

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

Sixth Semester

Botany — Core

GENETICS, EVOLUTION AND BIOSTATISTICS

(For those who joined in July 2020 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. 1 : 2 : 2 : 4 : 1 : 2 : 1 : 2 : 1 is the
- (a) Dihybrid genotypic ratio
 - (b) Dihybrid phenotypic ratio
 - (c) Incomplete dominance
 - (d) Monohybrid genotype ratio

7. _____ Organism is related to Lamark theory.

- (a) Giraffe (b) Owl
- (c) Tiger (d) Lion

8. The theory proposed by Darwin

- (a) Lamarkism
- (b) Modern Synthetic theory
- (c) Natural Selection theory
- (d) Mutation theory

9. Mode is

- (a) The most frequent value
- (b) The least frequent value
- (c) The central value
- (d) Average

10. Standard deviation is used to measure _____

- (a) Central tendency (b) Dispersion
- (c) Goodness of fit (d) All the above

2. Which of the following is the genotypic ratio of monohybrid test cross

- (a) 3:1 (b) 1:2:1
- (c) 9:7 (d) 1:1

3. Polygenic inheritance was found out by

- (a) Mather
- (b) Mendel
- (c) Batson and Punnet
- (d) Landsteiner

4. This is the recessive character of Garden Pea

- (a) Grey seed coat (b) Green cotyledon
- (c) Round seed (d) Long stem

5. Codons are present in

- (a) DNA (b) Protein
- (c) Ribosomes (d) RNA

6. An enzyme that joints Okazaki fragments during DNA replication is

- (a) Ligase (b) Gyrase
- (c) Polymerase (d) Amylase

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PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write notes on incomplete dominance.

Or

(b) Illustrate the monohybrid cross.

12. (a) Describe interaction of Duplicate genes.

Or

(b) What are supplementary genes? Give examples.

13. (a) Explain the semi-conservative mode of DNA replication.

Or

(b) Explain about the sex determination in higher plants.

14. (a) Describe the importance of evolution.

Or

(b) Write short notes on speciation.

15. (a) Define mean. Write the merits of mean.

Or

(b) Discuss the standard deviation.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) With suitable illustration, explain the Mendel's law of independent assortment.

Or

(b) Write an essay on lethal gene action in maize and mice.

17. (a) With examples explain the interaction of complementary genes.

Or

(b) With suitable illustration, explain the polygenic inheritance.

18. (a) Explain the molecular structure of DNA.

Or

(b) "DNA as a genetic material" – Discuss.

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19. (a) With suitable example, explain about evolutionary theories of Lamarck.

Or

(b) Mutation is a basis for evolution – Discuss.

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

Or

(b) With suitable illustration, explain the chi-square distribution.

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