

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MTECH
BRANCH: BT

SEMESTER : I
SESSION : MO/18

SUBJECT: BE512 MODERN METHODS OF INSTRUMENTATION

TIME: 3 HOURS

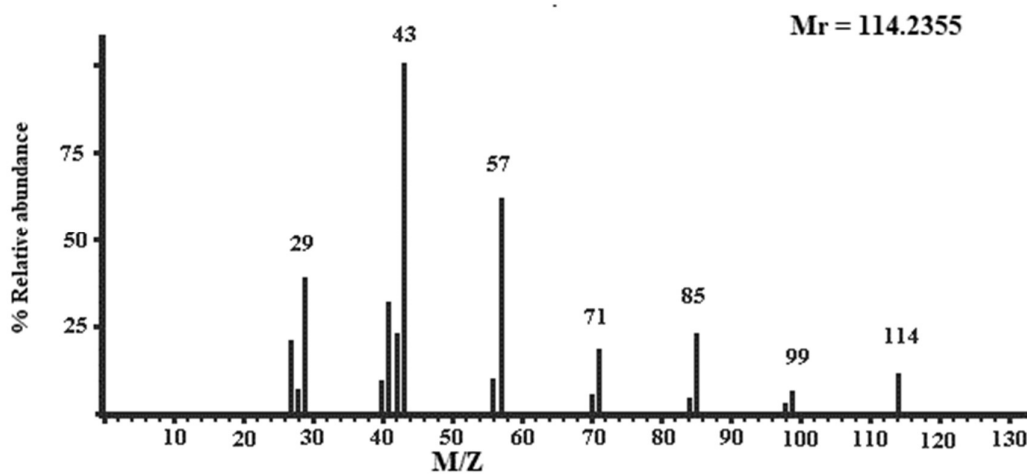
FULL MARKS: 50

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. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Explain three performance factors of a chromatographic instrument. [5]
Q.1(b) What is the principle of Ion exchange chromatography? Give some examples of cation and anion exchangers. [5]

- Q.2(a) Design a mass spectrometer equipment and show the different stages of analysis. [5]
Q.2(b) Analyze the following results obtained from a mass spectrometer: [5]



- Q.3(a) Analyze the relationship between Absorbance, % of transmission and molecular absorptivity [5]
Q.3(b) Explain the instrumentation and applications of AAS. [5]

- Q.4(a) How are you going to analyse 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) What is Curie point? Explain the calibration of TGA instrument using Curie point method. [5]
Q.5(b) Describe the instrumentation of TGA. Give any example of thermogravimetric measurement [5]