

B.Sc. Semester - 2 (CBCS) Examination
March/April – 2024 (As Per Syllabus Year-2018)
BIO-TECHNOLOGY (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) (07)
- (1) Explain in detail about covalent and non-polar bond.
 - (2) Properties of Water.
- Que.1(B) Answer the following. (Any One) (04)
- (1) Short note on Buffers.
 - (2) A brief introduction on pH.
- Que.1(C) Answer the following. (Any Three) (03)
- (1) Define Biomolecules with examples.
 - (2) Full form of ATP.
 - (3) State first law of thermodynamics.
 - (4) What are Van der Waals forces?
 - (5) Define pKa.
- Que.2(A) Answer the following. (Any One) (07)
- (1) Elaborate on classification of Carbohydrates with examples.
 - (2) Justify: Polysaccharides are long chain of sugar with one example.
- Que.2(B) Answer the following. (Any One) (04)
- (1) Write a note on Disaccharides.
 - (2) Proteoglycans.
- Que.2(C) Answer the following. (Any Three) (03)
- (1) Define glycolipids.
 - (2) Draw the structure of D-glucose.
 - (3) Monomer unit of Maltose sugar.
 - (4) The two major components of agar are the unbranched polymer _____ and a branched component _____.
 - (5) Starch granules are insoluble in cold water. True or False?
- Que.3(A) Answer the following. (Any One) (07)
- (1) A detailed note on Protein sequencing methods.
 - (2) Classification of Amino acids.
- Que.3(B) Answer the following. (Any One) (04)
- (1) Enlist any four properties of protein.
 - (2) Nonstandard amino acids.
- Que.3(C) Answer the following. (Any Three) (03)
- (1) Draw the common structure of amino acid.
 - (2) Enlist four levels of protein structure.
 - (3) Define protein folding.
 - (4) DNA-protein example.
 - (5) Keratin is a Beta sheet. – True or False?
- Que.4(A) Answer the following. (Any One) (07)
- (1) Describe the experiment about semiconservative nature of DNA.
 - (2) Explain about Maxam-Gilbert DNA sequencing method.

- Que.4(B) Answer the following. (Any One) (04)
- (1) Brief note on Chargaff's rule.
 - (2) Enlist any four functions of nucleotides.
- Que.4(C) Answer the following. (Any Three) (03)
- (1) Types of RNA.
 - (2) Who proved DNA as a transforming material?
 - (3) Enlist any four nucleotides.
 - (4) A longer nucleic acid is called a _____.
 - (5) DNA region with inverted repeats of base sequence having twofold symmetry over two strands of DNA is known as _____.
- Que.5(A) Answer the following. (Any One) (07)
- (1) A detailed note on Lipids.
 - (2) A detailed note on Vitamins.
- Que.5(B) Answer the following. (Any One) (04)
- (1) Enlist functions of triacylglycerol.
 - (2) Describe any one vitamin deficiency disorder.
- Que.5(C) Answer the following. (Any Three) (03)
- (1) Examples phospholipids.
 - (2) List of two fatty acids.
 - (3) Enlist sources of vitamin D.
 - (4) Adipocytes and germinating seeds contain _____ enzyme.
 - (5) Sterols are structural lipids present in the membranes of most eukaryotic cells. True or false?
