Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination –November 2019
Third Semester

Class : II B.Sc **Time: 3 hours**
Major : Biochemistry and Biotechnology **Max. Marks: 100**

18BBCC05 -Intermediary metabolism-I

Part A **10 x 1 = 10**
Choose the correct answer

1. Show the enzyme that catalyze the substrate level phosphorylation in the TCA cycle
   a. Aconitase b. Isocitrate dehydrogenase
   c. Fumarase d. Succinyl CoA synthetase

2. Identify the number of ATP formed from the conversion of succinate to fumarate.
   a. 3 b. 2 c. 1 d. 4

3. Label the process of formation of Glucose from non carbohydrate source.
   a. Glycolysis b. Glycogenesis c. Glycogenolysis d. Gluconeogenesis

4. Identify the enzyme that catalyze the rate limiting step in the HMP shunt.
   a. Glucose 6 phosphate dehydrogenase b. Ribulose 5 phosphate epimerase
   c. Ribose 5 phosphate ketoisomerase d. Transketolase

5. Name the fatty acid that contains 4 double bonds.
   a. Linoleic acid b. Linolenic acid c. Arachidonic acid d. Oleic acid

6. Show the end product of long chain fatty acid by β oxidation.
   a. Acetyl CoA b. Malonyl CoA c.Succinyl CoA d. Butyryl CoA

7. Name the rate limiting enzyme of fatty acid biosynthesis.
   a. Hydratase b. Keto acyl synthetase c. Enoyl reductase d. Acetyl CoA carboxylase

8. Identify the enzyme which is responsible for introducing a double bond in a saturated fatty acids.
   a. Enoyl CoA b. Acetyl CoA c. Desaturase d. Phospholipase

9. Label the formation of a product in a decarboxylation reaction of an amino acid.
   a. Amide b. Ammonia c. Amine d. Carboxylic acid

10. Name the coenzyme that is essential for the transaminase activity.
    a. Pyridoxal phosphate b. Thiamine Pyrophosphate c. Biotin d. Flavin mononucleotide

Part B **5 x 6 = 30**

Answer ALL questions

Each answer should not exceed 400 words or two pages

11. a. Write short notes on metabolism of Galactose

(or)

11.b. Give the differences between Hexokinase and Glucokinase.

12.a. Outline the various metabolic reactions of carbohydrates.

(or)

12.b. Compare the action of Liver phosphorylase and Muscle phosphorylase in Glycogenolysis.

13.a. Point out the reactions of Alpha oxidation of fatty acids.

(or)

13.b. Write short notes on importance of oxidation of fatty acids and its energetics.

14.a. Explain the biosynthesis of mono unsaturated fatty acids.

(or)

14.b. List out the enzymes of Multienzyme complex.

15.a. Illustrate the Deamination reactions of amino acids.

(or)

15.b. Write short notes on general breakdown of proteins.

Part C **5 x 12 = 60**

Answer ALL questions

Each answer should not exceed 800 words or four pages.

16.a. Explain the pathway and energetics of Glycolysis.

(or)

16.b. Outline the enzymatic reactions of Glyoxylate cycle.

17.a. Define Gluconeogenesis and explain the pathway of Gluconeogenesis.

(or)

17.b. Generalize the reactions of pentose phosphate pathway and its importance.

18.a. Illustrate the reactions of β oxidation of fatty acids.

(or)

18.b. Explain the oxidation of fatty acids with an odd number of carbon atoms.

19.a. Summarize the reactions of palmitic acid biosynthesis and its energetics.

(or)

19.b. Write in detail on biosynthesis of Arachidonic acids.

20.a. Discuss the reactions of urea cycle.

(or)

20.b. Illustrate the Transamination and Decarboxylation reactions of amino acids with example.

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