



# MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BS-B401/BS-BIO401/BSC 401/BSC-401/BSC401 Biology

UPID : 004408

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) Discontinuous synthesis of DNA occurs in \_\_\_\_\_ during replication of DNA.
- (ii) \_\_\_\_\_ amino acids can be produced by the body even if we do not get it from the food we eat.
- (iii) Krebs cycle occurs in which part of the cell?
- (iv) Which microorganisms are used to produce alcohol?
- (v) The phenotypic ratio of dihybrid experiment is \_\_\_\_\_.
- (vi) \_\_\_\_\_ is also known as "suicidal bag".
- (vii) The genotypes of blood group O is \_\_\_\_\_.
- (viii) The general molecular formula of Carbohydrates is \_\_\_\_\_.
- (ix) In \_\_\_\_\_ inhibition, the inhibitor competes with the substrate for binding to the active site of an enzyme.
- (x) The excision of introns and the formation of final mRNA molecule by joining the exons is called \_\_\_\_\_.
- (xi) The chromosomes with satellite are known as \_\_\_\_\_.
- (xii) Glycolysis is also known as \_\_\_\_\_.

## Group-B (Short Answer Type Question)

Answer any three of the following :

[ 5 x 3 = 15 ]

2. What are different types of culture media based on the physical state? Distinguish between agar and broth? [5]
3. Draw a comparison between eye and camera. [5]
4. Draw labeled diagram of Animal cell as seen in Electron microscope. Comment on characteristics of Animal cell. [5]
5. Write short note on Central dogma. [5]
6. Explain the types of lipids depending on the esterification. [5]

## Group-C (Long Answer Type Question)

Answer any three of the following :

[ 15 x 3 = 45 ]

7. (a) Explains the phases of microbial growth kinetics with graph. [ 10 ]  
(b) Differentiate between sterilization and pasteurization. [ 5 ]
8. Explain why engineers need to study biology? [ 15 ]
9. (a) What is DNA replication? [ 2 ]  
(b) State in brief the mechanism of DNA replication with diagram. [ 13 ]
10. (a) Write a short note on secondary structure of protein. [ 5 ]  
(b) Define essential, conditionally essential and non-essential amino acids giving one example from each. [ 4 ]  
(c) Define Monosaccharide, Disaccharide and Trisaccharide with example. Distinguish between cis fat and trans fat [ 6 ]
11. (a) What is cell cycle? [ 2 ]  
(b) Describe the different phases of cell cycle. [ 10 ]  
(c) What is Crossing Over? [ 3 ]

\*\*\* END OF PAPER \*\*\*