**Reg. No. :** ...........................................

**Code No. : 5911**     **Sub. Code : PZOM 42**

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2020.

Fourth Semester

Zoology — Core

GENETICS

(For those who joined in July 2017 onwards)

Time : Three hours                Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1.   The crossing over occurs in the homologous chromosomes only during the ———————— stages

   (a)   Four standard

   (b)   Tetrad stages

   (c)   Both (a) and (b)

   (d)   Two stranded

2. Two allelic genes are located on

   (a) the same chromosome

   (b) two homologous chromosomes

   (c) two non-homologous chromosomes

   (d) any two chromosomes

3. How many consensus sequences for splicing are found in an exon?

   (a) 1                    (b) 2

   (c) 3                    (d) 0

4. Transposable elements were discovered by ——————

   (a) Barbara Mc clintock

   (b) Avery

   (c) Griffth

   (d) Watson

5. Gene mutation is otherwise known as ——————

   (a) Point mutation

   (b) Chromosomal mutation

   (c) Nonsense mutation

   (d) Duplicate Mutation

6. The kappa particles are transmitted through the ——————

   (a) Hyaloplasm  (b) Nucleoplasm

   (c) Cytoplasm  (d) Protoplasm

7. Genetic diversity indicates ——————

   (a) Large gene pool

   (b) Small gene pool

   (c) Moderate gene pool

   (d) No gene pool

8. Equilibrium distribution of genotyes for a sex linked trait, where $p+q=1$, is given by

   (a) $p+q=1$  (b) $p^2+2pq+q^2$

   (c) Both (a) and (b)  (d) $p^2+q^2$

9. The size and shape of appearance of metaphase chromosome is called ——————

   (a) Karyotype  (b) Genotype

   (c) Both (a) and (b)  (d) Phenotype

10. The movement that is aimed at improving the genetic composition of the human race is called ——————

   (a) euphenics  (b) eugenics

   (c) mutation  (d) abnormalities

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short notes on polygenic inheritance.

Or

(b) Describe the law of independent assortment with example.

12. (a) Describe the chemical composition of DNA.

Or

(b) Discuss the transposable elements.

13. (a) Write short notes on gene mutation.

Or

(b) Describe the inheritance of shell coiling in molluscan with neat diagram.

14. (a) How do you calculate the gene frequency? Explain with suitable examples.

Or

(b) Write short notes on gene pool.

15. (a) Describe the gene therapy.

Or

(b) Explain the simple Mendelian traits (any five) in man.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write an essay on crossing over and it types with suitable examples.

Or

(b) Give an account on sex determination with examples.

17. (a) Discuss the regulation of gene action with example.

Or

(b) Write an essay on transposable elements.

18. (a) Enumerate the extra chromosomal inheritance.

Or

(b) What is molecular basis of gene mutation? Explain the types with suitable example.

19. (a) Write the applications of Hardy-Weinberg law for calculating gene frequencies in population.

Or

(b) How do you calculate the gene frequencies for sex linked genes? Explain.

20. (a) Give an account on Eugenics.

Or

(b) Discuss the chromosomal abnormalities.

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