647510 **BSCmetCC5020** **Seat No: _____**

B.Sc. Semester - 5 (CBCS) Examination
Oct/Nov. - 2018
INTERMEDIARY METABOLISM (CORE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que-1 (A) Answer any one of the following questions in detail. (07)

1. Discuss reactions of TCA cycle in detail.
2. Write the differences between glycolysis and gluconeogenesis.

(B) Write the answer for any one of the following questions. (04)

1. Why HMP pathway is also known as HMP shunt? Write important functions of HMP pathway.
2. Write a brief note on process of glycogenolysis in liver and its importance.

(C) Answer any three of the following questions in just one or two lines. (03)

1. How fructose enters glycolysis?
2. Describe substrate level phosphorylation and write names of two enzymes of glycolysis that produced ATP by substrate level phosphorylation.
3. Write the name of the cofactor required by all kinases that require ATP.
4. Name the glycolytic enzyme inhibited by fluoride and hence fluoride is a preferred anticoagulant for collection of blood for glucose estimation.
5. Write comparative account of catabolism v/s anabolism.

Que-2 (A) Answer any one of the following questions in detail. (07)

1. Discuss using neat diagram, arrangement of different components of Complexes I to IV of mitochondrial electron transport chain.
2. Write a short note on structure and functions of mitochondrial ATP synthase.

(B) Write the answer for any one of the following questions. (04)

1. Discuss the role of ubiquinone or coenzyme Q in mitochondrial ETC.
2. Descirbe mitochondrial ATP synthase as molecular motor and list the conditions under which mitochondrial ATP synthase work as ATP hydrolase.

(C) Answer any three of the following questions in just one or two lines. (03)

1. Why TCA cycle is called central metabolic pathway?
2. Describe ADP/O ratio and its significance.
3. Write at least one example of uncoupler thatcan uncouple oxidative phosphorylation.
4. What is the site of action of Cyanide, azide and carbon monoxide in mitochondrial ETC?
5. What are iron sulphur proteins? What is their importance in ETC?

Que-3 (A) Answer any one of the following questions in detail. (07)

1. Write a detailed note on the process of beta oxidation of fatty acids.
2. Calculate the ATP yield upon complete oxidation of 18 Carbon saturated fatty acid.

(B) Write the answer for any one of the following questions. (04)

1. Write a note on process of hydrolysis of triglycerides and control of hormone sensitive lipase by epinephrine.
2. Write important functions of phospholipids.

(C) Answer any three of the following questions in just one or two lines. (03)

1. Why fats have high calorific value compared to carbohydrates?
2. Write the importance of carnitine and carnitine acyl transferase in fatty acid oxidation.
3. When phospholipids are acted upon by phospholipase C, what products would be formed?
4. Define essential fatty acids and write their examples.
5. Name the key regulatory enzyme of cholesterol biosynthesis that is inhibited by statin group of drugs which are prescribed to lower blood cholesterol levels.

Que-4 (A) Answer any one of the following questions in detail. (07)

1. Discuss amino acid transamination using examples of SGOT (ALT) and SGPT (ALT). Also write the clinical significance of measuring activities of these enzymes in serum.
2. Write a short note on urea cycle and describe reactions of urea cycle (structures of intermediates are not required)

(B) Write the answer for any one of the following questions. (04)

1. Define glycogenic and ketogenic amino acids giving suitable examples.
2. What is the role of co enzyme pyridoxal phosphate (B-6-P) in amino acid metabolism?

(C) Answer any three of the following questions in just one or two lines. (03)

1. Define essential amino acids and write their examples.
2. Write the role of glutamate dehydrogenase in amino acid catabolism.
3. Tyrosine can be synthesized in human body by hydroxylation of which amino acid?
4. What do you mean by amonotelic organisms? Write examples.
5. When histidine is decarboxylated by histidine decarboxylase, what product is being formed?

Que-5 (A) Answer any one of the following questions in detail. (07)

1. Discuss pathway of de novo synthesis of purine nucleotide synthesis.
2. Describe degradation of purine nucleotides.

(B) Write the answer for any one of the following questions. (04)

1. Discuss salvage pathway for synthesis of pyrimidine nucleotides.
2. Write differences between nucleosides and nucleotides.

(C) Answer any three of the following questions in just one or two lines. (03)

1. Which enzyme is capable of reducing ribonucleotides to deoxyribonucleotides?
2. What is the basic difference between ribose sugar and deoxyribose sugar?
3. Uric acid is an end product of catabolism of which substances?
4. Write two examples of uricotelic animals.
5. What do you understand by a condition called Gout?

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