

Biochemistry

Q. P. Code: 34280

Duration: 2 1/2 hrs

Total marks: 75

Note:

- 1) Attempt all questions.
- 2) All questions carry equal marks.
- 3) Draw neat labeled diagrams wherever necessary.
- 4) For Q.2, Q.3 and Q.4 attempt A and B OR C and D

Q.1 Do as directed (any fifteen)

Choose the correct option and fill in the blanks:

- (1) The coenzyme for enzyme aspartate transaminase is _____ (NAD⁺ / PLP)
- (2) Ureotelic animals convert ammonia to _____ (urea / uric acid)
- (3) Defect in catabolic pathway of _____ leads to alkaptonuria. (phenylalanine / tryptophan)
- (4) Allantoicase catalyses conversion of allantoate to _____ and glyoxylate (urea / uric acid)
- (5) _____ cannot convert acetyl-CoA derived from fatty acids into glucose.
(Animals / Plants)

State true / false:

- (6) Histidase enzyme acts on histidine to release ammonia.
- (7) Glutamine serves as transport form of ammonia in the body.
- (8) Kefosis is seen in patients with uncontrolled diabetes mellitus.
- (9) Gluconeogenesis takes place in liver.

Fill in the blank:

- (10) Precursor amino acid for biosynthesis of GABA is _____.
- (11) The site for alpha oxidation of fatty acids in eukaryotic cells is _____.
- (12) Acetone, beta hydroxybutyrate and _____ are known as ketone bodies.
- (13) _____ is the excreted end product of purine catabolism in humans.
- (14) The enzymes of TCA cycle are located in _____ in eukaryotic cells.

Write the equation for the reaction catalysed by following enzymes:

- (15) Adenosine deaminase.
- (16) Pyruvate kinase.
- (17) Isocitrate lyase.

Name the enzyme that catalyses the conversion of following reactions

- (18) Glyceraldehyde 3-phosphate to 1,3-bisphosphoglycerate.
- (19) Arginine to urea.
- (20) D - methyl malonyl CoA to L - methyl malonyl CoA.

Q.2 (A) Discuss the reactions involved in the non-oxidative phase of the pentose phosphate pathway. 08

(B) Explain the role of phosphofructokinase-1 in regulation of glycolysis pathway. 07

OR

(C) With the help of a neat labelled diagram explain the structure and mechanism of rotary motor model for ATP generation. 08

(D) Schematically represent (in words) the reactions of citric acid cycle. 07

Q.3 (A) Using a neat labelled diagram describe Kreb's Hanseleit cycle. 08

(B) Describe the synthesis and function of glutathione. 07

OR

(C) Discuss the metabolic disorders associated with defects in urea cycle. 08

(D) Schematically represent synthesis of epinephrine from tyrosine. 07

Q.4 (A) Describe the four reactions involved in beta oxidation of even number of fatty acid. 08

(B) Give an account of the disorder gout. 07

OR

(C) Using a neat schematic diagram describe biosynthesis of ketone bodies in liver. 08

(D) Describe the degradation pathways for GMP. 07

Q.5

Write short note on (any three)

15

- (a) Role of coenzyme Q in ETC.
- (b) Conversion of pyruvate to phosphoenolpyruvate in gluconeogenesis.
- (c) Glucogenic amino acids.
- (d) Oxidative deamination by amino acid oxidase.
- (e) Carnitine shuttle.

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