Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore-641 043
Bachelor's Degree Examination – November 2017
III Semester

Class : II UG **Time : 3 hrs**
Major : Bochemistry and Biotechnology **Max. Marks : 100**

11BBTC06/15BBTC06 Genetics

Part – A **(10x1=10)**

Choose the Correct Answer

1. The best method to determine the homozygosity and heterozygosity of an individual is
   a.Inbreeding b. Test cross c.Self-fertilization d. Back cross

2. Male pattern baldness is a ____ trait
   a.Sex -linked b. Sex- limited c.Sex- influenced d. Y-linked

3. Complete linkage has been reported in
   a.Human female b. Maize c. Male Drosophila d.Female Drosophila

4. X-inactivation can be used to identify individuals who are
   a. homozygous unaffected b. heterozygous
   c. homozygous affected d. missing X-linked genes.

5. The analysis of stained chromosomes is the main activity of the discipline called
   a.Embryology b.Genetics c. Cytogenetics d. Cytology

6. The diagrammatic representation of karyotype of a species is called
   a.Ecogram b.Cladogram c.Idiogram d.Chromogram

7. Pleiotropy is a term used to describe
   a. Multiple effects of a single gene b. Genetic abnormalities
   c. The inheritance of eye color d. None of the above

8. ---------is the masking of one gene's phenotype by another
   a. Mutation b. penetrance c. Pleiotropy d. Epistasis

9. Which of the following would cause deviation from the Hardy-Weinberg equilibrium?
   a. small population b. isolated
   c. random mating d. lack of selection pressure

10. The total aggregate of alleles in a population is referred to as:
    a. the allelic frequency b. the gene pool
    c. the genotypic frequency d. the genetic structure

Part – B **5x6=30**

Answer the following

Answer should not exceed 400 words or two pages

11.a. Explain monohybrid inheritance with suitable cross as example

(Or)

11.b. Elaborate sex influenced trait

12.a. Explain the mechanism of transduction

(Or)

12.b. Describe about X chromosome inactivation

13.a. Explain in detail about karyotyping

(Or)

13.b. Elaborate on ploidies

14.a. Write short notes on the three types of dominance

(Or)

14.b. Describe the IQ inheritance in human beings

15.a. Discuss the factors that change gene frequencies in a population.

(Or)

15.b. Discuss on gene pool

Part – C **5x12=60**

Answer the following

Answer should not exceed 400 words or two pages

16.a. Write a note on test cross and back cross

(Or)

16.b. Write an essay on Multiple Alleles and its inheritance

17.a. Elaborate the concept of Linkage and Crossing Over

(Or)

17.b. Describe in detail the F+, F-, Hfr and F' strains of Escherichia coli. Add a note on the process of conjugation

18.a. Give a detailed account of the various types of chromosome aberrations

(Or)

18.b. Write an account of chromosomes banding pattern

19.a. Discuss the following

i) Penetrance

ii) Expressivity

(Or)

19.b. Explain the complementation test in gene identification

20.a. Describe the principles and applications of the Hardy Weinberg Equilibrium in population genetics

(Or)

20.b. Explain the genetic control of development in *Drosophila melanogaster*

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