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(Pages : 2)

Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, APRIL 2016

Fourth Semester

Core Course 12 – MOLECULAR BIOLOGY

(For B.Sc. Biotechnology)

[2013 Admission onwards]

Time : Three Hours

Maximum Marks : 80

Part A (Short Answer Questions)

Answer all questions.

1 mark each.

1. Name the different DNA polymerases in E.Coli.
2. What is reverse transcriptase?
3. What is excision repair?
4. Explain wobble hypothesis.
5. Enumerate the function of Topoisomerase.
6. Write notes on Z-DNA.
7. What is Pribnow box?
8. Write notes on E-Coli RNA polymerase holoenzyme.
9. What are regulatory proteins?
10. Explain degeneracy of genetic code.

(10 × 1 = 10)

Part B (Brief Answer Questions)

Answer any eight of the following

2 marks each.

11. Differentiate between Promoter, enhancer and silencer sites in eukaryotic transcription.
12. Describe rolling circle replication.
13. Describe the contribution of O.T. Avery, C.M. Macleod and M. McCarty.
14. What is a histone? Enumerate its role.
15. What is the role of group I introns in RNA splicing?
16. What are the genes involved in Lac operon?
17. Explain termination event in DNA replication.

Turn over

18. Explain X-ray crystallographic experiment.
19. Discuss on Concept of Gene.
20. Write Physio-chemical properties of DNA.
21. Describe λ phage.
22. Describe the initiation events in prokaryotic translation.

(8 × 2 = 16)

Part C (Short Essay Type Questions)

Answer any **six** of the following.

4 marks each.

23. How DNA is packed in prokaryotic cell?
24. Describe the machinery and the enzymes of DNA replication.
25. Differentiate the properties of DNA and RNA.
26. Explain the mechanism of prokaryotic transcription.
27. Explain transforming principle and Griffith experiment.
28. Write notes on nucleotide excision repair mechanism.
29. Differentiate Histone and Non-histone proteins.
30. What are coding and template strands?
31. Write about the contribution of scientists in deciphering genetic code.

(6 × 4 = 24)

Part D (Essay Type Questions)

Answer any **two** of the following.

Each question carries 15 marks.

32. Write an essay on B-form of DNA.
33. What is lac operon? Explain how lac operon works in the presence and absence of lactose.
34. Explain the mechanism of prokaryotic transcription.
35. Describe the machinery and the enzymes of DNA replication.

(2 × 15 = 30)