

M. SC. (HONOURS)

(BIOCHEMISTRY)

(MSCBCH)

Term-End Examination

June, 2026

**MBC-005 : CONCEPTS AND CONNECTIONS IN
METABOLISM**

Time : 3 Hours

Maximum Marks : 100

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Explain the glycolytic pathway and its outcome. 10
- (b) Elaborate the role of TCA cycle. Give a schematic representation of the cycle. 10
2. (a) Illustrate with diagram and give salient features of chemiosmotic hypothesis. 10
- (b) What is glycogen ? How is it synthesized ? 10

3. (a) Discuss the β -oxidation pathway of saturated fatty acids. 10
(b) Explain the regulation of ketogenesis. 10
4. (a) Describe the synthesis of triacylglycerides. 10
(b) Explain the organization of fatty acid synthase complex. Enlist the activities of mammalian fatty acid synthase-I complex. 10
5. (a) Give an account of inherited defects of urea cycle. 10
(b) Discuss the biosynthesis of amino acids of glutamate family. 10
6. Write notes on the following : 4×5=20
 - (a) Phenylketonuria
 - (b) Alkaptonuria
 - (c) Metabolic profile of muscle
 - (d) Metabolic profile of liver
7. (a) Compare denovo and salvage pathway of nucleotide synthesis. 10
(b) Discuss denovo synthesis of pyrimidines regulation. 10

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8. (a) Describe the mechanism of pyrimidine catabolism. 10
- (b) Enlist *five* inhibitors of nucleotide synthesis and their usage in medicine. 10

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