

Please check whether you have got the right question paper.

- N.B:
1. **All** questions are **compulsory**
 2. **Figures** to the **right** indicates **full** marks
 3. Draw neat and labelled diagrams wherever necessary.

Q1 (a) I have a mixture of 2 proteins, A and B, which bind to specific receptors X and Y respectively. I also have a mixture of 2 proteins C and D, which vary in their molecular sizes. C is smaller than D. Suggest and describe in detail, the method to separate proteins A and B. Also discuss in detail the method to separate proteins C and D. **12**

OR

Q1 (a) Write a note on physical methods of cell disruption **6**

And

(b) Describe the flow of a typical proteomic separation and characterization **6**

Q2 (a) Mention any 2 enzymes used in the following processes: **12**

- a) Brewing
- b) Baking
- c) Wine making
- d) Meat tenderizing
- e) Juice processing
- f) Cheese production

OR

Q2 (a) Explain the significance of amylases in baking and brewing industry. **6**

And

(b) What is a detergent? Give the significance of amylases, cellulases and lipases in detergent industry. **6**

Q3 (a) What is capillary electrophoresis? Which are the columns used in capillary electrophoresis. **12**

OR

Q3 (a) Describe the working principle of electrophoresis techniques **6**

And

(b) Write a note on casting the two phase gel system for separation by SDS-PAGE **6**

Q4 (a) Describe the Isoelectric focussing technique and highlight its significance over SDS-PAGE **12**

OR

Q4 (a) Give a brief note on different methods of protein separations along with their basis of separation. **6**

And

(b) Define proteomics. Discuss the different types of proteomics **6**

Q5 Write a short note on the following (any **three**):

- i)** Applications of capillary electrophoresis
- ii)** Any two types of electrophoretic techniques
- iii)** General considerations in selecting cell disruption methods
- iv)** Enzymes used in dairy industry
- v)** Protein fingerprinting
- vi)** Need for purification of proteins
