

Total No. of Printed Pages—3

3 SEM TDC BOTH (CBCS) C 7

2024

(Nov/Dec)

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. (a) Choose the correct answer of the following : 1×3=3

(i) Phenotypic ratio of blending inheritance is 2:1 / 3:1 / 1:2:1 / 9:3:3:1.

(ii) Gene for colour blindness in man is located on both X and Y chromosomes / Y chromosome / X chromosome / None of these.

(2)

(iii) A gene located on Y chromosome and therefore transmitted from father to son is known as supplementary gene / complementary gene / duplicate gene / holandric gene.

(b) Fill in the blanks : $1 \times 2 = 2$

(i) The segment of DNA which participate in crossing-over is known as ____.

(ii) Linkage was discovered by ____.

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

(a) Incomplete dominance

(b) Pleiotropy

(c) Trisomic

(d) Structure of phage T_4

(e) Genetic drift

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

(3)

Or

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

(a) Role of natural selection in speciation

(b) Polygenic inheritance

4. What is crossing-over? Describe the different types of crossing-over. Write the significance of crossing-over. $2+8+2=12$

Or

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

(a) Monosomic and Nullisomic

(b) Sex-limited and Sex-influenced traits

(c) Intercalary and Terminal deletion

5. Discuss the molecular basis of mutation with the help of suitable diagram. Write how the base analogue causes mutations. $8+4=12$

Or

What do you mean by Hardy-Weinberg law? What are the assumptions of Hardy-Weinberg equilibrium? Write the application of Hardy-Weinberg law. $2+4+6=12$
