

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

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

(04)

1. formation is a characteristic reaction between aldehydes and alcohols.
(hemiacetal, ketoses, aldoses, water)
2. may be classified as either reducing or nonreducing sugars.
(lipids, amino acids, carbohydrates, nucleic acids)
3. Proteins are in nature. (hydrophilic, hydrophobic, hygroscopic, heat resistant)
4. In proteins, amino acids are connected to each other by to form a chain.
(peptide bond, sulphhydryl bond, hydrogen bond, pi bond)
5. In PAGE, is used as intercalating agent. (proflavin, ethidium bromide, topoisomerase II, none)
6. Proteins are (positively charged only, negatively charged only, either positively charged or negatively charged, no charge.)
7. is the oxygen carrying protein of red blood cells. (cytochrome c, keratin, haemoglobin, proline)
8. The secondary structures of proteins include (β -pleated sheets, α -pleated sheets, β -helix, none)

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

(04)

1. Define: Homopolysaccharide.
2. Define: Intercalating agent.
3. Give the structure of 1-fluoro-2,4-dinitrobenzene.
4. Give the structure of Aspartic acid.

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

(12)

1. Explain structural polysaccharides with a suitable example.
2. State functions of proteins in brief.
3. Explain the role of 1-fluoro-2,4-dinitrobenzene (FDNB) as a protein derivatizing reagent with a suitable example.
4. Explain the structure of haemoglobin.

Contd/...2

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

(08)

- | | | |
|---------------------------|---------------------|------------------------------|
| 1. Codominance | 4. Dihybrid cross | 7. Non mendelian inheritance |
| 2. Penetrance | 5. Multiple alleles | 8. Genotype and phenotype |
| 3. Test cross and Selfing | 6. Gene interaction | |

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

(12)

- Incomplete dominance with a suitable example.
- Recessive epistasis.
- Drosophila melanogaster* as a model organism.
- Essential genes and lethal alleles.

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

(08)

- Explain the term 'Anaerobic microorganisms'.
- Explain the term 'Heterofermentation'.
- Give examples of any 2 species of genus *Saccharomyces*.
- Give examples of any 2 species of genus *Lactobacillus*.
- Give 2 examples of Gram negative organisms.
- State whether the following statement is true or false. If false, Correct and rewrite the statement. 'Xanthomonas is considered as a spoilage organism.'
- Fill in the blanks. '_____ is used to ripen cheese which employs saccharification of starch by _____ process.'
- Fill in the blanks. 'Halobacterium produces Bacterioruberin as _____ which is _____ in colour.'

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

(12)

- Applications of freeze drying technique in food industry.
- Occurrence of contamination through water in food.
- Causes of spoilage of food and classification of food by ease of spoilage.
- Various systems for freezing used in food preservation.

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

(15)

- Glycoproteins.
- Cytochrome c.
- Factors influencing gene expression.
- Chromosomal banding.
- Molds as a primary source of contamination in food.
- Contamination of food during handling and processing.
