



MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BS-B401/BSC 401/BSC-401/BSC401 Biology

UPID : 004408

CS/B.TECH(N)/EVEN/SEM-4/4408/2023-2024/I124

Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

- (i) The portion of the growth curve where rapid growth of bacteria is observed is known as _____
- (ii) The human eye can focus objects at different distances by adjusting the focal length of the eye lens. This is due to _____
- (iii) What is meant by the term osmoregulation?
- (iv) Who is known as father of genetics?
- (v) What is meant by power of accommodation of the eye?
- (vi) Enzyme increases the rate of reaction by lowering the activation energy. Is this statement true or false?
- (vii) What is cistron?
- (viii) State two economically important uses of heterotrophic bacteria.
- (ix) What is the main function of kinase?
- (x) The growth of bacterial population follows a geometric progression.
a) True
b) False
- (xi) Are viruses living or non-living?
- (xii) Fluid Thioglycollate medium is used for the cultivation of which type of organism?

Group-B (Short Answer Type Question)

Answer any three of the following :

[5 x 3 = 15]

2. How are co-factors different from prosthetic groups? [5]
3. Give characteristics of genetic code. [5]
4. Differentiate between DNA/RNA. [5]
5. Explain Krebs cycle. draw suitable flowchart for explanation. [5]
6. The sequence of the coding strand of DNA in a transcription unit is mentioned below. [5]
3' AATGCAGCTATTAGG 5'
Write the sequence for:
1. Its complementary strand
2. Its mRNA

Group-C (Long Answer Type Question)

Answer any three of the following :

[15 x 3 = 45]

7. Illustrate the two models by which an enzyme holds the substrate. [15]
8. Explain steps of Glycolysis in details. [15]
9. Give functions of Proteins as receptors and structural elements. [15]
10. Describe the characteristics of the individuals with the following chromosomal abnormalities: [15]
Trisomy at chromosome 21
XXY
XO
11. A tall plant with red flowers (dominant) is crossed with a dwarf plant with white flowers (recessive). Work out a dihybrid cross and state the dihybrid ratio. What will be the effect on the dihybrid ratio if the two genes are interacting with each other? [15]

*** END OF PAPER ***