TDC (CBCS) Odd Semester Exam., 2023

BIOTECHNOLOGY

(Honours)

(3rd Semester)

Course No. : BTCHCC–301T

(Genetics)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer *ten* questions, taking any *two* from each Unit : 2×10=20

UNIT—I

1. Write a note on law of segregation of Mendel.

2. Write about incomplete dominance.

3. Give a short account of chromosome theory of inheritance.

UNIT—II

4. Define epistasis.

5. Give a short account of satellite DNA.

6. Differentiate between SINEs and LINEs.

UNIT—III

7. Write a note on introns.

8. Give a short account of genetic organization of viral genome.

9. Differentiate between euchromatin and heterochromatin.

UNIT—IV

10. Write a note on dosage compensation.

11. Write about position effects of gene expression.

12. Write a brief note on inbreeding.

UNIT—V

13. Give a short account of linkage.

14. Write a note on population genetics.

15. Write a note on maternal effects.

SECTION—B

Answer *five* questions, taking *one* from each Unit : 6×5=30

UNIT—I

16. Give an account of dihybrid cross of Mendel. Add a note on expressivity. 4+2=6

17. Describe cell cycle in detail. Differentiate between mitosis and meiosis. 4+2=6

UNIT—II

18. Write notes on the following : 3+3=6

    (a) Duplicate genes

    (b) Inhibitory genes

19. What do you mean by non-allelic interactions? Write about non-coding DNA. 3+3=6

UNIT—III

20. Give an illustrated account of genetic code dictionary. Add a note on gene function. 4+2=6

21. Describe chromosome banding pattern. Add a note on karyotype. 4+2=6

UNIT—IV

22. Give a detailed account of variations in chromosome structure. 6

23. Write notes on the following : 3+3=6

(a) Sex-linked inheritance

(b) Aneuploidy

UNIT—V

24. Give an illustrated account of Hardy-Weinberg law of equilibrium. Add a note on genotype frequency. 4+2=6

25. Describe extra-chromosomal inheritance with suitable examples. Add a note on natural selection. 4+2=6

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