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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2024

Fourth Semester

Core Course 12—MOLECULAR BIOLOGY

(For B.Sc. Biotechnology)

[2013–2016 Admissions]

Time : Three Hours Maximum Marks : 80

Part A (Short Answer Questions)

Answer **all** *questions.*
Each question carries 1 *mark.*

1. Differentiate nucleoside and nucleotide.
2. Explain C value paradox.
3. Write about Pyramidines in RNA.
4. Can you explain the Okazaki fragment ?
5. Write a note on histone proteins.
6. Explain reverse transcription.
7. What is a regulatory protein ?
8. Differentiate sense strand and antisense strand.
9. What is the origin of replication ?
10. Write about the functions of gyrases.

(10 × 1 = 10)

Part B (Brief Answer Questions)

Answer any **eight** *questions.*
Each question carries 2 *marks.*

11. Write about the chemical properties of DNA.
12. Explain the importance of ribosome in translation.
13. Write about microsatellites and point out the importance.
14. Explain any one of DNA repair mechanisms.
15. Explain the wobble hypothesis.

Turn over

16. Enlist the proteins and enzymes involved in DNA replication.
17. Write a note on X-ray crystallographic experiment of DNA.
18. With an experiment can you explain the semi-conservative mode of replication of DNA.
19. What is lytic cycle ?
20. Differentiate SINES and LINES.
21. Explain the Operon concept.
22. What do you know about gene expression in a phage ?

(8 × 2 = 16)

Part C

Answer any **six** *questions.*
Each question carries 4 *marks.*

23. Explain DNA replication.
24. Write about organization of DNA in a bacteriophage.
25. Give an account of types of RNA.
26. Explain promoters and activators.
27. Describe transcription in prokaryotes.
28. Illustrate and explain the Lysogenic cycle.
29. Explain the genetic code.
30. Write about types of mutation.
31. Explain Griffith's experiment.

(6 × 4 = 24)

Part D

Answer any **two** *questions.*
Each question carries 15 *marks.*

32. Illustrate and explain Watson and Crick's model of DNA.
33. Describe the negative and positive regulation of gene.
34. Explain the organization of eukaryotic chrommosome.
35. Explain translation in prokaryotes.

(2 × 15 = 30)