



DCBT101

Reg. No.

--	--	--	--	--	--	--	--

I Semester B.Sc. Degree Examination, April - 2023

BIOTECHNOLOGY

Cell Biology and Genetics

(NEP CBCS Scheme 2020-21 Onwards)

Paper : I



Time : 2½ Hours

Maximum Marks : 60

Instructions to Candidates:

Answer any **Four** questions from each part.

PART - A

I. Answer any Four of the following.

(4×2=8)

1. Tight Junctions.
2. Intermediate filaments.
3. Histones.
4. Back cross.
5. Chromosome mapping.
6. Chemical mutagens.

PART - B

II. Answer any Four of the following.

(4×5=20)

7. Explain the chemical composition of plasma membrane. **(3+2)**
8. What is centromere? Explain the types of chromosomes based on the position of centromere. **(1+4)**
9. Write short notes on microtubules and microfilaments. **(3+2)**
10. What is independent assortment? Explain with an example. **(1+4)**
11. Explain ZZ-ZO and ZZ-ZW type of sex determination. **(3+2)**
12. Write notes on Klinefelter syndrome. **(2+3)**

[P.T.O.]



III. Answer any **Four** of the following. (4×8=32)

13. Explain in detail the structure of plasma membrane. Add a note on its functions. (3+2+3)
 14. Describe the structure and function of mitochondria. (4+4)
 15. Define Apoptosis. Explain the detailed mechanism of programmed cell death. (2+3+3)
 16. Explain chromosomal theory of inheritance. Add a note on color blindness. (4+4)
 17. In sweet peas, genes C and P alone produce white flowers, the purple color produced due to the presence of both the genes. What will be the flower color of the offsprings of the following crosses? Define the gene interaction.
 - a. $ccPP \times CcPp$.
 - b. $CCpp \times CcPP$. (2+3+3)
 18. Explain coupling and Repulsion hypothesis. Write notes on chromosomal evolution of wheat. (4+4)
-