

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

CLASS: BSC MLT
BRANCH: MLT

SEMESTER : IV
SESSION : SP/2025

SUBJECT: BOE405 INSTRUMENTAL METHOD OF ANALYSIS

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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			CO	BL
Q.1(a)	Mention principle of UV-Spectrophotometer. Discuss various modes, and uses of UV-Spectrophotometer.	[5]	CO1	2
Q.1(b)	Mention about the strength and limitations of UV-Vis spectrophotometer, Discuss briefly about instrumentation of UV-Spectrophotometer.	[5]	CO1	2
Q.2(a)	Enlist basic components of IR-Spectrophotometer. Draw the diagram of Spectrophotometer.	[5]	CO2	2
Q.2(b)	Why we can't use glass cell holders for IR Spectrometry. Discuss various types detectors used in IR-Spectrophotometer.	[5]	CO2	3
Q.3(a)	Enlist types of chromatography. Discuss theories of adsorption and partition chromatography.	[5]	CO3	2
Q.3(b)	Enlist steps involved in thin layer chromatography (TLC). Write in short about coating material/adsorbents in TLC.	[5]	CO3	2
Q.4(a)	Write about various types of High-Performance Liquid Chromatography (HPLC). Mention its applications, advantages and limitations,	[5]	CO4	2
Q.4(b)	Discuss basic instrumentation of gas chromatographic techniques. Write in short about detectors used in gas chromatography.	[5]	CO4	
Q.5(a)	Write about applications, advantages and limitations of ion-exchange chromatography.	[5]	CO5	2
Q.5(b)	Discuss theories, instrumentations and applications of gel chromatography.	[5]	CO5	2

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