PG Even Semester Exam, 2024

Biotechnology

4th Semester

COURSE NO. BTYCC – 651

[Advanced Techniques in Biological Chemistry, Molecular Biology, Genomics and Proteomics]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer five questions, taking one from each Unit

UNIT-I

1. a. Discuss the principle and applications of GC-MS. 10

   b. Write down the technique of LC-MS. 4

2. a. Discuss the principle and applications of affinity chromatography. 10

   b. State the principle of HPLC. 4

UNIT-II

3. a. Discuss the techniques of PCR. 7

   b. Write about the molecular mechanism of CRISPR-Cas. 7

Turn over

4. What is radioactivity? Discuss the various methods for detection and measurement of radioactivity. 4+10=14

UNIT-III

5. a. Write a short account on crystallization of bimolecules. 7

   b. State the principle and applications of X-ray crystallography. 3+4=7

6. a. Discuss the principle of DNA sequencing. 8

   b. Add a note on RNAseq. 6

UNIT-IV

7. Write short notes on:

   a. Whole – Genome shotgun (WGS) approach for genome sequencing. 5

   b. Clone-conlig approach of genome sequencing. 5

   c. Microarray technique for study of gene expression. 4

8. Discuss toxicogenomics and state its advantages, limitations and regulations. 5+3+3+3=14

UNIT-V

9. Discuss the use of the two hybrid technique for mapping protein-protein interactions. 14

10. Discuss disease diagnosis in proteomics using biased and unbiased methods. 7+7=14

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