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

Code No. : 30703 E **Sub. Code : EMZO 41**

B.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2025.

Fourth Semester

Zoology — Core

GENETICS AND EVOLUTION

(For those who joined in July 2022–2023 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ABO blood group is an example for
   (a) Lethal gene
   (b) Complete dominance
   (c) Codominance
   (d) Incomplete dominance

2. Kappa particles in paramecium is the example of
   (a) Gene flow
   (b) Bacterial transformation
   (c) Bacterial conjugation
   (d) Cytoplasmic inheritance

3. Sickle cell anemia is caused by
   (a) Gene mutation
   (b) Conjugation
   (c) Transduction
   (d) Transformation

4. Failure of seperation of homologous chromosome is
   (a) Heterosis
   (b) Back cross
   (c) Mutation
   (d) Non-disjunction

5. Transfer of genetic material in bacteria through virus is called
   (a) Transduction (b) Recombination
   (c) Conjugation (d) Transformation

6. Positive eugenics deals with

(a) Regulation of marriages

(b) Sterilizing the defective

(c) Birth control

(d) Selective fusion of gametes

7. The fossil bird connecting reptiles and birds

(a) Ichthyostega (b) Seymouria

(c) Archaeopteryx (d) Kiwi

8. Structures which are similar in morphology and dissimilar in function are called

(a) Homologous organs

(b) Analogous organs

(c) Vestegial organs

(d) Atavism

9. Speciation in the same area by polyploidy is called

(a) Allopatric speciation

(b) Sympatric speciation

(c) Parapatric speciation

(d) Peripatric speciation

10. Dinosaurs dominated during

(a) Cretaceous period

(b) Coenozoic period

(c) Jurassic period

(d) Triassic period

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) Explain incomplete dominance with example.

12. (a) Write short notes on Klinefelter's syndrome.

Or

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

13. (a) Illustrate inborn error of metabolism.

Or

(b) Explain the operon hypothesis.

14. (a) Discuss the principles of Lamarck.

Or

(b) Describe Archaeopteryx as a fossil evidence of evolution.

15. (a) Describe warning colouration with evidence.

Or

(b) Explain Hardy Weinberg Law.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Describe multiple alleles with reference to ABO blood group.

Or

(b) Explain the sex determination in man.

17. (a) Explain the mechanism of crossing over.

Or

(b) Describe colour blindness as X linked inheritance.

18. (a) Describe DNA as the genetic material with experimental evidences.

Or

(b) Write an essay on genetic counseling.

19. (a) Describe homologous organs with evidences.

Or

(b) Explain the principles of Darwin.

20. (a) Describe Allopatric speciation.

Or

(b) Discuss the evolution of man as seen in fossil records.

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