Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME
Bachelor of Vocation (Nutrition, Exercise and Health)
(Session 2023-2024)

(Credit Based Continuous Evaluation Grading System)

Semester IV								
Course code	**Course type**	**Course Titles**	**Credits L-T-P**	**Max Marks**				**Examination time (in Hours)**
				Total	**Ext.**		**CA**	
					L	**P**		
BVNM- 4285	S	Nutritional Biochemistry	2-0-2	100	60	20	20	3+3

Bachelor of Vocation (Nutrition, Exercise and Health) (Semester– IV)
Session 2023-2024
COURSE CODE: BVNM -4285
Nutritional Biochemistry
(Theory)

Course Outcome:

CO (1): To understand the knowledge of classification and properties of bio molecules.

CO (2): To understand the concept of intermediary metabolism of carbohydrates, proteins and lipids

CO (3): To review the knowledge of enzymes, hormones and inborn errors of metabolism

CO (4): To understand the concept of vitamins and minerals.

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Session 2023-2024
COURSE CODE: BVNM -4285
Nutritional Biochemistry
(Theory)

Time: 3 Hours. **Max. Marks: 100**
Theory: 60
Practical: 20
CA: 20

Instructions for the Paper Setter

- Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions ofSections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Each question carry 12 marks.
- Candidates are required to attempt five questions, selecting at least one question from eachsection.
- The fifth question may be attempted from any Section.

UNIT - I

1. Classification and properties of biomolecules:
   - Carbohydrates- classification and importance of monosaccharide, disaccharides and polysaccharides (without structures)
   - Classification of lipids (without structures)
   - Classification of amino acids and proteins- Essential and non-essential amino acids(without structures)

UNIT- II

2. Intermediary metabolism: Overview (no structures)
   - Carbohydrates- Glycolysis, gluconeogenesis, TCA cycle.
   - Proteins- Urea cycle.
   - Lipids- β-oxidation and *de novo* synthesis of fatty acids, ketone bodies.

UNIT-III

3. Enzymes:
   - Definition and classification of enzymes; Coenzymes.
   - Factors affecting enzyme catalysis.
4. Hormones:
   - Introduction to hormones.
   - Mechanism of hormone action; biological role of insulin and glucagon.

UNIT- IV

5. Vitamins: Vitamins- biochemical role
   - Fat soluble vitamins – A, D, E and K
   - Water soluble vitamins– (B1 and B2 only) and C

6. Minerals (elementary aspects):
   - Macrominerals– Calcium, sodium, potassium, magnesium
   - Microminerals– Iron, copper, zinc, iodine.

References:

- Berg JM, Tymoczko JL and Stryer L. (2002) Biochemistry 5th ed. W.H. Freeman.
- West ES, Todd WR, Mason HS and Van Bruggen JT: Textbook of Biochemistry, 4th Ed.Amerind Publishing Co. Pvt. Ltd.
- Murray RK, Granner DK, Mayes PA and Rodwell VW, (2003) Harper's IllustratedBiochemistry, 26th ed. McGraw-Hill (Asia).
- Nelson DL and Cox MM. (2005) Principles of Biochemistry, 4th ed. Freeman andCompany.
- Voet D and Voet JG. (2004) Biochemistry 3rd ed. John Wiley and Sons.

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COURSE CODE: BVNM -4285
Nutritional Biochemistry
(Practical)

Course Outcome:

CO (1): To knowledge about qualitative analysis of monosaccharide, disaccharide andpolysaccharide.

CO (2): To knowledge about quantitative estimation of glucose.

CO (3): To knowledge about test the reaction of protein fats and carbohydrate in bread, milk andegg

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Nutritional Biochemistry
(Practical)

Time: 3hrs **Marks: 20**

CONTENTS:

1. Qualitative analysis of monosaccharide, disaccharide and polysaccharide.
2. Quantitative estimation of glucose.
3. To test the reaction of protein fats and carbohydrate in bread, milk and egg.