QP CODE: 22000478

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Reg No : .....

Name : .....

MSc DEGREE (CSS) EXAMINATION , JANUARY 2022

Second Semester

M Sc BOTANY

CORE - BY010204 - MOLECULAR BIOLOGY

2019 Admission Onwards

1EDFD29E

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What are hammerhead ribozymes? Give examples.
2. How are chloroplast genome organized?
3. Why does DNA polymerase only work in one direction?
4. Is cistron and gene the same? Explain.
5. Explain the role of TFIIB.
6. The genetic code is degerate. What does it mean?
7. What is initiator tRNA?
8. What is Kozak sequence?
9. More sorting signals are required in eukaryotic proteins. Why?
10. What is histone code?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Describe the major features of A-DNA
12. 'There is an excess DNA than what is expected to code for proteins in most of the organisms.' Explain with suitable examples.
13. Explain the different viral RNA replication strategies.

14. Chemically and enzymatically, transcription is similar to DNA replication, but have important differences. Explain those differences.

15. Tight coupling of transcription and translation in prokaryotes makes control by attenuation possible. Substantiate.

16. Describe the different types of transposons found in bacteria.

17. The histone code is a hypothesis that the transcription of genetic information encoded in DNA is in part regulated by chemical modifications to histone proteins. Explain.

18. Describe the mechanism of mismatch repair.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Write an essay on the various noncoding RNAs found in the biological world.

20. In what all ways, eukaryotic DNA replication is different from prokaryotic DNA replication?

21. Describe the different processing events that a eukaryotic pre-mRNA undergoes.

22. Describe in detail, how is the decision made between lytic and lysogenic cycles for a λ phage infecting a bacterium.

(2×5=10 weightage)