(6 pages) **Reg. No. : .....**

Code No. : 20558 E **Sub. Code : CMZO 41**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Zoology — Core

GENETICS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The genotype which consists of only one type of allele is called

   (a) Heterozygous

   (b) Homozygous

   (c) Synapsis

   (d) Non-allelic

2. ABO group is the example for ———

   (a) Lethal gene

   (b) Complete dominance

   (c) Codominance

   (d) Incomplete dominance

3. Sickle cell anaemia is caused by ———

   (a) Gene mutation (b) Vitamin deficiency

   (c) Conjugation (d) Transformation

4. Linkage theory was proposed by ———

   (a) Mendal (b) James

   (c) Crick (d) Morgan

5. Which one of the following is not a sex determination factor?

   (a) Chromosomes (b) Vitamins

   (c) Barbodies (d) Hormones

6. Failure of separation of homologous chromosome is ———

   (a) Heterosis (b) Mutation

   (c) Non-disjunction (d) Back cross

7. The Y-linked genes are also called ————

(a) Lethal gene (b) Holandric gene

(c) Sex-linked gene (d) All the above

8. In born errors of metabolism is due to the expression of ————

(a) Recessive gene (b) Dominant gene

(c) Lethal gene (d) Holandsic gene

9. The superiority of the hybrid is called

(a) Sterile (b) Heterosis

(c) Homozygotes (d) All the above

10. Kappa particles in paramecium is an example of

(a) Cytoplasmic inheritance

(b) Geneflow

(c) Bacterial transformation

(d) Bacterial conjugation

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Describe monohybrid cross to prove Mendels law of segregation.

Or

(b) Give an account of lethal genes in man.

12. (a) Write a brief note on construction of chromosome map.

Or

(b) What are mutagents? Explain their mode of action.

13. (a) Explain the types of sex linked inheritance.

Or

(b) Write short note about Klinefelter's syndrom.

14. (a) What is inbreeding? Write about the merits and demerits of inbreeding.

Or

(b) Explain briefly about the pedigree analysis.

15. (a) Write short notes on promoters sequence of a gene.

Or

(b) Explain the operon hypothesis.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the phenomenon of epistasis and lethal genes.

Or

(b) Explain in detail about the human blood group controlled by multiple alleles.

17. (a) Explain the mechanism and the factors affecting the crossing over.

Or

(b) What is DNA repair? Explain the mechanisms of DNA repair seen in living cells.

18. (a) Explain the sex determination in man.

Or

(b) Write an essay on cytoplasmic inheritance with examples.

19. (a) Give an account of genetic counselling.

Or

(b) Explain the Hardy - Weinberg law with suitable examples.

20. (a) Describe the following :

(i) Transposon

(ii) Satellite DNA.

Or

(b) Give an account of bacterial recombination.

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