

**B.Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023****SEMESTER 5 : ZOOLOGY****COURSE : 19U5CRZOO05 : CELL AND MOLECULAR BIOLOGY***(For Regular 2021 Admission and Supplementary 2020 / 2019 Admissions)*

Time : Three Hours

Max. Marks: 60

**PART A****Answer all(1 mark each)**

1. Comment about split gene?
2. Define RNA capping
3. Define synapsis
4. Define cell signalling.
5. Comment on NOR
6. What are structural genes?
7. Comment on Apolipoprotein.
8. Define mesosomes.

**(1 x 8 = 8)****PART B****Answer any 6 (2 marks each)**

9. Distinguish between Facultative and constitutive Heterochromatin.
10. Describe the mechanism of DNA replication?
11. Comment on DNA polymerase.
12. Comment on autocrine signaling
13. Write a short note on the functions of ribosomes.
14. Differentiate virion and virusoid.
15. Comment on gap junctions and its functions.
16. Comment on the significance of meiosis.

**(2 x 6 = 12)****PART C****Answer any 4 (4 marks each)**

17. Describe Avery transformation experiments
18. Explain in detail the nuclear envelope and its functions.
19. How does the nuclear membrane, nuclear pore, nucleolus and chromatin work together to maintain the integrity and function of the nucleus?
20. How did Hershey and Chase establish that DNA is transferred from virus to bacteria?
21. Elaborate on the structure of the mitochondria with a neat diagram.
22. Comment on the positive regulation of lac operon

**(4 x 4 = 16)****PART D****Answer any 2 (12 marks each)**

23. How did the experiments conducted by Griffith, Avery, and the Hershey-Chase team collectively advance our comprehension of DNA's role as the genetic material?"
24. Describe the functions of the mitochondria.
25. Lac operon shows both positive and negative control. Discuss with illustrations.
26. Write a detailed account on the molecular models of Plasma membrane with neat diagrams.

**(12 x 2 = 24)**