

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

Day: Friday
Date: 03/11/2017

W-2017-0940

Time: 10.00 AM TO 01.00 PM
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.