BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – B.Sc.(BT)-Hons-2023
Course Name – Biochemistry and Metabolism
Course Code - BBT20105
(Semester II)

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) Interpret that the blocking of enzyme action by blocking its active site is better known as what?

a) Allosteric inhibition b) Feedback inhibition
c) Competitive inhibition d) Non-competitive inhibition

(ii) State the ability of enzymes to choose an exact substrate from a group of same chemical molecules

a) Fidelity b) Activity
c) Specificity d) Multiplicity

(iii) Select the reason of production of lactic acid is produced in muscles

a) Aerobic respiration b) Excess of oxygen
c) Anaerobic respiration d) Kreb's cycle

(iv) Predict which of the following enzyme intervene the first step pf glycolysis?

a) Hexokinase b) Pyruvate kinase
c) Glucokinase d) Phosphofructokinase

(v) Choose the general term used for the anaerobic degradation of glucose to obtain energy?

a) Anabolism b) Catabolism
c) Fermentation d) Oxidation

(vi) Report the substrate is used in the last step of glycolysis?

a) Glyceraldehyde 3 phosphate b) Pyruvate
c) Phospenolpyruvate d) Dihydroxy ketone

(vii) Predict the reaction through which Acetyl CoA is formed from pyruvate.

a) Reduction b) Oxidative decarboxilation
c) Oxidation d) Phosphorylation

(viii) Which one out of the following enzymes acts in the pentose phosphate pathway

a) Pyruvate kinase
b) 6-phosphogluconate dehydrogenase
c) Glucokinase
d) Fructokinase

(ix) State which is the biomolecule that constitutes majority of the content of cell membranes.

a) Carbohydrates
b) Lipids
c) Enzymes
d) DNA

(x) Choose the apoenzyme?

a) protein portion of an enzyme
b) non-protein group
c) complete, biologically active conjugated enzyme
d) prosthetic group

(xi) State the nature of a coenzyme.

a) Metal
b) Protein
c) Vitamin
d) inorganic compound

(xii) Identify the type of sugar present in the nucleic acids.

a) triose
b) tetrose
c) pentose
d) hexose

(xiii) Identify that among the following, which one is not the function of lipids?

a) Energy storage
b) Cell signaling
c) Movement
d) Drug delivery

(xiv) Choose Starch is made up of repeating units of

a) 1-4 linkage between glucose units
b) 1-2 linkage between glucose units
c) 1-5 linkage between glucose units
d) 1-3 linkage between glucose units

(xv) Choose the non aromatic amino acid?

a) Tyr
b) Phe
c) Trp
d) Lys

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define Monosaccharides. Classify it on the basis of number of carbon atoms present in it. (3)
3. Describe unsaturated fatty acids. (3)
4. Explain saturated fatty acids brielfy? (3)
5. What is a triglyceride? (3)
6. Explain with examples about the nomenclature of fatty acids. (3)

OR

Briefly explain nomenclature of enzymes. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain the summary of glycosaminoglycans on the basis of composition, distribution and functions (5)
8. Explain the significance of Ramachandran Plot in interpreting the possible secondary structures in proteins. (5)
9. What do you mean by optically active compounds? Tabulate the difference between enantiomer and diastereomers. (5)
10. State the pH when 25.0 mL of 0.200 M acetic acid is mixed with 35.0 mL of 0.100 M NaOH. [pKa of acetic acid=4.752] (5)
11. Criticize the pentose phosphate pathway in detail (5)
12. Analyze the impact of pH on an enzyme's activity and report the optimal pH for most enzymes in the human body. (5)

OR

Analyze the differences between competitive and non-competitive enzyme inhibition, and illustrate these differences with a graphical representation. (5)

****