

Reg. No

Name

24U509

B.Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2024

SEMESTER 5 : ZOOLOGY

COURSE : 19U5CRZ005 : CELL AND MOLECULAR BIOLOGY

(For Regular 2022 Admission and Supplementary 2021/ 2020 / 2019 Admissions)

Time : Three Hours

Max. Marks: 60

PART A

Answer All (1 mark each)

1. What is a linker DNA?
2. Write a short note on Glycocalyx.
3. What is ribophorin?
4. Give an example for autocrine and paracrine signalling.
5. Define congression.
6. Comment about split gene?
7. Define a proteosome.
8. Define RNA capping.

(1 x 8 = 8)

PART B

Answer any 6 (2 marks each)

9. Comment on Microvilli as a modification of the plasma membrane.
10. Classify chromosomes based on the position of the centromere.
11. How do the structural differences between microfilaments and microtubules relate to their respective functions within the cells.
12. Describe the One gene-one enzyme hypothesis.
13. What are the components of a bacterial operon?
14. What is terminal meiosis?
15. Comment on paracrine signaling.
16. Give an account of enzymes required for DNA replication.

(2 x 6 = 12)

PART C

Answer any 4 (4 marks each)

17. Elaborate on the functions of the Golgi apparatus.
18. Explain the Contributions of Hargobind Khorana.
19. Explain in detail the nuclear envelope and its functions.
20. Discuss upon the differences between prokaryotic and eukaryotic gene regulation.
21. How did Hershey and Chase establish that DNA is transferred from virus to bacteria?
22. Write a detailed account of passive transport by the plasma membrane.

(4 x 4 = 16)

PART D

Answer any 2 (12 marks each)

23. Explain the functions of Endoplasmic reticulum.
24. Explain the different transport mechanisms across the plasma membrane with suitable illustrations.
25. Lac operon shows both positive and negative control. Discuss with illustrations.
26. Explain the nucleosome model of chromosome. Comment on its significance.

(12 x 2 = 24)