2024/FYUG/EVEN/SEM/
BOTDSC–151T/034

FYUG Even Semester Exam., 2024

BOTANY

(2nd Semester)

Course No. : BOTDSC–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 discovered cell and in which year?

2. What are prions? Give example of prions.

3. Differentiate between Archaebacteria and Eubacteria.

4. Differentiate between SER and RER.

5. What are F_1 particles? Write its function.

6. What does 'S' in 70S mean? What is the function of ribosome?

7. What are the components of nucleus?

8. What is tRNA? Write the function of tRNA.

9. Write the role of helicase and DNA polymerase I in DNA replication.

10. What do you mean by programmed cell death?

11. What are oncogene and proto-oncogene?

12. What is centromere? Write one function of centromere.

13. What do you mean by R_f value?

14. Differentiate between mobile phase and stationary phase in chromatography.

15. What do you mean by resolution of a microscope?

SECTION—B

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

16. Differentiate between prokaryotic cell and eukaryotic cell. Describe the structure of an eukaryotic cell with diagram. 2+8=10

17. What is mycoplasma? Write the structure of mycoplasma with diagram. Add a note on diseases caused by mycoplasma. 1+6+3=10

18. Write about the chemical composition of cell wall and cell membrane. With the help of suitable diagram, describe fluid mosaic model of plasma membrane. Write the function of ion channels on plasma membrane. 2+2+4+2=10

19. Write the structure and function of the following : 5+5=10

    (a) Ribosome

    (b) Mitochondria

20. Write about the chemical composition of DNA. Differentiate between nucleoside and nucleotide. Write a note on different types of RNA with diagram. 2+2+6=10

21. What do you mean by DNA replication? What are the different types of enzymes required for DNA replication? Describe the process of DNA replication in prokaryotes. 1+3+6=10

22. Write notes on the following : 5+5=10

(a) Cell senescence

(b) Apoptosis

23. What do you mean by cell cycle and cell cycle checkpoints? Describe in detail of different events in cell cycle with diagrams. Write the function of CDK in cell cycle control. 2+6+2=10

24. Differentiate between SEM and TEM. Write the working principle of SEM with a labelled diagram. Write the applications of SEM and TEM. 2+4+4=10

25. Write about the working principle of HPLC. With the help of schematic diagram, describe the functioning of HPLC. What are the applications of HPLC in biological science? 3+4+3=10

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