K25U 0116

Reg. No. : .....

Name : .....

**Sixth Semester B.Sc. Degree (C.B.C.S.S. – OBE-Regular/Supplementary/ Improvement) Examination, April 2025**
**(2019 to 2022 Admissions)**
**CORE COURSE IN BOTANY/PLANT SCIENCE**
**6B11BOT/PLS : Genetics, Molecular Biology and Plant Breeding**

Time : 3 Hours Max. Marks : 40

SECTION – A
**(Objective Type Questions)**

Answer **all.** **(4×1=4)**

1. Sickle cell anaemia results from _____
   a) A chromosomal aberration
   b) Non-disjunction of autosome
   c) A point mutation
   d) Blood transfusion reaction

2. What is the unit of a genetic map ?
   a) Centimeter b) Nanometer
   c) Centimorgan d) Angstrom

3. Cancer causing genes are known as _____
   a) Regulator gene
   b) Operator gene
   c) Tumour suppressor gene
   d) Oncogene

4. A chromosome having centromere near the middle is referred to as
   a) Acrocentric b) Metacentric
   c) Telocentric d) Sub-metacentric

P.T.O.



SECTION – B
**(Short Essay Questions)**

Answer **any eight.** **(8×2=16)**

5. Discuss the mechanism of sex-determination in Grasshopper.
6. Mention the features of Z-DNA.
7. What is base analog ? Give an example.
8. What is an anticodon ?
9. Define heterosis.
10. What is lethal genes ?
11. What is pleotropism ?
12. Discuss the significance of pureline in plant breeding.
13. Explain Chargaff's rule.
14. What are tumour suppressor genes.
15. How transversion generate point mutation.
16. Define euphenics.

SECTION – C
**(Essay Questions)**

Answer **any four.** **(4×3=12)**

17. Distinguish between penetrance and expressivity.
18. Comment on Extra chromosomal inheritance in Mirabilis.



19. Give an account on transposable genetic element.
20. Briefly describe the objectives of plant breeding.
21. Differentiate sex limited and sex influenced traits with suitable examples.
22. Explain the law of independent assortment with example.

SECTION – D
**(Long Essay Questions)**

Answer **any one.** **(1×8=8)**

23. Write an account on structural aberration of chromosome.
24. Explain the procedure of mass-selection and add note on its advantages.
25. Explain the mechanism of regulation of Lac-operon in E.coli.

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