647510 **0301218C1010** **Seat No :_____**

B.Sc. Semester - 2 (*CBCS*) Examination
March/April - 2023 (OLD COURSE)
BIO-TECHNOLOGY (CORE)

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

Instructions:

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

Q.1(A) Answer the following questions. (Any One) **(07)**

1. Describe any two chemical bonds in detail.

2. Explain in detail how buffer functions.

Q.1(B) Answer the following question. (Any One) **(04)**

1. Short note on pH.

2. Brief note on the second law of thermodynamics.

Q.1(C) Answer the following question. (Any Three) **(03)**

1. Define hydrophobic interactions.

2. Full form of AMP.

3. What is osmosis?

4. What are Hydrogen bonds?

5. Define conjugate acid and base.

Q.2(A) Answer the following questions. (Any One) **(07)**

1. A detailed note on Glycoconjugates.

2. Justify: Disaccharides contain a Glycosidic bond.

Q.2(B) Answer the following question. (Any One) **(04)**

1. Write a note on Starch and Glycogen.

2. Enlist any four functions of carbohydrates in a cell.

Q.2(C) Answer the following question. (Any Three) **(03)**

1. Enlist any two sugar derivates present in a cell.

2. Draw the structure of D-Fructose.

3. Monomer unit of Lactose sugar.

4. What are homopolysaccharides?

5. State importance of chitin for insects.

Q.3(A) Answer the following questions. (Any One) **(07)**

1. Describe Edman degradation method for protein sequencing.

2. Justify: Amino acids can be classified by R group.

Q.3(B) Answer the following question. (Any One) **(04)**

1. Enlist any four properties of protein.
2. Write a note on amino acid derivatives.

Q.3(C) Answer the following question. (Any Three) **(03)**

1. Draw the common structure of amino acid.
2. What is tertiary structure of protein?
3. Define isoelectric point.
4. What is paralogs protein?
5. Define prosthetic group.

Q.4(A) Answer the following questions. (Any One) **(07)**

1. A detailed note on structure of Nucleotides.
2. Write in detail about Sanger DNA sequencing method.

Q.4(B) Answer the following question. (Any One) **(04)**

1. Describe Hershey and Chase experiment.
2. Write a note on catalytic RNA.

Q.4(C) Answer the following question. (Any Three) **(03)**

1. Full form of t-RNA and m-RNA.
2. Draw the DNA structure indicating major and minor groove.
3. What is semi-conservative DNA replication?
4. What is Polycistronic mRNA?
5. Enlist any two functions of Nucleic acid in a cell.

Q.5(A) Answer the following questions. (Any One) **(07)**

1. Describe the structure of triacylglycerols in detail.
2. Explain about Vitamin E and K in detail.

Q.5(B) Answer the following question. (Any One) **(04)**

1. Write a short note on phospholipid.
2. Describe importance of Vit A in a body.

Q.5(C) Answer the following question. (Any Three) **(03)**

1. Role of Vitamin D in body.
2. Name any two fatty acids.
3. State any two disorders caused by vitamin deficiency.
4. Function of Lipase.
5. What is saturated fatty acid?

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