FYUG Odd Semester Exam., 2023
(Held in 2024)

BIOTECHNOLOGY

(1st Semester)

Course No. : BTCDSC–101T

(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 *ten* questions, selecting any *two* from each Unit : 2×10=20

UNIT—I

1. Write a note on cell theory.

2. Define cytoplasm.

3. What are the functions of intermediate filaments?

UNIT—II

4. Write down the function of Golgi complex.

5. Define peroxisomes.

6. What is lysosome?

UNIT—III

7. What is semi-permeability?

8. Define diffusion.

9. Write a note on cell recognition.

UNIT—IV

10. Differentiate between mitosis and meiosis.

11. Define cell senescence.

12. Write about the physical properties of nucleic acid.

UNIT—V

13. What is Cadherin?

14. Define oncogene.

15. Write down the characteristics of cancer.

(Continued)

SECTION—B

Answer *five* questions, selecting *one* from each Unit : 10×5=50

UNIT—I

16. Describe the ultrastructure of a eukaryotic cell. Differentiate between prokaryotic cell and eukaryotic cell. Add a note on cytosol. 5+3+2=10

17. Write notes on : 5×2=10

(a) Structure and function of motile cell

(b) Structure of microfilaments and microtubules

UNIT—II

18. Describe the structure of mitochondria. Why is mitochondria known as powerhouse of a cell? Add a note on vacuole.

19. Write notes on :

(a) Structure of endoplasmic reticulum

(b) Structure and function of chloroplast

UNIT—III

20. Describe the fluid-mosaic model of membrane structure. Write down the composition of a biological membrane. Add a note on the functions of plasma membrane. 5+2+3=10

21. Write notes on : 5×2=10

(a) Structure and function of nucleus

(b) Active transport and passive transport

UNIT—IV

22. Write a detailed account on various stages of meiosis I. Add a note on significance of meiosis. 8+2=10

23. Write notes on : 5×2=10

(a) Structure of DNA double helix

(b) Cell cycle checkpoint

UNIT—V

24. Define Carcinogenesis. Write a note on agents promoting carcinogenesis. Add a note on molecular basis of cancer. 2+3+5=10

25. Write notes on : 5×2=10

(a) Composition and function of extracellular matrix

(b) Treatment of cancer

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