TB246918E

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2024

2021 ADMISSIONS REGULAR

SEMESTER VI - CORE COURSE (BOTANY)

BO6B10B18 - Cell and Molecular Biology

Time : 3 Hours **Maximum Marks : 60**

Part A

I. Answer any Ten questions. Each question carries 1 mark **(10x1=10)**

1. Briefly explain the structure of a chromosome.
2. Why are lysosomes called suicidal bags?
3. Explain karyotype and ideogram.
4. Explain the significance of mitosis.
5. What is autopolyploidy?
6. Which are the nitrogen bases found in RNA?
7. Write a note on Okazaki fragments.
8. What is the peculiarity of Z-DNA?
9. Write down the general structure of an amino acid.
10. What is RNA splicing?
11. Write down the sites of transcription and translation in prokaryotes and eukaryotes.
12. Why is the promoter region significant?

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Write a brief account on special types of chromosomes.
14. Describe with illustrations the structure of Lamp brush chromosome.
15. Explain the stages of prophase 1 of meiosis.
16. Write a note on point mutation.
17. Write notes on DNA polymerases.
18. Write a short account on the enzymes involved in each step of DNA replication.
19. Distinguish between inducible and repressible operons with examples.
20. How is the tryptophan operon regulated in prokaryotes? Illustrate your answer.
21. Distinguish between positive and negative controls of gene expression with examples.

Part C

III. Answer any Two questions. Each question carries 10 marks **(2x10=20)**

22. Illustrate and explain the stages of reduction division and equational division.
23. Explain the chromosomal abnormalities in human. Draw suitable diagrams.
24. Explain with suitable diagrams the structure of DNA.
25. Illustrate and describe the steps involved in the synthesis of a mRNA from DNA in prokaryotes.