PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain polygenic inheritance with a suitable example.

Or

(b) What are the types of cock's comb? How they are determined?

17. (a) Explain male sterility in maize.

Or

(b) Explain coupling and repulsion hypothesis of linkage.

18. (a) List out the major steps involved in D.N.A replication and its importance.

Or

(b) Give an account on characterization of genetic code.

19. (a) Give an account on Darwinism.

Or

(b) "Mutation is a basis for Evolution" – Discuss.

20. (a) Write an essay about standard deviation.

Or

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

Code No. : 11578 E   Sub. Code : JMPB 62

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2019.

Sixth Semester

Plant Biology and Plant Biotechnology — Main

GENETICS, EVOLUTION AND BIOSTATISTICS

(For those who joined in July 2016 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Complementary gene hypothesis was first proposed by
   (a) Johanson
   (b) Hugo Devries
   (c) Mendel
   (d) Bateson

2. Comb shapes in fowls are determined by
   (a) Lethal genes
   (b) Poly genes
   (c) Gene interaction
   (d) Multiple alleles

3. Production of new combination of gene is due to
   (a) Coiling
   (b) Repulsion
   (c) Linkage
   (d) Crossing over

4. Plastid inheritance in Mirabilis is known as
   (a) Paternal inheritance
   (b) Parental inheritance
   (c) Maternal inheritance
   (d) Zygotic inheritance

5. Who prove that DNA as the genetic material?
   (a) Mendel
   (b) Griffith
   (c) Bateson and Punnet
   (d) Morgan

6. The operon concept was put forwarded by
   (a) Jacob and Monad
   (b) Bateson and Punnet
   (c) Khoranna
   (d) Devries

7. Role of isolation in evolution is for —————.
   (a) Differentiation of species
   (b) Maintenance of species
   (c) Evolutionary divergences
   (d) Extermination of species

8. Lamarck explained his views based on the following variations.
   (a) Acquired variation
   (b) Continuous variation
   (c) Discontinuous variation
   (d) None of these

9. The median of 2, 3, 4, 5, 6, 7, 8 is
   (a) 4   (b) 6
   (c) 5   (d) 3

10. Mode is
    (a) The most frequent value
    (b) The least frequent value
    (c) The central value
    (d) Average

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) What is incomplete dominance? Explain.

    Or

    (b) Explain the deviation of Mendelian ratio using complementary factor.

12. (a) What is crossing over? What is its significance?

    Or

    (b) What are the ways by which sex is determined in plants? Explain any one type.

13. (a) DNA is the Genetic material — Prove.

    Or

    (b) Write an essay on operon concept.

14. (a) Interpret Lamarckian Giraffe with Darwinism.

    Or

    (b) Write short notes on speciation.

15. (a) Write short notes on Arithmetic mean.

    Or

    (b) Discuss the Chi-square test.