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SARDAR PATEL UNIVERSITY

B.Sc. (VI- Semester) Examination

US06CBCH23 (HUMAN METABOLISM-II)

Date: 25-6-2022, Time: 10:00 AM to 12:00 PM

TOTAL MARKS: 70

Q.1 Choose the correct option and write it in the answer sheet: 10

1. Phosphorylation of which energy molecule yields ATP?
   a. NAD c. ADP
   b. AMP d. UTP
2. How many ATPs are generated if the electrons enter through NADH in ETC?
   a. 2.5 c. 3.5
   b. 1.5 d. 0.5
3. ATP synthase complex synthesise ATP and released in _____ of mitochondria.
   a. Intermembrane space c. Mitochondrial Metrix
   b. Outer membrane d. Inner membrane
4. Which is the necessary coenzyme for transamination reactions?
   a. Pyridoxal phosphate c. Thiamine pyrophosphate
   b. NAD d. Coenzyme A
5. Which molecules is an excretory end product of protein metabolism.
   a. Uric acid c. Folic Acid
   b. Urea d. Glutamate
6. Which of the following is NOT a cause for albinism have been identified.
   a. Impairment in melanin polymerization.
   b. Increased in melanosomes of melanocytes
   c. defect in tyrosinase
   d. Presence of tyrosinase inhibitors
7. Uric acid can serve as an important antioxidant by getting itself converted to
   a. Ascorbic acid c. allantoin
   b. Tocopherol d. IMP
8. Which of the following is an important precursor in the purine pathway?
   a. Glycine c. Aspartate
   b. Glutamine d. Leucine
9. Which of the following type of metabolites is used for generating glucose under severe starvation conditions?
   a. Amino acids c. Fats
   b. Glycogen d. Starch
10. During starvation, the brain slowly gets adapted to use _____ for energy needs.
    a. Amino acid c. Ketone bodies
    b. Glycogen d. Fatty acid

Q.2 (A) Fill in the blanks 08

1. Oxidative phosphorylation occurs in organelles named _____.
2. The animal convert's ammonia mostly to uric acid is called _____.
3. _____ is the donor of ribose 5-phosphate in the salvage pathway.
4. _____tissue is primarily a storage organ of fat.

Q.2 (B) Ture or False

1. Succinate dehydrogenase carries electrons from cytochrome c to molecular oxygen, reducing it to H_2O.
2. Glutamate serves as a 'collection centre' for amino groups.
3. The purines are built upon a pre-existing ribose 5-phosphate.
4. 50% of the energy consumed by brain is utilized maintain membrane potential required for nerve impulse transmission.

Q.3 Answer the following in very short (Attempt any Ten) 20

1. Write down the role of coenzyme Q in electron transport chain.
2. Define: Oxidative phosphorylation.
3. Name the various inhibitors of electron transport chain.
4. What are the metabolic uses of amino acid?
5. Define Protcin turnover.
6. Give an account on : Causes of Phenylketonuria
7. How AMP and GMP synthesis from IMP?
8. Briefly discuss on Gout.
9. Write down the role of ribonucleotide reductase in synthesis of DNA.
10. What is energy currency of the cell?
11. How glycogen effectively serves as a fuel reserve to meet body needs?
12. List four different mechanisms for regulation of metabolic pathways.

Q.4 Answer the following question in detail. (Attempt any four out of eight) 32

1. Explain the organisation of electron transport chain and discuss mechanism of oxidative phosphorylation.
2. Describe the structure and function of ATP synthase complex.
3. Discuss the major step involved in Urea cycle and briefly explain its significance.
4. Give an account on : Transamination & Deamination reaction
5. Explain the De Novo synthesis of purine biosynthesis.
6. Discuss on : Degradation of purine nucleotides
7. Explain the metabolic adaptation under starvation condition.
8. Give a detailed note on integration of metabolic pathways of energy metabolism.

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