2022/TDC/ODD/SEM/BTCHCC–301T/301

TDC (CBCS) Odd Semester Exam., 2022

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*

UNIT—I

1. Answer any *two* of the following questions :

   2×2=4

   (a) Write a note on monohybrid cross of Mendel.

   (b) Write about test cross.

   (c) Give a short account of pleiotropy.

J23/223 (Turn Over)

(2)

2. Answer any *one* of the following questions : 6

(a) Describe prophase of first meiosis. Write the significance of mitosis and meiosis. 4+2=6

(b) Give an account of multiple alleles. Add a note on penetrance. 4+2=6

UNIT—II

3. Answer any *two* of the following questions : 2×2=4

(a) Define non-allelic interactions.

(b) Give a short account of VNTRs.

(c) Write about non-coding DNA.

4. Answer any *one* of the following questions : 6

(a) Write about inhibitory genes. Briefly explain SINEs and LINEs. 3+1½+1½=6

(b) Give an illustrated account of complementary genes. Add a note on satellite DNA. 4+2=6

(3)

UNIT—III

5. Answer any *two* of the following questions : 2×2=4

(a) Point out the features of genetic code dictionary.

(b) Write a note on cistron.

(c) Give a short account of chromosome banding pattern.

6. Answer any *one* of the following questions : 6

(a) Give a detailed account of variations in chromosome structure.

(b) Write a note on giant chromosomes. Give a brief account of one gene-one polypeptide hypothesis. 2+4=6

UNIT—IV

7. Answer any *two* of the following questions : 2×2=4

(a) Write a note on sex determination in human.

(b) Give a brief account of euploidy.

(c) Write about aneuploidy.

(**4**)

8. Answer any *one* of the following questions :   6

(a)   Write a note on dosage compensation. Add a note on sex-linked inheritance.

3+3=6

(b)   Write about Barr bodies. Briefly explain genic balance theory.   3+3=6

UNIT—V

9. Answer any *two* of the following questions :

2×2=4

(a)   Write a brief note on cytoplasmic inheritance.

(b)   Write a note on genetic mapping.

(c)   Point out the significance of Hardy-Weinberg law.

10. Answer any *one* of the following questions :   6

(a)   Give an illustrated account of linkage and crossing-over.   3+3=6

(b)   Describe allelic and genotypic frequencies. Write about evolutionary genetics.   4+2=6

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