

2021

BIOCHEMISTRY — GENERAL

Paper : GE/CC-3

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer **any five** questions : 2×5
 - (a) What are the fates of pyruvate in anaerobic condition?
 - (b) What are ketone bodies?
 - (c) Why TCA cycle is amphibolic in nature?
 - (d) What are the light and dark reactions?
 - (e) Name the organelles in cell where β -oxidation of fatty acids occur.
 - (f) What is the significance of GDH enzyme?
 - (g) Name the regulatory enzyme of Pyrimidine Biosynthesis.
 - (h) What is the end product of purine nucleotide catabolism in human?
2. Answer **any two** of the following :
 - (a)
 - (i) In TCA cycle, show the steps where CO_2 is generated.
 - (ii) Describe schematically the transport of fatty acid across mitochondrial membrane. 2+3
 - (b)
 - (i) What are the major differences between fatty acid synthesis and fatty acid breakdown?
 - (ii) What do you mean by PMF in oxidative phosphorylation? 3+2
 - (c) Mention the regulatory step (enzyme) and the precursor molecules of pentose phosphate pathway. 2+3
 - (d) Name two glycogen storage diseases. Explain the Albinism related amino acid metabolism. 2+3
3. Answer **any three** of the following :
 - (a)
 - (i) Describe urea cycle in brief.
 - (ii) How many ATP molecules are generated from oxidation of one molecule of Palmitic acid? Show the calculation. 5+5
 - (b)
 - (i) How is oxidative phosphorylation regulated?
 - (ii) Mentioning the precursor molecule write down the biosynthetic pathway of glycine.
 - (iii) Purine nucleotide biosynthesis is regulated by feedback inhibition— justify. 3+4+3

Please Turn Over

- (c) (i) What is the basic difference between the biosynthesis of purine and pyrimidine nucleotides?
(ii) Write down the conversion of glucose-6-phosphate to Ribulose-5-phosphate.
(iii) How is AMP synthesised from IMP? 3+4+3
- (d) (i) Discuss the pathway of glycogen synthesis in liver.
(ii) Briefly state how does NADH enter the mitochondrial matrix. 5+5
- (e) What is calvin cycle? Describe the salvage pathway of nucleotide synthesis with its related disease. 5+5
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