

B.Sc. Semester - 3 (CBCS) Examination
Oct/Nov - 2025 [New Course]
BioTechnology-BT301(Core)

Time: 2:30 Hours**Marks:70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1(A) Answer the following. (Any one out of two) (07)
- (1) Write a detail account on irreversible enzyme inhibition.
 - (2) Discuss in detail- I.U.B. classification of enzyme
- Que.1(B) Attempt any one. (04)
- (1) Isoenzymes.
 - (2) Metal ion catalysis.
- Que.1(C) Attempt any three. (03)
- (1) Full form of I.U.B.
 - (2) Write an equation for Michaelis-Menten constant.
 - (3) Mention one example of simple protein enzyme.
 - (4) Define: Biocatalyst.
 - (5) Mention one example of acid-base catalysis.
- Que.2(A) Answer the following. (Any one out of two) (07)
- (1) Discuss in detail about TCA cycle.
 - (2) Write in detail on β -oxidation of fatty acid.
- Que.2(B) Attempt any one. (04)
- (1) Importance of gluconeogenesis.
 - (2) Pasteur effect.
- Que.2(C) Attempt any three. (03)
- (1) Crabtree effect is opposite to Pasteur effect. (True/False).
 - (2) Full form of HMP.
 - (3) Citric acid cycle is also known as a.....
 - (4) Full form of ETC
 - (5) Fatty acids in the body are mostly oxidized by Oxidation. (α / β)
- Que.3(A) Answer the following. (Any one out of two) (07)
- (1) Explain-Transamination.
 - (2) Discuss in detail about photosynthesis.
- Que.3(B) Attempt any one. (04)
- (1) List of inborn errors of metabolism.
 - (2) Non-oxidative deamination.
- Que.3(C) Attempt any three. (03)
- (1) Urea is the end product of protein metabolism. (True/False)
 - (2) Write down structural components of nucleic acid.
 - (3) Ammonium ions are important to maintain acid-base balance of the body (True/False)
 - (4) Fumarate production in urea cycle is integrating point with TCA cycle. (True/False)
 - (5) The concentration of intracellular amino acids is always higher than the extracellular amino acids. (True/False)

- Que.4(A) Answer the following. (Any one out of two) (07)
- (1) Write a note on plant hormones and its function.
 - (2) Discuss in detail about disorders due to hormonal imbalance in human.
- Que.4(B) Attempt any one. (04)
- (1) Endocrine hormones.
 - (2) Enlist types of animal hormones.
- Que.4(C) Attempt any three. (03)
- (1) Epinephrine is released from the adrenal glands in response to stress. (True/False)
 - (2) Define: Hormones.
 - (3) Insulin is a peptide hormone secreted from the pancreas. (True/False)
 - (4) Write down any one principal hormone that control carbohydrate metabolism.
 - (5) Glucagon stimulates adenylate cyclase in liver cells. (True/False)
- Que.5(A) Answer the following. (Any one out of two) (07)
- (1) Give a detail note on composition of membrane.
 - (2) Discuss in detail about solute transport across membrane.
- Que.5(B) Attempt any one. (04)
- (1) Enlist signal transduction cascade.
 - (2) Regulation of cell cycle by protein kinase.
- Que.5(C) Attempt any three. (03)
- (1) Write-down one name of component present in membrane.
 - (2) Signal transduction cascade carried out by single enzyme. (True/False)
 - (3) Mention one name of hormone used in signal transduction.
 - (4) Which enzyme regulate the cell cycle.
 - (5) Write-down one name of solute transport across membrane.
