S. Y. B. SC. (BIOTECHNOLOGY) SEM – III (CBCS - 2015 COURSE) : WINTER - 2017

SUBJECT: BIOCHEMISTRY-II

Day: **Friday** Time: **10.00 AM TO 01.00 PM**

Date: **03/11/2017** **W-2017-0940** Max. Marks: 60

N.B.:

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**.
2) Attempt **ANY TWO** remaining questions from **Q. No. 2, 3, 4** in Section- I.
3) Attempt **ANY TWO** remaining questions from **Q. No. 6, 7, 8** in Section- II.
4) Answer section I and II in **SEPARATE** answer books
5) Draw neat structures and diagrams wherever necessary.

SECTION-I

Q.1 Answer Any **FIVE** of the following questions in brief: **[10]**

a) Define Redox potential.
b) Explain the terms - catabolism and anabolism.
c) Explain entropy, enthalpy and free energy in thermodynamics.
d) Enlist different types of enzyme inhibitors.
e) Which are regulatory steps in glycolysis.
f) Write Michaelis – Menten rate equation in enzyme Kinetics
g) Explain the amphibolic nature of Citric Acid Cycle.

Q.2 Answer the following questions: **[10]**

a) What are the two laws of thermodynamics? Explain how they are obeyed during biological energy transformation.
b) Explain TCA cycle. Indicate the controlled reactions of the cycle.

Q.3 Explain the following: **[10]**

a) Describe the metabolic fates of pyruvate.
b) Explain Pentose Phosphate Pathway.

Q.4 Answer the following: **[10]**

a) Describe the structure of ATP and explain the factors involved in its dissociation and stabilization.
b) Explain the Electron Transport Chain in detail.

SECTION-II

Q.5 Answer the following: **[10]**

a) Describe the various steps involved in Calvin cycle.
b) Differentiate between Gluconeogenesis and glycolysis.

Q.6 Answer in brief: **[10]**

a) Explain the Urea cycle in detail.
b) What are Ketone bodies? Explain their physiological importance.

Q.7 Write short notes on the following: **[10]**

a) Explain β-oxidation of saturated fatty acid
b) Describe how alanine is converted to pyruvate during amino acid degradation.

Q.8 Answer the following: **[10]**

a) Describe in detail allosteric enzymes.
b) Explain Nitrogen cycle in detail.

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