

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION)**

**CLASS: BE  
BRANCH: ALL**

**SEMESTER: IV  
SESSION : SP/2019**

**SUBJECT : BT3021 BIOLOGICAL SCIENCE**

**TIME: 1.5 HOURS**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The total marks of the questions are 30.
  2. Candidates may attempt for all 30 marks.
  3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. The missing data, if any, may be assumed suitably.
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- Q1 (a) What are the characteristic features of living things? Explain any four features. [2]  
(b) How would you order the various levels of biological organization? [3]
- Q2 (a) Under what condition origin of life initiated? [2]  
(b) How would you explain the origin of life by Chemosynthetic theory? [3]
- Q3 (a) Identify the complementary nucleotide sequence of DNA fragment of [5'-ATCGGCTTAC-3'] [2]  
(b) Draw the chemical structure of Glucose and Sucrose. [3]
- Q4 (a) Predict the outcome of complete hydrolysis of maltose, Lactose, cellulose and starch. [2]  
(b) How would you describe the structure of protein? [3]
- Q5 (a) State the first law of thermodynamics with its mathematical form. [2]  
(b) Justify your conclusion about the statement "Fatty acid is more efficient energy source than carbohydrates". [3]
- Q6 (a) What would happen if one molecule of Palmitic acid undergo complete  $\beta$ -oxidation? [2]  
(b) How would you describe the different steps of  $\beta$ -oxidation of fatty acid? [3]

**::: 07/03//2019 E::::**