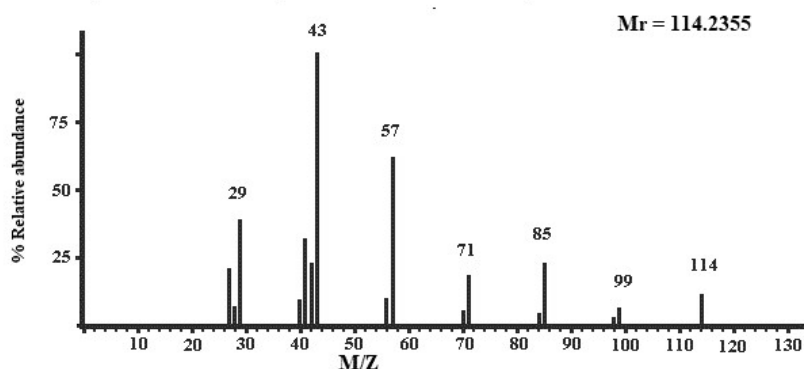


INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

- Q.1(a) Why is liquid chromatography a good technique for the separation of analytes? [2]
Q.1(b) Design equipment for column chromatography and explain the principle of this equipment. [3]
Q.1(c) What is the principle of Ion exchange chromatography? Give some examples of cation and anion exchangers. [5]

- Q.2(a) Compare the performance of HPLC with UPLC. [2]
Q.2(b) Analyze the following results obtained from a mass spectrometer: [3]



- Q.2(c) Design a mass spectrometer equipment and show the different stages of analysis. [5]
Q.3(a) Analyze the relationship between Absorbance, % of transmission and molecular absorptivity and mention the limiting factors affecting this relation. [5]
Q.3(b) Explain the instrumentation and applications of ICP. [5]
Q.4(a) How are you going to analyze the isolated samples of DNA to find out its size? Explain the process in detail. [5]
Q.4(b) Describe the various steps involved in SDS- PAGE starting from sample preparation. [5]
Q.5(a) Give your idea about cell on chip. [2]
Q.5(b) What is Curie point? Explain the calibration of the TGA instrument using the Curie point method. [3]
Q.5(c) Describe the instrumentation of TGA. Give any example of thermogravimetric measurement. [5]