

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

CLASS: BE
BRANCH: BIO-TECH

SEMESTER : III
SESSION : MO/16

TIME: 03:00

SUBJECT: BT3021-BIOLOGICAL SCIENCES

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.
 6. Nothing should be written on front or back of the question paper except tick marking.
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- Q.1(a) Give the classification of living world. [2]
✓(b) Give the different levels of biological organization. [4]
✓(c) Enumerate and discuss the theories and evidences about origin of life. [6]
- Q.2(a) What are carbohydrates? [2]
✓(b) Give the uses of carbohydrates, proteins and lipids in human beings. [4]
✓(c) Enumerate uses of any three vitamins and three minerals giving their sources and deficiency diseases. [6]
- Q.3(a) What do you mean by bioenergetics? [2]
✓(b) Discuss the citric acid cycle along with the energetic involved. [4]
✓(c) Discuss Glycolysis. [6]
- Q.4(a) What is cell theory? [2]
(b) Give the difference between animal cell and plant cell. Draw the diagram of plant cell and animal cell both. [4]
(c) Discuss cell cycle. What are mitosis and meiosis? [6]
- Q.5(a) What do you mean by central dogma of molecular biology? [2]
✓(b) Give the difference between DNA and RNA. [4]
(c) What is bioinformatics? Give the applications of bioinformatics in the scientific world. [6]
- Q.6(a) Discuss enzymes. [2]
✓(b) Classify enzymes with one example each. [4]
✓(c) What is Lock and key model of enzyme action? Discuss the mechanism of enzyme action with reference to activation energy. [6]
- Q.7(a) What is chromatography? [2]
✓(b) What do you mean by centrifugation? Discuss the principle and the applications. [4]
✓(c) Write a short note on Gel electrophoresis, its principle and applications. [6]

*****30/11/16*****E