

**B.Sc. ZOOLOGY
FIFTH SEMESTER
PRINCIPLES OF GENETICS
BSZ-502(REPEAT)**

[USE OMR SHEET FOR OBJECTIVE PART]

SET
A

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

$$1 \times 20 = 20$$

1. The sugar molecule present in nucleotide is-
- Triose
 - Tetrose
 - Pentose
 - Hexose
2. The killer chemical secreted by Kappa particles-
- Secretin
 - Paramecin
 - Plasmon
 - Hemoglobin
3. The cell in which the F factor carries along with it some chromosomal genes are known as-
- F⁺ cell
 - F⁻ cell
 - F' cell
 - F''/cell
4. Significance of 'heat shock' method in bacterial transformation is to facilitate-
- Binding of DNA to the cell wall
 - Uptake of DNA through transient pores in the bacterial cell wall
 - Uptake of DNA through membrane transport proteins
 - Expression of antibiotic resistant gene.
5. Extra chromosomal inheritance involves genes passed on by the mother's-
- Smooth ER
 - Cytoplasm
 - Mitochondria
 - Chromosome
6. Which of the following role is performed by a bacteriophage in transduction?
- Vector
 - Donor
 - Recipient
 - Episome
7. Which of the following is also known as the removal of one or more bases from the nucleotide chain?
- Insertion
 - Deletion
 - Transition
 - Transversion
8. In the chromosomal mutation, translocation involves two chromosomes that are not-
- Heterologous
 - Heterozygous
 - Homologous
 - All of above
9. How many structural genes are present in a lac operon?
- One
 - Three
 - Five
 - Seven
10. Transposons were first discovered in -
- Rice
 - Bacteria

d. Maize

- 2

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. Why did Mendel select pea plant as an experimental material? Explain the different Mendelian laws with necessary examples. | 2+8=10 |
| 2. What is extrachromosomal inheritance? Explain extrachromosomal inheritance with a suitable example. | 2+8=10 |
| 3. Explain about bacterial recombination processes. | 10 |
| 4. Describe about prokaryotic gene regulation. | 10 |
| 5. What is mutation? Write about gene mutation. | 10 |
| 6. Write short note:
a. Transposable genetic elements b. t-RNA | 5+5=10 |
| 7. What are the characteristics of linkage? Explain the different types of linkage. | 3+7=10 |
| 8. What do you mean by sex determination and what are the different types? Discuss the chromosomal sex determination long with necessary examples. | 2+8=10 |

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