[Time: 2:30 Hours] **[Marks:60]**

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 lebelled diagrams wherever necessary

Q.1 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

Q.1 a) Write a note on physical methods of cell disruption? **6**

AND

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

Q.2 Comment on 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

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**

Q.3 What is capillary electrophoresis? Which are the columns used in capillary electrophoresis. **12**

OR

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**

Q.4 Describe the Isoelectric focussing technique and highlight its significance over SDS-PAGE.

OR

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**

Q.5 Write a short note on the following **(any three):-** **12**

i) Applications of capillary electrophoresis
ii) Challenges encountered in proteomic studies
iii) General considerations in selecting cell disruption methods
iv) Enzymes used in dairy industry
v) Scope of proteomics
vi) Need for purification of proteins

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