

Roll No.

(07/22-II)

5185

B. Sc. EXAMINATION

(Second Semester)

BOTANY

Paper-II

Genetics

Time : Three Hours

Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *two* questions from each Unit. Q. No. 1 is compulsory. All questions carry equal marks. Draw well labelled diagrams wherever required.

1. Define/Explain the following :

- (a) Nucleotide
- (b) Central-Dogma
- (c) Plasmons

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- (d) Point Mutation
- (e) Satellite DNA
- (f) Introns
- (g) Peptide Linkage
- (h) What is one-gene one-polypeptide hypothesis ? 1×8=8

Unit I

2. (a) Differentiate between the following :
- (i) Phenotype and Genotype 3
 - (ii) Test cross and Back cross 3
- (b) Enlist the contrasting characters which Mendel had selected for his experiments. 2
3. Define Genetic Code. Explain its characteristic features. 8
4. What are supplementary genes ? How do they interact to modify the F_2 Ratio ? Explain with the help of suitable example. 8

5. (a) Write a note on heading strand and lagging strand of DNA. 4

(b) Define Linkage. Explain the chromosomal theory of linkage. 4

Unit II

6. Explain the process of protein synthesis in detail. 8

7. What do you mean by regulation of gene action? Explain the regulation of an inducible system with the help of suitable example. 8

8. Write short notes on the following :

(a) Physical mutagens 3

(b) Role of mutation in improvement of agriculture 3

(c) DNA Proof Reading. 2

9. (a) Write a note on Plasmid. 3

(b) Differentiate between Nuclear and Extra-nuclear Inheritance. 5