



B.Sc. I Semester Degree Examination, April/May - 2024

BIOTECHNOLOGY

Bt-1 : Cell Biology and Genetics

(NEP)

Time : 2 Hours

Maximum Marks : 60

Note : (i) Answer **all** Sections.

(ii) Draw the labelled diagrams wherever necessary.

SECTION - A

1. Answer the following sub-questions in **one** word or **one** sentence each. **10x1=10**

- (a) What are microtubules ?
- (b) Who discovered Golgi Complex ?
- (c) What is Karyokinesis ?
- (d) Expand SAT-Chromosome.
- (e) What do you mean by back cross ?
- (f) Crossing of two white flowers gives a coloured flower, this shows which gene interaction ?
- (g) What is the unit of genetic map ?
- (h) Define silent mutation.
- (i) What is sex index ratio ?
- (j) Mention the types of Polyploidy.



SECTION - B

Answer **any four** of the following questions.

4x5=20

2. Explain the singer and Nicholson model of plasma membrane with a neat labelled diagram.
3. Write a short note on polytene chromosome with a neat labelled diagram.
4. Briefly explain the law of incomplete dominance by taking the example of *Mirabilis jalapa*.
5. Write the differences between linkage and crossing over.
6. Explain the XX-XY and XX-XO types of sex determination.
7. Describe the cell cycle with the schematic representation.

SECTION - C

Answer **any three** of the following questions.

3x10=30

8. Write the detail account of the ultra structure of Nucleus with a neat labelled diagram.
9. Describe the classification of chromosomes based on their position of centromere.
10. Explain the multiple allelism by taking the example of blood groups in human beings.
11. Give the detail account of the types of mutation.
12. What is sex determination ? Give an account of genetically controlled sex determination mechanisms.

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