Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University), Coimbatore – 641 043

Master Degree Examination – November 2018
I Semester

Class : I PG
Major : Botany

Time: 3 hours
Max. Marks: 60

17MBOC04 – Genetics and Plant Breeding

Part A **10 x 1/2 = 5**

Choose the correct answer

1. A Perfect example of co-dominance in plants
   a. Wheat b. Paddy c. Pea d. *Camellia*

2. A Phenomenon in which one mutant allele influences two or more apparently unrelated alleles is known as
   a. Pleiotropy b. Pseudo allelism c. Co-dominance d. Epistasis

3. CMS is an example of _____
   a. Nuclear inheritance b. Plastid inheritance
   c. Cytoplasmic inheritance d. Mitochondria inheritance

4. Multiple allele is a type of _____
   a. Mendelian inheritance pattern b. Non Mendelian inheritance pattern
   c. Pseudo allelism d. All the above

5. Who proposed the chromosome theory of inheritance?
   a. Boveri and Sutton b. Bateson and Punnett
   c. Punnett and Morgan d. Morgan

6. FISH is a technique used for mapping
   a. RNA b. DNA c. Protein d. Chromosome

7. Polyploidy is induced through
   a. Gamma radiation b. Mutagen c. Colchicine d. Ethylene

8. Which one of the following chemicals is not a mutagen?
   a. EMS b. MMS c. Acridine dye d. Phenol

9. Pure line breed refers to
   a. Heterozygosity only b. Homozygosity only
   c. Homozygosity and self-assortment d. Heterozygosity and linkage

10. Somatic hybridization is achieved through
    a. Grafting b. Conjugation c. Protoplast fusion d. rDNA Technology

Part B

5 x 4 = 20

Answer ALL questions

Each answer should not exceed 200 words or one page

11.a. List out the branches of genetics.

(Or)

11.b. Define incomplete dominance.

12.a. Illustrate pseudo - allelism with example.

(Or)

12.b. Describe inheritance of Mitochondria by Ephrussi's experiment.

13.a. Differentiate coupling and repulsion.

(Or)

13.b. Describe Linkage and crossing over.

14.a. Define isochromosomes.

(Or)

14.b. Distinguish aneuploidy from euploidy.

15.a. Differentiate natural and artificial selection.

(Or)

15.b. Discuss Hardy Weinberg's law.

Part C

5 x 7 = 35

Answer ALL questions

Each answer should not exceed 600 words or three pages

16.a. Describe Mendel's work and principles.

(Or)

16.b. With suitable example, explain dominant epistasis.

17.a. How will you characterise and detect the cytoplasmic inheritance?

(Or)

17.b. Discuss in detail sex determination in plants.

18.a. With suitable diagram, explain chromosome mapping in bacteria.

(Or)

18.b. Illustrate the mechanism of crossing over.

19.a. Describe in detail the types of chromosomal aberrations.

(Or)

19.b. Give an account on polyploidy . How will you assess the effect of polyploidy?

20.a. Design hybridization technique. Give an account on hybrid vigour.

(Or)

20.b. Illustrate qualitative inheritance with example.

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