PG Even Semester (CBCS) Exam., May—2017

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

1. Explain the principles and applications of the following : 7+7=14

(a) Ion-exchange chromatography

(b) MALDI-TOF

OR

2. Explain the principles and applications of the following : 7+7=14

(a) Protein purification

(b) Partition chromatography

3. What is electrophoresis? Discuss the principles of agarose gel electrophoresis and PFGE. Differentiate between the two techniques. 2+7+5=14

OR

4. What are radioisotopes? Discuss the applications of radioisotopes for analysis of biological samples. 4+10=14

5. Discuss the principles and applications of the following : 7+7=14

(a) NMR

(b) CD

OR

6. Discuss the principles and applications of the following : 7+7=14

(a) RNA sequence

(b) Crystallization of biomolecules

7. *(a)* Discuss about the sequencing strategies for whole genome analysis. 10

(b) What is comparative genomic? 4

OR

8. *(a)* Write about the whole genome analysis of mRNA and protein expression. 10

(b) What is metabolic engineering? 4

9. *(a)* Write about the strategies of mapping protein interactions in proteomics studies. 10

(b) How are diseases dignosed with the help of proteomics tools? 4

OR

10. Discuss the applications of proteomics in the following : 7+7=14

(a) Drug discovery

(b) Identification and characterization of novel proteins

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