

Roll No.

Total Pages : 3

GSE/M-21

1488

BOTANY

(Genetics)

Paper-II

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *five* questions in all, selecting *two* questions from each unit. Question No. 1 is compulsory (short answer type). All questions carry equal marks.

Compulsory Question

1. Answer the following :

- (a) Define genetic material.
- (b) Define a nucleosome.
- (c) Who discovered Mendelism ?
- (d) What is co-dominance ?
- (e) What are reverse mutations ?
- (f) Define a cistron.
- (g) What is translation ?
- (h) What is cytoplasmic inheritance ? (8×1=8)

UNIT-I

2. (a) Explain any *one* experiment which prove that DNA is the genetic material. 5
(b) Give physical properties of DNA. 3
3. Explain the following :
(a) Degeneracy and non-ambiguity of genetic code. 4
(b) Repetitive DNA. 4
4. (a) Explain coupling and repulsion hypothesis. 4
(b) Describe complete and incomplete linkage. 4
5. Write notes on :
(a) Complementary gene interaction. 4
(b) Duplicate genes. 4

UNIT-II

6. Differentiate between :
(a) Gene and Chromosomal mutations.
(b) Spontaneous and Induced mutations.
(c) Morphological and Biochemical mutations.
(d) Somatic and Germinal mutations. (4×2=8)
7. (a) Explain complementation test. 5
(b) Explain the structure of tRNA. 3

8. Write notes on :
- (a) Ribosomes. 3
 - (b) hn-RNA processing. 3
 - (c) Chain termination. 2
9. Explain the following :
- (a) Induction and Repression. 2
 - (b) lac-operon in *E.Coli*. 6
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