

(12/A-15)

SEAT No. _____

No of printed pages: 02

SARDAR PATEL UNIVERSITY
B.Sc VI SEMESTER EXAMINATION
THURSDAY, 4TH APRIL 2019
10:00 A.M. TO 1:00 P.M.
BIOTECHNOLOGY: US06CBIT06
METABOLISM

TOTAL MARKS: 70

Note: Figures to the right indicates marks.

Q.I Multiple Choice Questions

[10]

- 1) Which enzyme catalyze the conversion of pyruvate to oxaloacetate ?
a) Pyruvate carboxylase b) Pyruvate Kinase
c) Pyruvate hydrogenase d) Phosphofructokinase 1
- 2) Which cofactor is attached with pyruvate dehydrogenase?
a) FAD b) TPP
c) NAD d) Lipoate
- 3) _____ closely resembles the pyruvate dehydrogenase complex in both structure & function.
a) α -ketoglutarate dehydrogenase b) Citrate synthase
c) Isocitrate dehydrogenase d) Malate dehydrogenase
- 4) The four amino groups present in purine ring are donated by aspartate, glutamine & _____
a) Glycine b) Proline
c) Valine d) Leucine
- 5) _____ is a true ketone body.
a) Acetoacetate b) β -hydroxybutyrate
c) Acetate d) None of these
- 6) Which of the following amino acid is involved in the transamination reaction?
a) Lysine b) Threonine
c) Proline d) Methionine
- 7) Citrulline synthesis takes place in _____
a) Nucleus b) Cytosol
c) Lysosome d) Mitochondrial matrix
- 8) Following are the examples of high energy compounds, except
a) Phosphoenol pyruvate b) Glucose -6-phosphate
c) ATP d) Phosphocreatine
- 9) Chemiosmotic theory was proposed by _____
a) Boyer b) Peter Mitchells
c) Malvin Calvin d) Meyerhof
- 10) The electron transport system is located in the _____ of the mitochondria.
a) Cristae of inner membrane b) Outer membrane
c) matrix d) Inter membrane space

①

P.T.O

- Q.II** Answer the following questions in short. (Attempt any 10) [20]
- a) Why TCA is called as amphibolic pathway?
 - b) Mention the importance of pentose phosphate pathway.
 - c) Define substrate level phosphorylation.
 - d) Why ketone bodies are used as a fuels in all tissue except liver?
 - e) Differentiate between de novo & salvage pathway of nucleotide biosynthesis.
 - f) Write the function & importance of carnitine acyltransferase.
 - g) What is the significance of Urea cycle?
 - h) Give the biological importance of Dopamine & Histamine.
 - i) Define the terms: Ureotelic animals & Uricotelic animals
 - j) What is binding change mechanism?
 - k) Define: Oxidative phosphorylation
 - l) Enlist the names of various electron carriers in electron transport chain.

- Q.III** a) Give an account on glycolytic pathway. [06]
b) Explain in detail oxidative pentose phosphate pathway. [04]

OR

- Q.III** a) Write short note on TCA cycle. [05]
b) Write in detail about bypass reactions of gluconeogenesis. [05]

- Q.IV** a) Discuss in detail β -oxidation of palmitic acid. [05]
b) Write in detail about the formation of ketone bodies from acetyl-CoA. [05]

OR

- Q.IV** a) Describe the de novo pathway for pyrimidine nucleotide synthesis. [05]
b) How unsaturated fatty acids are oxidized by β -oxidation pathway? [05]

- Q.V** a) Discuss in detail Kreb's Henseleit cycle. [06]
b) Give a note on overview of amino acid biosynthesis. [04]

OR

- Q.V** a) Write in detail about transamination reaction & give the role of PLP in this reaction. [05]
b) Explain in detail amino acid pool. [05]

- Q.VI** Describe about ATP synthase & ATP hydrolysis. [10]

OR

- Q.VI** a) Give an account on Complex I & Complex II of ETC with diagram. [06]
b) Write short note on Q- cycle. [04]

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(2)