N.A

BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Sc.(BT)-2021
Course Name – Enzymology
Course Code - MBT305C
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Which one of the following is a non protein enzyme?
a) Ribozyme b) Synzyme
c) Abzyme d) All of these

(ii) Which one of the following is the cofactor for LDH?
a) NADH b) FADH2
c) ATP d) GTP

(iii) What is the precursor of L-isoleucine?
a) L-Alanine b) L-Threonine
c) L-Tyrosine d) L-Serine

(iv) Which branch of physical chemistry deals with the understanding of reaction rates?
a) Mechanics b) Chemical kinetics
c) Static chemistry d) All of these are true

(v) The conversion of lactate to pyruvate is carried out by which enzyme?
a) LDH b) SDS
c) Pyruvate kinase d) all of these

(vi) The transition state of enzyme can be explained by which of the following hypothesis?
a) Lock and Key b) Induced fit
c) Transtion theory d) Intermediate theory

(vii) Which of the following enzyme is used for the conversion of EtOH to Acetaldehyde in Liver?
a) Alcohol dehydrogenase b) Isomerase
c) Enzymes of Pancreatic juice d) None of these

(viii) Thermophiles are the source of _____ enzymes.
a) Heat stable b) Heat labile
c) Proteolytic d) Lipolytic

(ix) Aspergillus niger produces Acidic proteases. What is the application of this enzyme?

a) Used in leather industry
b) Used in beverage industry
c) Used in textile industry
d) Used in paper industry

(x) Most of the enzyme in human body works at 37 degree centigrade. Why?

a) It is the optimum temperature
b) It is the working temperature
c) It is the below ambient temperature
d) All are true

(xi) To improve the production of hydrophobic (waterproof) leather which of the following enzyme is used?

a) Protease
b) Amylase
c) Lipase
d) Maltase

(xii) How can you degrade heavy metal using microbes?

a) Microbes cannot degrade heavy metals rather they can accumulate it inside the cell
b) By modifying the enzymes through RDT
c) By the process of Mycoremediation
d) None of these

(xiii) The receptor part of a biosensors can be designed by_____

a) Immobilizing substrates on the receptor
b) Immobilizing enzymes on the receptor
c) Both of these
d) None of these

(xiv) Amylases have potential application in a wide number of industrial processes. Among the following, select the correct option against the statement.

a) Food industry
b) Leather industry
c) Timber industry
d) All are true

(xv) For the identification of a protein, which one of the following is best?

a) Sanger sequencing of the protein
b) NGS of the protein
c) MALDI-TOF based MS followed by Search in PDB
d) MALDI-TOF based MS only

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define Turnover Number. What is the Kcat Value of RecA protein? (3)
3. What determines the localization of a protein? (3)
4. Describe with proper diagram: Uncompetitive Inhibition mechanism. (3)
5. Provide a brief outline of the formation of Pepsin from Pepsinogen. (3)
6. Why is protein localization important? (3)

OR

How many types of amylases are found in nature? Classify them on the basis of the source. What are the main area of applications for the amylases? (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Summarize the roles of microbes in bioremediation. (5)
8. What do you mean by proteolysis? Mention its applications in digestive system.. (5)
9. Discuss briefly on the relationship in between apparent Km and apparent Vmax of the competitive, uncompetitive and mixed inhibition. (5)

10. Define: Cofactor; Coenzyme; Prosthetic Group. (5)
11. State your opinion briefly on Ribozyme: a non-protein enzyme. (5)
12. What will be your strategy to detect SARS CoV2 Ag using ELISA. (5)

OR

Write down the importance of uncompetitive inhibition. (5)