



Seat No. _____

HAL-003-2013014
B. Sc. (Sem.-III) Examination
June - 2023
BT-301 : Metabolism of Biomolecules

Faculty Code : 003
Subject Code : 2013014

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

- 1 (A) Answer the Question: (One Mark Each) 4
- (1) Who proposed lock and key model of Enzyme?
 - (2) Who coined the word "Enzyme"?
 - (3) The catalytic efficiency of two different enzymes can be compared by the Km value. (True/false)
 - (4) What is international unit of Enzyme?
- (B) Answer the Question: Any One out of Two : 2
- (1) Enlist difference between Biocatalyst and Catalyst.
 - (2) Give example of allosteric enzyme.
- (C) Answer the Question: Any One out of Two : 3
- (1) What is transition state analog?
 - (2) Explain in detail about covalent modification with examples.
- (D) Answer the Question: Any One out of Two : 5
- (1) Write note on MM equation with significance.
 - (2) Write note on enzyme inhibition and types with example.
- 2 (A) Answer the Question: (One Mark Each) 4
- (1) Name end product of glycolysis.
 - (2) How many ATP are produced in TCA cycle?
 - (3) Give one example of substrate level phosphorylation.
 - (4) Which enzyme is not part of gluconeogenesis?

- (B) Answer the Question: Any One out of Two : 2
- (1) What is role of PDH enzyme?
 - (2) What is HMP shunt?
- (C) Answer the Question: Any One out of Two : 3
- (1) Write note on Glycolysis pathway with diagram.
 - (2) Write note on TCA with diagram.
- (D) Answer the Question: Any One out of Two : 5
- (1) Explain in detail about Gluconeogenesis.
 - (2) Write on oxidative metabolism.
- 3** (A) Answer the Question: (One Mark Each) 4
- (1) Give example of genetic disorder due to inborn metabolism.
 - (2) Where does urea cycle occur?
 - (3) Oxidative deamination is the conversion of an amino acid to _____ and _____.
 - (4) The amino acid that undergoes oxidative deamination at the highest rate is _____.
- (B) Answer the Question: Any One out of Two : 2
- (1) Give one reaction of transamination reaction.
 - (2) Give one reaction of deamination.
- (C) Answer the Question: Any One out of Two : 3
- (1) Write a brief note on Urea cycle.
 - (2) Write in detail about Biosynthesis of Nucleic Acid.
- (D) Answer the Question: Any one out of two : 5
- (1) Explain in detail about inborn error of metabolism with example.
 - (2) Write note on photosynthesis.
- 4** (A) Answer the Question: (One Mark Each) 4
- (1) Who first coined the word hormone?
 - (2) _____ and _____ are antagonistic hormones that help maintain glucose homeostasis.
 - (3) Full form of ACTH.
 - (4) What is role of insulin?

- (B) Answer the Question : Any One out of Two : 2
- (1) Give examples of antagonistic hormones.
 - (2) Give example of role of auxins for the plants.
- (C) Answer the Question: Any One out of Two : 3
- (1) Write note on endocrine glands.
 - (2) Explains functions of plant hormones.
- (D) Answer the Question: Any one out of two : 5
- (1) Write note on synthesis of T3 & T4. Also discuss consequence of imbalance in T3 & T4 in human.
 - (2) Discuss in detail about hormones present in adrenal gland.
- 5** (A) Answer the Question: (One Mark Each) 4
- (1) cAMP serves as _____ messenger.
 - (2) Inactive heteromeric G protein is made up of _____ and _____.
 - (3) GPCR is comprised of 7 alpha helical membrane structure. (true/ false)
 - (4) The Protein-tyrosine kinases phosphorylate the _____ residues.
- (B) Answer the Question: Any One out of Two : 2
- (1) What is fluidity of membrane?
 - (2) What is integral protein?
- (C) Answer the Question: Any One out of Two : 3
- (1) What is G protein? Write in short about role of G protein in signal transduction?
 - (2) Write in brief about active transport.
- (D) Answer the Question: Any one out of two : 5
- (1) Discuss in detail about regulation of cell cycle by protein kinase.
 - (2) What is signal transduction? Discuss role of DAG and IP3 in signal transduction with example of hormone as signal molecule