2024/FYUG/EVEN/SEM/
ZOODSC–151T/030

FYUG Even Semester Exam., 2024

ZOOLOGY

(2nd Semester)

Course No. : ZOODSC–151T

(Cell Biology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *ten* of the following questions : 2×10=20

1. Who had discovered the cell? Write the cell theory.
2. Mention four differences between prokaryotic and eukaryotic cells.
3. Why viruses are not considered as true cells? Give reasons.

4. Define plasma membrane. Name two enzymes present in the plasma membrane.

5. What is active transport? Give example.

6. Define gap junction. In which tissue gap junctions are mostly found?

7. What is oxidative phosphorylation? Where does it occur within the cell?

8. Define ribosome. Who first described ribosomes?

9. Why is mitochondria considered as semi-autonomous organelle?

10. Who first discovered and named nucleus? Name one eukaryotic cell that does not contain nucleus.

11. Differentiate between euchromatin and heterochromatin.

12. What is intermediate filament? Mention its functions.

13. Write at least four differences between mitosis and meiosis.

14. Define cell cycle. What is cyclin?

15. What are secondary messengers? Give example.

SECTION—B

Answer any *five* of the following questions : 10×5=50

16. Define a cell. Describe the structure of a typical eukaryotic cell with a properly labelled diagram. Name the factors which control the shape of the cells. Mention at least two differences between an animal cell and a plant cell. 1+(4+2)+1+2=10

17. Describe general organization of viruses. Why are viruses considered both living as well as non-living? What are viroids? Name two diseases caused by prions. (4+2)+2+1+1=10

18. Who put forward the concept of unit membrane? Give an account of the fluid-mosaic model of plasma membrane with illustration. Mention the functions of the plasma membrane. 1+(5+2)+2=10

19. Write short notes on the following : 5+5=10
    (a) Structure and functions of Golgi apparatus
    (b) Structure and functions of lysosomes

20. Describe the structure of mitochondria with proper illustration. Mention the important functions of mitochondria. Write briefly about the endosymbiotic hypothesis. (4+2)+2+2=10

21. Write short notes on the following : 5+5=10

(a) Structure and functions of prokaryotic ribosomes

(b) Structure and functions of peroxisomes in cells

22. Describe the structure of nucleus with proper illustration. Throw light on its role in inheritance. Mention at least two differences between nucleus and nucleolus. (4+2)+2+2=10

23. What are microtubules? Briefly describe the structure and functions of microtubules. Define microfilament. What are the functions of microfilament in the cell? 1+3+2+2+2=10

24. Describe the prophase–I of first meiotic division with proper diagram. Write a note on the significance of meiosis. Define cytokinesis. (4+2)+2+2=10

25. Write short notes on the following : 5+5=10

(a) Regulation of cell cycle

(b) GPCR and its role in cell signalling

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