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PG Even Semester (CBCS) Exam., May—2019

BIOTECHNOLOGY

(4th Semester)

Course No. : BTYCC–401

(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 **all** questions

1. *(a)* What is partition chromatography? Define the term 'distribution coefficient' (K_D) used in partition chromatography. 2+2=4

(b) Discuss the principle and applications of effinity chromatography. 10

OR

2. *(a)* Discuss the principle of MALDI-TOF and the procedure for performing analysis by MALDI-TOF. 7

(b) Differentiate 2-D analysis from one dimensional SDS-PAGE, and state its advantages. 7

3. *(a)* Differentiate between agarose gel electrophoresis and PFGE. 8

(b) Write a note on isotope dilution analysis. 6

OR

4. *(a)* Discuss the different types of radioactivity. 7

(b) Write about the applications of radioactivity for analysis of biological samples. 7

5. Explain the principle and application of NMR in biological sciences. 14

OR

6. How is the crystallization of biomolecules achieved? Explain the principle and application of X-ray crystallography in biotechnology. 2+12=14

7. *(a)* Define the term 'genomics'. Write a note on comparative genomics. 2+3=5

(b) Write about the technique and principle of Sanger's sequencing. 9

OR

8. Write short notes on the following : 3½×4=14

(a) Toxicogenomics

(b) Pharmacogenomics

(c) Metagenomics

(d) Metabolic engineering

9. Define the term 'proteomics'. Write about the strategies in proteomics studies. 2+12=14

OR

10. *(a)* Write the principle and application of phage display. 7

(b) Discuss the importance of proteomics. 7

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