

**B.Sc. BIOTECHNOLOGY**  
**SECOND SEMESTER**  
**GENETICS**  
**BBT-921 (IDMn)**  
[USE OMR SHEET FOR OBJECTIVE PART]

**SET**  
**A**

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

**(Objective)**

Marks: 10

*Choose the correct answer from the following:*

**1×10=10**

- The cross between a dominant individual and a recessive individual to know the genotype of a dominant individual is known as:
  - Back cross
  - Test cross
  - Both
  - None
- Who is known as the Father of Genetics?
  - Morgan
  - Mendel
  - Bateson
  - Watson
- The alternate form of a gene is called as:
  - Recessive character
  - Dominant character
  - Alleles
  - Alternative gene
- Men with color blindness inherited the genes for it from:
  - Their mother
  - Their father
  - Either their mother and father
  - None
- Which among the following was not explained by the Mendel's law of dominance?
  - Characters are controlled by discrete units called factors
  - Factors occur in pairs
  - Every factor has alternate forms known as alleles
  - In a dissimilar pair of factors one member of the pair dominates over the other
- The genotypic ratio of monohybrid cross:
  - 3:1
  - 9:7
  - 12:1
  - 2:1:1
- The innate tendency of the offspring to resemble their parents is called:
  - Variation
  - Inheritance
  - Hereditary
  - Resemblance
- Which of the following statements is true regarding the "law of segregation"?
  - Segregation of factors is due to the segregation of chromosomes during meiosis
  - Law of segregation is due to law of purity of gene
  - Alleles separate from each other during Gametogenesis
  - All of the above

9. An exception to Mendel's Law is:
- a. Linkage
  - b. Independent assortment
  - c. Purity of gametes
  - d. Dominance
10. Mendel did not observe linkage due to:
- a. Mutation
  - b. Synapsis
  - c. Crossing over
  - d. Independent assortment
-

( Descriptive )

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two (2) from the rest ]

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|---|--------|
| 1. What do you mean by alleles? Explain in terms of dominant epistasis.   | 5      |
| 2. Explain the terminology:<br>Back cross, Codominance, Pleiotrophy, Test cross, Lethal genes                               | 2×5=10 |
| 3. a) Explain Law of Independent assortment and Law of Segregation.<br>b) Explain Law of Dominance with a suitable example. | 6+4=10 |
| 4. What do you mean by gene interaction? Explain in terms of duplicate dominant epistasis.                                  | 10     |
| 5. What is Pleiotrophy? Explain the phenomenon of test cross with an example.   | 3+7=10 |

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