

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

CLASS: MTECH
BRANCH: BT

SEMESTER : I
SESSION : MO/19

SUBJECT: BE512: MODERN METHODS OF INSTRUMENTATION

TIME: 3.00Hrs.

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) Evaluate the different types of chromatographic methods based on mechanism of separation. [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 an equipment for performing liquid chromatography and explain the principle of this equipment. [5]
- Q.2(b) Describe the different types of detectors used in Liquid chromatographic system mentioning at least one each from solvent property detector and solute property detector. [5]
- Q.3(a) Derive the Beer's Lambert law and mention the limiting factors affecting this law. [5]
- Q.3(b) Explain the instrumentation and applications of ICP. [5]
- Q.4(a) Describe the instrumentation used for agarose gel electrophoresis. [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]

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