

2022

B.A./B.Sc. (Hons.) Fifth Semester

Botany

Paper - B: Genetics, Plant Breeding, Biochemistry, Molecular Biology and Biotechnology

Time allowed: 3 Hours

Max. Marks: 36

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Unit.

x-x-x

I. A) Mark the correct answer:-

i) Which of the following is not the reducing sugar-

- | | |
|------------|-------------------|
| a) Glucose | b) Fructose |
| c) Sucrose | d) Glyceraldehyde |

ii) Mendel did not observed the linkage due to-

- | | |
|------------------|---------------------------|
| a) Mutation | b) Synapasis |
| c) Crossing over | d) Independent assortment |

iii) The most common secondary structure in protein is-

- | | |
|---------------------|----------------------------|
| a) α - Helix | b) β - pleated sheet |
| c) α - turn | d) β - helix |

iv) The synthesis of glucose from fat is called-

- | | |
|--------------------|-------------------|
| a) Glycolysis | b) Krebs Cycle |
| c) Gluconeogenesis | d) Saponification |

v) DNA double strand break is caused by

- | | |
|-----------------------------|-------------|
| a) Ligase | b) Lipase |
| c) Restriction endonuclease | d) Protease |

vi) Which is a molecular marker

- | | |
|---------------|-----------------------|
| a) Ampicillin | b) Cytoshrome oxidase |
| c) RAPD | d) RNA |

(6x1)

P.T.O.

(2)

B) Fill in the blanks.

- a) Bio-molecule _____ has the self repair mechanism.
- b) The X-ray diffraction studies conducted by _____ were key to the discovery of the structure of DNA.
- c) _____ is used as probe for the detection of proteins.
- d) _____ is the father of genetics.
- e) _____ is the precursor for phenyl alanine biosynthesis.
- f) Alternate forms of gene are called _____. (6x1)

UNIT - I

II. Discuss about the following:-

- a) Gene interactions and modified dihybrid cross ratios
- b) Crossing over (2x3)

III. Write notes on:-

- a) Cytoplasmic inheritance in yeast
- b) Kappa particle in Paramecium (2x3)

UNIT - II

IV. Discuss about the followings with suitable examples-

- a) Pure line selection
- b) Cross pollination method for self pollinated crops (2x3)

V. Write notes on:-

- a) Inbreeding depression
- b) Mutation breeding (2x3)

UNIT - III

VI. Discuss the detailed method of protein biosynthesis? (6)

(3)

VII. Write short notes on:-

- a) GS/GOGAT cycle
- b) Enantiomers and epimers

(2x3)

UNIT - IV

VIII. Discuss about the following:-

- a) Gene regulation in prokaryote
- b) RFLP

(2x3)

IX. Write notes on

- a) Vectors for gene delivery
- b) Agrobacterium

(2x3)

x-x-x

C4KNOWLEDGESEEKERS