VCD- / / BIOTECHNOLOGY-II F.Y.B.Sc. SEM II EXAM MARKS 75 $2^{1/2}$ HRS (80)

- **All questions are compulsory.**
- **Draw diagram wherever necessary.**

Q I. (A) Fill in the blanks (Any four). **(04)**

1. ..... are hydrolysable polymers of monosaccharides that contain from two to six molecules of simple sugar. (oligosaccharides, disaccharides, polysaccharides, monosaccharides)
2. One type of structural isomer is ..... isomer, in which the isomers have different arrangements of the carbon atoms. (positional, chain, functional group, branched)
3. Virtually all of the important catalysts of the cell are .....
   (carbohydrates, lipids, nucleic acids, proteins)
4. ..... is a fibrous protein of skin and bone. (collagen, fibrinogen, keratin, calcium)
5. A short polypeptide chain of amino acid is called as .....
   (oligopeptide, oligosaccharide, protein chain, monomers)
6. Amino acids contain ..... (amino and amide group, amino and hydroxyl group, carboxyl and amide group, amino and carboxyl group)
7. In proteins, the term conformation refers to .....
   (secondary structure, primary structure, both primary and secondary structures, none)
8. The central component of the cytochrome C is ..... (heme, amino, oxygen, sulphur)

Q I. (B) Do as directed (any two). **(04)**

1. Define: Structural isomers.
2. Define: Amphoteric compounds.
3. Give the structure of: D- glucose.
4. Give the structure of L-serine.

Q I. (C) Answer (any two) of the following in brief. **(12)**

1. What are the properties of monosaccharides?
2. Explain the primary structure of proteins.
3. Explain the ionization of amino acid side chains.
4. Discuss the structure of wool α- keratin.

[Additional Exam]

F.Y.B.Sc. Biotechnology

Q II. (A) Explain (any four) of the following terms. **(08)**

1. Dominant and recessive trait
2. Monohybrid cross
3. Phenotype and genotype
4. phenocopy
5. Maternal effect
6. Penetrance
7. Multiple alleles
8. Epistasis

Q II. (B) Discuss (any two) of the following. **(12)**

1. Gene interaction producing new phenotype with a suitable example.
2. Essential genes and lethal alleles.
3. *E.coli* as a model organism.
4. Incomplete dominance with a suitable example.

Q III. (A) Do as directed (any four). **(08)**

1. Explain the term 'Halophilic organism'.
2. Explain the term 'Shelf life of food'.
3. Give examples of any 2 species of genus *Pseudomonas*.
4. Give examples of any 2 species of genus *Leuconostoc*.
5. Give 2 examples of Gram positive organisms.
6. State whether the following statement is true or false. If false, Correct and rewrite the statement. 'Unwanted entry of microorganisms into the food is known as asepsis.'
7. Fill in the blanks. ' _____ is an _____ organism of faecal contamination.
8. Fill in the blanks. ' _____ species produce toxins which are generally referred as mycotoxins. *Aspergillus flavus* produces _____.'

Q III. (B) Explain (any two) of the following. **(12)**

1. Scope of food microbiology as a science.
2. Occurrence of contamination from green plants and fruits in food.
3. Role of asepsis in food preservation.
4. Methods of drying in order to preserve food products.

Q IV. Write a note on (any Three) of the following. **(15)**

1. Polyacrylamide gel electrophoresis (PAGE).
2. Bacteria as a primary source of contamination in food.
3. Effect of temperature on gene expression.
4. Banding patterns of chromosomes.
5. HTST
6. Storage polysaccharides.

****