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Reg. No. :

Name :

Fifth Semester B.Sc. Degree Examination, December 2023

First Degree Programme under CBCSS

Zoology

Core Course

ZO 1541 : CELL AND MOLECULAR BIOLOGY

(2019 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

- I. Answer **all** the questions. Each question carries **1** mark.
1. What is oxidative phosphorylation?
2. What is ubiquitin?
3. Explain cell theory.
4. Write down the stages of Mitosis.
5. What are Free radicals?
6. What are the different types of RNA in a eukaryotic Cell?
7. What is cAMP?
8. List any four diseases/conditions associated with aging?
9. What is a carcinogen? List down two examples.
10. What are topoisomerases?

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight** of the following (Not exceeding **one** paragraph. Each carries **2** marks).

11. What are the functions of lysosomes?
12. Explain one gene one enzyme hypothesis?
13. What is a giant chromosome?
14. What is wobble hypothesis?
15. Mention any two post-translational modifications in eukaryotes?
16. What are oncogenes?
17. What are histones? What are their roles?
18. What is benign prostrate hypertrophy?
19. What are transcription factors?
20. What is nucleolus?
21. Mention the role of SOD.
22. What is fluid mosaic model?

(8 × 2 = 16 Marks)

III. Answer any **six** of the following (Not to exceed **120** words. Each carries **4** marks).

23. What is the structure of a ribosome? Mention the different rRNAs involved.
24. What are the characteristics of cancer cells?
25. Explain cell cycle in brief.
26. What are the post-transcriptional changes of a eukaryotic mRNA?
27. Explain the structure of a typical metaphase chromosome.

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- 28. Explain about chaperones.
- 29. Explain the clover Leaf model of tRNA.
- 30. Explain direct-repair and mis-match repair.
- 31. What are the peculiarities of the nuclear membrane? Mention about the nuclear pore complex.

(6 × 4 = 24 Marks)

IV. Answer any **two** of the following. Each question carries **15** marks.

- 32. Explain Lac operon.
- 33. Explain DNA replication in prokaryotes.
- 34. Explain the experiments which found out and confirmed that DNA was the genetic material.
- 35. Explain the structure of interphase nucleus and chromatin organization.

(2 × 15 = 30 Marks)
