

SCHOOL OF CHEMICAL AND LIFE SCIENCE  
B.Sc.-M.Sc. INTEGRATED PROGRAMME  
SEMESTER IV EXAMINATION, AUGUST 2022  
PAPER CODE: BBC-SEC 02  
PAPER TITLE: PROTEIN PURIFICATION TECHNIQUES

Time: 1.5 Hours

Maximum Marks: 37

*Attempt all questions. All parts of a question must be attempted in continuation. Start the answer to the next question on a new page. Cite examples and draw labeled diagrams wherever necessary.*

**Q.1 Answer True/False for the following statements.**

[7x1=7]

- A. Sulphomethyl functional group is an example of strongly acidic cation exchanger.
- B. In GFC, elution volume is the volume of buffer required to elute compounds that are completely excluded from the gel beads.
- C. The strong anionic detergent SDS disrupts nearly all covalent interactions in the protein.
- D. DNA and RNA can also be removed by precipitation with protamine sulphate.
- E. Lysine can be used as ligand for the purification of mRNA using affinity chromatography.
- F. Bio-Gel P-100 can be used to purify protein from 100-400 kDa in size. C 2 7

**Q.2. Attempt ANY THREE of the following.**

[3x5=15]

- A. Discuss the principle and application of SDS-PAGE.
- B. Mention few applications of Gel Filtration Chromatography.
- C. Write a short note on cell disruption methods during production of initial crude extract for protein purification.
- D. Write the principle and application of affinity chromatography.
- E. Write a short note on Ion-Exchange chromatography.

**Q.3. Answer ANY ONE of the following.**

[15 marks]

- A. With the help of diagram, discuss the instrumentation of HPLC.

OR

- B. Discuss the principle and application of HPLC.

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