MIDNAPORE CITY COLLEGE ESTD 2017 CENTRAL LIBRARY

2025

M.Sc. in Agriculture
1st Semester Examination
GENETICS AND PLANT BREEDING

Paper : GPB-501

(Principles of Genetics)

Full Marks : 70 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group - A

Answer any ***five*** questions : 2×5=10

1. Define split gene.
2. Explain Germplasm theory.
3. What are the types of bonds found in DNA molecules?
4. Define linkage.
5. What is Okazaki Fragments?
6. What are jumping genes?

P.T.O.

MIDNAPORE CITY COLLEGE • CENTRAL LIBRARY • ESTD 2017

7. What is the basic chromosome number?

8. Define primosome.

Group - B

Answer any ***four*** questions : 5×4=20

9. Explain the chromosomal theory of inheritance.

10. Briefly discuss the higher order organisation of DNA during chromosome formation.

11. Define IS element. Briefly describe the Ac/Ds mechanism. 1+4

12. Mention the characters of ideal vectors. Define restriction enzyme with example. 2+3

13. Define allele frequency. Mention the different factors affecting the allele frequency. 2+3

14. Define consensus sequence. Mention the molecular mechanism of transcription initiation in prokaryotes. 1+4

Group - C

Answer any ***two*** questions : 10×2=20

15. Explain the Mendel's law of inheritance. Differentiate between monohybrid and dihybrid cross. Explain the dominant epistasis mechanism with example.

16. What is extra chromosomal inheritance? Why is it also designated as maternal inheritance? Discuss two different patterns of extrachromosomal inheritance with suitable examples. 2+2+6

17. Differentiate between leading strand and lagging strand. Discuss about the different types of enzymes and their activity for DNA replication in prokaryotes. Schematically present the molecular mechanism of telomere replication. 2+4+4

18. Define spliceosomes. Describe the post transcriptional modification in eukaryotes. 2+8

Internal Assessment : 20 marks

MIDNAPORE CITY COLLEGE • CENTRAL LIBRARY • ESTD 2017