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Fourth Semester B.Sc. Degree Examination, August 2022

First Degree Programme under CBCSS

Zoology

Core Course IV

ZO 1441 : CELL BIOLOGY

(2015–2018 Admission)

Time : 3 Hours Max. Marks : 80

I. Answer the following questions (In **One** or **Two** sentences. **1** mark each)

1. Name cytoskeletal filaments containing tubulins.
2. Name an organelle that is involved in fatty-acid oxidation in animals.
3. Glyoxylate cycle occurring in glyoxisomes is meant for production of which molecule.
4. What are cristae?
5. Explain two roles of Golgi bodies in an eukaryotic cell.
6. What is amitosis.
7. What is apoptosis?
8. What are the different phases in a cell cycle?
9. Name two secondary messengers.
10. How can we distinguish between a prokaryotic and eukaryotic cell?

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight** of the following (Not to exceed **one** paragrah. Each carries **2** marks)

11. Differentiate between an autophagosome and a phagolysosome?

12. How does small polar molecules and macromolecules move across the nuclear membrane?

13. What are lysosomal storage diseases?

14. What are nucleolar organizing regions?

15. How controlling microtubule assembly can be helpful in treating cancer?

16. What are tumor suppressor genes?

17. What is synaptonemal complex?

18. Differentiate euchromatin and heterochromatin.

19. Differentiate between solenoid and nucleosome.

20. Name of different components making up a prokaryotic ribosome.

21. List out the functions of Mitochondria in a eukaryotic cell.

22. What is apoptosis?

(8 × 2 = 16 Marks)

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

23. What are the roles of lysosomal enzymes; mention peculiarities of these enzymes that regulate their mechanism of action?

24. What are the different mechanisms by which molecules are transported between the nucleus and the cytoplasm?

25. What is a nucleolus?

26. Briefly explain the ubiquitin-proteasome system of protein degradation.

27. Explain the function and significance of giant chromosomes.

28. Write notes on electron transfer chain and its significance.

29. Explain the structure of plasma membrane. Draw a neat and labelled diagram f plasma membrane.

30. Explain Transmembrane transport.

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 carries **15** marks)

32. What is signal transduation, explain with an example?

33. Explain the structure, function and peculiarities of endoplasmic reticulum.

34. Write an essay on aging.

35. Explain Meiosis.

(2 × 15 = 30 Marks)
