K22U 0371

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular) Examination, April 2022
(2019 Admission)
CORE COURSE IN BOTANY/PLANT SCIENCE
6B11BOT/PLS : Genetics, Molecular Biology and Plant Breeding

Time : 3 Hours Max. Marks : 40

Instruction : *Draw diagrams* ***wherever*** *specified.*

PART – A

Objective type questions. Answer **all**. **(4×1=4)**

1. The function of β subunit of polymerase is
   a) Template binding b) Catalytic binding
   c) Promoter binding d) Cation binding
2. Which of the following is not involved in classical plant breeding practices ?
   a) Hybridisation of pure lines b) Artificial selection of pure lines
   c) Desirable traits of higher yield d) Molecular Biology
3. Mendel's findings were rediscovered by
   a) Correns b) De Vries
   c) Tschermark d) All
4. cDNA is synthesised from RNA by the enzyme
   a) DNA polymerase b) DNA synthetase
   c) Helicase d) Reverse transcriptase

PART – B

Short Essay Questions. Answer **any eight**. **(8×2=16)**

5. How does Mass selection differ from pure line selection ?
6. Explain Pleiotropy.
7. Discuss Chargaff's rule.
8. Briefly explain the plant acclimatization.

P.T.O.

9. What is Carcinogenesis ?
10. What is the DNA repairing mechanisms occurring in organisms ?
11. Comment on chromosome mapping.
12. Name the enzymes used in DNA replication and briefly point out their function.
13. Describe transposons.
14. Write notes on dominance and incomplete dominance.
15. What is pedigree analysis ?
16. Why Mendel selected *Pisum sativum* as his experimental plant.

PART – C

Essay Questions. Answer **any four.** **(4×3=12)**

17. Explain the Operon concept with diagrammatic representation.
18. Give an account of Watson and Crick model of DNA.
19. What is Heterosis ? Explain its importance in plant breeding.
20. Explain dominant epistasis with example.
21. Explain the morphology of chromosome with figure.
22. Briefly discuss the sex determination in plants.

PART – D

Long Essay Questions. Answer **any one**. **(1×8=8)**

23. Write an essay on structural aberrations.
24. Discuss the human genetic syndromes with examples.
25. Explain the post transcriptional modifications in eukaryotic mRNA.

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