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

Code No. : 20371 E **Sub. Code : AMBO 61**

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

Sixth Semester

Botany — Core

GENETICS, EVOLUTION AND BIOSTATISTICS

(For those who joined in July 2020 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A cross of F_1 individual with recessive parent is called

   (a) back cross (b) monohybrid cross

   (c) test cross (d) dihybrid cross

2. Lethal genes are observed in these plants

   (a) Maize (b) Pea

   (c) Sweet pea (d) Mirabilis

3. Complementary gene hypothesis was first proposed by

   (a) Mendel (b) Hugo devries

   (c) Bateson (d) Johanson

4. The ratio 15 : 1 is the interaction of

   (a) Lethal genes

   (b) Poly genes

   (c) Complementary genes

   (d) Duplicate genes

5. The combination of a nitrogenous base + sugar + phosphate is called

   (a) nucleic acid (b) nucleoside

   (c) nucleotide (d) all the above

6. One of the following is not a pyrimidine

   (a) thymine (b) uracil

   (c) cytosine (d) cytokinin

7. Use and disuse theory was proposed by

   (a) Darwin (b) Lamarck

   (c) Devries (d) Mendel

8. Natural selection theory was first proposed by

   (a) Lamarck (b) Darwin

   (c) Punnet (d) Mendel

9. Mode is

   (a) The most frequent value

   (b) The least frequent value

   (c) The central value

   (d) Average

10. Mean is the

    (a) average (b) standard deviation

    (c) variability (d) frequency

PART B — (5 × 5 = 25 marks)

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

11. (a) Write an account on incomplete dominance in monohybrid cross.

    Or

    (b) Explain Mendel's law of independent assortment with suitable example.

12. (a) Explain the polygenic inheritance using ear length of corn as an example.

    Or

    (b) Comment on complementary genes.

13. (a) With suitable example, explain sex determination in plants.

    Or

    (b) Write short notes on characterisation of genetic code.

14. (a) Comment on natural selection theory.

    Or

    (b) Analyze use and disuse theory.

15. (a) Write notes on chi-square test.

Or

(b) Write short notes on mode.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) What are lethal genes? Give an account on lethal gene action in maize and mice.

Or

(b) Give a detailed account on Dihybrid cross.

17. (a) Describe the supplementary gene interaction with suitable illustration.

Or

(b) Give a detailed account on duplicate factors.

18. (a) Describe the experiment to prove that DNA as the genetic material.

Or

(b) Explain semiconservative method of DNA replication.

19. (a) Describe the mutation theory of Hugo de vries.

Or

(b) Analyze speciation.

20. (a) Describe the collection and interpretation of data in biostatistics.

Or

(b) Describe standard deviation.

———————