids

SECTION-B

B.M.R. – Meaning and factors affecting B.M.R. specific dynamic action of good stuffs.

SECTION-C

·Enzymes – definition, classification and specificity of enzymes.
·Factors affecting enzyme activity.

SECTION-D

·Urine composition, normal and abnormal constituents of urine
·Water and electrolyte balance, water and electrolyte losses and their replenishment effect of dehydration.

Bachelor of Science (Home Science) Semester-VI

Session: 2023-24

Course Code: BHSM-6066(P)

Applied Nutritional Biochemistry

(Practical)

COURSE OUTCOMES:

After passing this course the student will be able to:

CO1: Perform qualitative analysis of monosaccharide, disaccharide and polysaccharide.

CO2: Estimate glucose quantitatively

CO3: Test the reaction of protein fats and carbohydrate in bread, milk and egg.

CO4: Perform biochemical testing of urine

Bachelor of Science (Home Science) Semester-VI
Session: 2023-24
Course Code: BHSM-6066(P)
Applied Nutritional Biochemistry
(Practical)

Time: 3 Hrs. **Marks: 15**

Note: Paper will be set on the spot by the examiner.

- Qualitative analysis of monosaccharide, disaccharide and polysaccharide.
- Quantitative estimation of glucose.
- To test the reaction of protein fats and carbohydrate in bread, milk and egg.
- Biochemical analysis of urine sample.