

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

CLASS: BTECH
BRANCH: MECH/PROD/CIVIL/BT/CHEMICAL/CEP&P

SEMESTER: IV
SESSION : SP/2020

SUBJECT : BE101 BIOLOGICAL SCIENCE FOR ENGINEERS

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates may attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q1	(a) What is Cell Theory? Write the three tenets of cell theory.	[2]	1	1
Q1	(b) How would you classify the vitamins? Summarize the source and biological significance of vitamin A and C.	[3]	1	2
Q2	(a) Interpret the condition on the primitive earth at the time of origin of life.	[2]	1	2
Q2	(b) How would you summarize the process of chemogeny and biogeny during the origin of life?	[3]	3	2
Q3	(a) Illustrate the source and any four biological functions of carbohydrates.	[2]	1	2
Q3	(b) How would you summarize the process of mitosis in a cell?	[3]	3	2
Q4	(a) Demonstrate the first law of thermodynamics with its mathematical expression.	[2]	1	1
Q4	(b) Enlist the different types of respiration. Compare their output and significance.	[3]	3	2
Q5	(a) What is meant by Entropy and Gibb's free energy?	[2]	3	2
Q5	(b) Demonstrate the various steps of Kreb's cycle with special emphasis on the output molecules of the process.	[3]	3	1

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