02/08/24 A.N

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Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2024

Career Related First Degree Programme under CBCSS

Botany and Biotechnology

Vocational Course VI

BB 1471: MOLECULAR BIOLOGY

(2019 Admission Onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** the questions in a word or **one** or **two** sentences. Each question carries **1** mark.

1. Define intron.
2. What is a base pair?
3. Where are centrioles located in the cell?
4. Which enzyme unwinds the DNA helix?
5. What is euchromatin?
6. Define silencer.
7. What is the importance of anticodon in translation?

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8. Identify the concept of operon.

9. Give two examples for purines.

10. What is mRNA?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. Each question carries **2** marks. Answer not to exceed one paragraph.

11. What is polyadenylation?

12. Give note on telomere.

13. What are retrotransposons?

14. Discuss on translation initiation factors.

15. What is maternal inheritance?

16. Explain lipofection.

17. Write the functions of tRNA.

18. What is glycosylation?

19. What are allosteric proteins?

20. Comment on primosome.

21. Explain feedback inhibition.

22. List the functions of protein kinase.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. Each question carries **4** marks. Answer not to exceed 120 words.

23. Explain RNA interference and its applications.

24. What are the key enzymes involved at the replication fork?

25. Draw the structure of DNA double helix.

26. Write the significance of central dogma of molecular biology.

27. Give a short note on mitochondrial DNA.

28. Compare and contrast promoters and enhancers.

29. What are the features of genetic code?

30. Explain the mechanism of mRNA degradation.

31. What is catabolic repression?

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. Answer not to exceed three pages.

32. Give a detailed account on transposons and its types.

33. Explain the regulation of gene expression in eukaryotes.

34. Discuss the process of translation in prokaryotes with suitable diagrams.

35. Write an essay on experiments demonstrating DNA as the genetic material.

(2 × 15 = 30 Marks)