8·4

TM244940B

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2024

2022 ADMISSIONS REGULAR

SEMESTER IV - Zoology

ZO4E01TM20 - Molecular Biology

Time : 3 Hours

Maximum Weight : 30

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. What is linking number?
2. Write short notes on plasmid genome.
3. Compare the three models of replication.
4. Explain the importance of telomerase.
5. Write notes on Initial transcribing complex and Stable ternary complex.
6. Write notes on different regions of the sigma factor.
7. Write a short note on stability of DNA.
8. Define the terms (a) Hyperchromic shift (b) Hypochromic shift (c) Bathochromic shift (d) Hypsochromic shift.
9. Comment on accommodation.
10. Write a note on ribosome recycling.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. Compare the different types DNA.
12. Explain the chemistry of DNA replication.
13. Explain the mechanism of removal of primers from a newly synthesized DNA strand.
14. Explain the mechanisms involved in splicing of Group I and Group II introns.
15. Describe the types of proof reading mechanisms operating in prokaryotes.
16. Comment on RNAi.
17. What are riboswitches? Explain the mechanism.
18. Summarize the formation of 70S initiation complex during prokaryotic translation.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. Write an essay on the different DNA repair mechanisms operating in prokaryotes and eukaryotes.
20. Write an essay on the mechanism of nuclear export of mRNA. Add a note on the mRNA stability.
21. Explain the regulation of gene expression in *E.Coli* taking Tryptophan operon as example.
22. Outline the major aspects of prokaryotic translation.