

**Avinashilingam Institute for Home Science and Higher Education for Women  
Coimbatore – 43**

**Master's Degree Examination – November 2017  
1 Semester**

**Class: I PG  
Major: Botany**

**Time: 3hrs  
Max. Marks: 60**

**17MBOC04 – GENETICS AND PLANT BREEDING  
Part – A**

**10×1/2=5**

**Choose the correct answer**

1. Which among the following principles of hereditary was not enunciated by Mendel?
  - a. Law of segregation
  - b. Law of independent assortment
  - c. Law of dominance
  - d. Law of linkage
2. When one gene expresses itself in more than two stages, then it is called
  - a. Allely
  - b. Homozygous
  - c. Heterozygous
  - d. Complementary gene
3. Pseudo alleles are
  - a. Genes with different loci are very close producing related phenotypic effect
  - b. Gene with same loci and control same trait
  - c. Gene identical to other genes
  - d. Gene with different loci and control same trait
4. Which one of the following is an extranuclear inheritance
  - a. Maternal inheritance
  - b. Organelle inheritance
  - c. Plastid inheritance
  - d. All the above
5. Linkage prevents
  - a. Homozygous condition
  - b. Segregation of alleles
  - c. Hybrid formation
  - d. Heterozygous condition
6. The first chromosomal map was prepared by
  - a. Sturtevent
  - b. Morgam
  - c. Janssen
  - d. Beeling
7. Which of the following is a strong chemical mutagen?
  - a. Methane
  - b. Guanine
  - c. Carbon tetrasulohide
  - d. Caffeine
8. Type of gene mutation involving a change from purine to purine or pyrimidine to pyrimidine is
  - a. Transversion
  - b. Inversion
  - c. Transduction
  - d. Transition
9. Pure line breed refers to
  - a. Heterozygosity only
  - b. Homozygosity only
  - c. Homozygosity and self assortment
  - d. Heterozygosity and linkage
10. 10. Breeding crops for improved nutritional quality is referred to as
  - a. Biomining
  - b. Biomagnification
  - c. Biofortification
  - d. Bioremediation

**PART - B**

**(5X4=20)**

**Answer all questions**

**Each answer should not exceed 200 words or one page**

11. a. Give a brief note on law of independent assortment.  
(Or)
11. b. Give an account on co dominance.
12. a. Write a brief note on self sterility in *Nicotiana*  
(Or).
12. b. Write a concise account on the characteristics and detection of cytoplasmic inheritance.
13. a. Comment on the kinds of linkage.  
(Or)
14. b. Write short notes on euploidy and its types.  
(Or)
15. a. Discuss the natural and artificial methods of selection.  
(Or)
15. b. List out the significance of plant breeding.

**PART - C**

**5×7=35**

**Answer all questions**

**Each answer should not exceed 600 words or three pages**

16. a. Explain epistasis with suitable examples. (Or)
16. b. Explain pleiotropic effect with suitable examples.
17. a. Narrate on pseudoallelism and add a note on its significance in plants.  
(Or)
17. b. Enumerate Emphrussi's experiment.
18. a. Elaborate on chromosome mapping with suitable examples.  
(Or)
18. b. Write an essay on crossing over with suitable examples.
19. a. Write an essay on polyploidy and their types.  
(Or)
19. b. Write short notes on i) Deletion ii) Duplication iii) Translation
20. a. "Mutation is a tool for plant breeders" – substantiate.  
(Or)
20. b. Write a detailed account on the methods of breeding plants for disease resistance.

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