TM252281V o/c

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2025

2020, 2021, 2022, 2023 ADMISSIONS SUPPLEMENTARY

SEMESTER II - CORE COURSE BOTANY

BO2C06TM20 - Cell Biology, Genetics and Plant Breeding

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. Distinguish between Heterochromatin and Euchromatin.
2. Explain the organization of chromatin and chromosomes.
3. What is the importance of cell communication?
4. What is the relevance of the synaptonemal complex?
5. Write a short note on Sex determination in animals.
6. What are frameshift mutations?
7. Define the term gene pool.
8. Explain self-incompatibility and its applications in crop improvement.
9. Describe the major centres of origin of cultivated plants.
10. Give a brief account of the types of media used in Plant tissue culture.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. What is the relevance of Cell-Cell adhesion molecules?
12. Explain the different types of protein kinases and phosphatases.
13. Explain the microtubule-dependent motor proteins.
14. Comment on telomerase.
15. Neurospora crassa is a genetically significant organism in the field of research. Write an account on Neurospora crassa as a model organism.
16. Enumerate the mechanism of crossing over.
17. Explain in detail the inheritance pattern of autosomal recessive disorder with an example.
18. Differentiate between peripatric and parapatric speciation.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. Explain cytoskeletal filaments in eukaryotic cells.
20. Explain the process of apoptosis.
21. In reality populations do not follow Hardy Weinberg equilibrium. Describe this statement in detail by listing out the factors that affect the gene frequency.
22. Describe the basic requirements of plant tissue culture and its application in plant breeding.