

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE
BRANCH: EEE/ECE/IT/MECH/PROD/CIVIL

SEMESTER : IV
SESSION : SP/19

SUBJECT: BT3021 BIOLOGICAL SCIENCE

TIME: 3.00 Hrs.

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Define the term homeostasis and adaptation in terms of living system. [2]
Q.1(b) State the abiogenesis and biogenesis theory of origin of life. [4]
Q.1(c) Give a brief over view on the Miller's Experiment of origin of life. [6]
- Q.2(a) What are vitamins? Write the function of any two vitamins. [2]
Q.2(b) Classify the carbohydrates and mention its application or role in biological system. [4]
Q.2(c) How would you describe the chemical structure of nucleic acid? [6]
- Q.3(a) What is redox reaction? Explain with biological reactions. [2]
Q.3(b) Summarize the importance of electron transport chain with its complete process. [4]
Q.3(c) What is the Citric acid cycle? Give an overview on it. [6]
- Q.4(a) Distinguish between G1, S and G2 Phases of cell cycle. [2]
Q.4(b) Give a comparative overview on the prokaryotes and eukaryotes. [4]
Q.4(c) What is meiosis? Give an overview on various stages in meiosis. [6]
- Q.5(a) What are the different types of RNA? Mention their biological function. [2]
Q.5(b) Outline the various steps of replicated of DNA inside the cell? [4]
Q.5(c) Illustrate and explain the process of transcription with suitable diagram. [6]
- Q.6(a) What is Competitive inhibition of enzyme? Explain in brief. [2]
Q.6(b) Define the term Enzyme. Write any four application of enzymes with their name. [4]
Q.6(c) Derive the Michaelis-Menten kinetics. Write the significance of K_m and V_{max} . [6]
- Q.7(a) What is Lambert-Beer Law? Mention its application. [2]
Q.7(b) Interpret the basic principle of chromatography. Give an overview on its application. [4]
Q.7(c) Give a brief overview on the electrophoretic techniques used in biological science. [6]

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