QP CODE: 20000769

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Reg No : .....

Name : .....

MSc DEGREE (CSS) EXAMINATION , NOVEMBER 2020

Second Semester

M Sc BOTANY

CORE - BY010204 - MOLECULAR BIOLOGY

2019 Admission Onwards

41AE02EE

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What are the functions of microRNA?
2. What are nicrosatellites?
3. What are RdRPs?
4. What is cistron?
5. Explain the intrinsic mode of transcription termination in prokaryotes.
6. What are exons?
7. What is Wobble hypothesis?
8. In addition to the normal nucleotides, tRNAs contain modified nucleotides. Substantiate the statement, citing examples.
9. How is the correct initiation sequence is determined in prokaryotic mRNAs?
10. What are riboswitches?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Explain how Z-DNA is formed.
12. Write a brief account on the structure and diversity of mitochondrial genome.
13. Describe the events during the initiation of replication at the origin of replication in E. coli.

14. What are enhancers? What is its role in eukaryotic gene transcription?

15. Explain the autogenous circuit that regulate the synthesis of λ repressor when a λ phage is in lysogeny.

16. Explain the Holliday model for the homologous recombination of DNA.

17. What is parental imprinting? Give examples.

18. What are the post-replication repair mechanisms?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. 'RNA is a structurally diverse and and functionally most versatile biomolecule on earth.' Critically evaluate the statement

20. When the cell reproduces, it has to pass all of its genetic information accurately to the daughter cells. Describe in detail, the process involved in this information transfer.

21. Write an essay on post-translational modifications of proteins with special reference to the mechanisms tools involved.

22. Describe the various types of gene expression control mechanisms in eukaryotes.

(2×5=10 weightage)