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MBC–005

M. SC. (BIOCHEMISTRY)
(MSCBCH)

Term-End Examination

December, 2024

MBC–005 : CONCEPTS AND CONNECTIONS IN
METABOLISM

Time : 3 Hours

Maximum Marks : 100

Note : (i) Attempt any *five* questions.

(ii) All questions carry equal marks.

1. (a) Discuss the role of ATP as cellular energy currency. 8
- (b) What are biological electron donor and acceptor molecules ? Give examples and elaborate their functions. 12
2. Describe TCA cycle with the help of a suitable diagram. How is it regulated ? 20

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3. (a) Differentiate between glycogenesis and glycogenolysis. 10
- (b) Explain lactose intolerance and its types with suitable examples. 10
4. (a) What are ketone bodies ? Describe the ketogenesis pathway. 10
- (b) Enlist the activities/functions carried out by different subunits of Mammalian Fatty Acid Synthase I Complex. 10
5. (a) Discuss different pathways of Triacyl Glycerol (TAG) synthesis. 12
- (b) Write notes on the following (any *one*) : 8
- (i) Hypercholesterolemia
- (ii) Nitrogen cycle
6. (a) Describe the catabolism of amino acids that form α -ketoglutarate (C_5 family). 10
- (b) Enumerate and explain the steps involved in the synthesis of serine and glycine from 3-phosphoglycerate. 10

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7. (a) How is purine nucleotide biosynthesis regulated ? 10
- (b) Give a schematic representation of electron flow from NADPH to ribonucleotide reductase. 10
8. Write detailed notes on any *two* of the following : 10+10=20
- (a) Purine Catabolism
- (b) Pyrimidine Catabolism
- (c) Gout
- (d) Adipose tissue and its metabolic profile

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