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3 SEM TDC BOTH (CBCS) C 7

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(Held in January/February, 2022)

BOTANY

(Core)

Paper : C-7

(**Genetics**)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct answer of the following :

1×5=5

- (a) Chromosomal theory of inheritance was proposed by T. H. Morgan / Hugo de Vries / Correns / Sutton and Boveri.
- (b) Gene for colour blindness in man is located on both X and Y chromosomes / Y chromosome / X chromosome / None of these.

(2)

- (c) Genetic drift is the mechanism of evolution / recombination / replication / translation.
- (d) When two genes have the same expression of the character, then the phenomenon is known as Pleiotropy / Penetrance / Expressivity / Epistasis.
- (e) Linkage decreases as the distance between two genes decreases / increases / unaffected / None of these.

2. Write short notes on any *three* of the following : $4 \times 3 = 12$

- (a) Codominance
- (b) Inversion
- (c) Mutagens
- (d) Cytological basis of crossing-over
- (e) Translocation ring

3. What do you mean by epistasis? How does it differ from dominance? Describe it with suitable example. $2+2+8=12$

Or

Write short notes on the following : $6+6=12$

- (a) Chromosome theory of inheritance
- (b) Role of transposons in mutation

(3)

4. Write the difference between the following : $3 \times 4 = 12$

- (a) Euchromatin and Heterochromatin
- (b) Sex-limited and Sex-influenced traits
- (c) Penetrance and Expressivity
- (d) Multiple alleles

Or

What is linkage? Differentiate between complete and incomplete linkage. Describe briefly the significance of linkage. $2+8+2=12$

5. What do you mean by speciation? Describe the different types of speciation. What is the significance of speciation? $2+8+2=12$

Or

What is cytoplasmic inheritance? How is cytoplasmic inheritance different from chromosomal inheritance? Give an account of cytoplasmic inheritance with special reference to plastid inheritance. $1+3+8=12$
