Roll No.	
Paper Code: MTBT-101	

M. Tech.

FIRST SEMESTER EXAMINATION, 2016-17

APPLIED BIOCHEMISTRY AND MOLECULAR BIOLOGY

[Time: 3 hrs] [Max. Marks: 70]

Note: Attempt ***ALL*** questions. Assume suitable data, if required. All question carry equal marks.

1. Differentiate any *four* of the followings: - **(3.5x4=14)**

(a) Unsaturated and saturated fatty acids
(b) Enthalpy and Entropy
(c) Polar and Non-Polar Amino acids
(d) Codons for chain initiation and termination
(e) Epimer and Anomer

2. Write short notes on any four of the following:- **(3.5x4=14)**

(a) Essential and Non Essential Amino acid
(b) Nucleoid
(c) Ramachandran plot
(d) Lac operon
(e) Reverse transcription

3. Attempt any *two* parts of the following: - **(7x2=14)**

(a) Describe briefly the central dogma of molecular biology. Why was it necessary to modify the central dogma later on?
(b) Write the differences in organelles of prokaryotic and eukaryotic cell.
(c) What are alternative splicing and trans-splicing?

4. Attempt any *two* parts of the following: - **(7x2=14)**

(a) Explain different steps of protein synthesis. Describe the tertiary structure of proteins.
(b) How can transposons be utilized for genetic studies and in genetic engineering?
(c) What is TCA Cycle? Describe the steps and explain why can't citric acid operate in the absence of Oxygen

5. Attempt any *two* parts of the following:- **(7x2=14)**

(a) Discuss the ATP synthesis in Glycolysis in presence and absence of oxygen.
(b) Describe the modifications which a freshly synthesized protein undergoes.
(c) Discuss the pathway of Urea cycle and its significance.