DEPARTMENT OF PHARMACEUTICAL SCIENCES & TECHNOLOGY

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI

(Internal Assessment I)

CLASS: BPHARM		**SEMESTER:**	**VII/ADD**
BRANCH: PHARMACY		**SESSION:**	**MO/2025**
SUBJECT: BP701T INSTRUMENTAL METHODS OF ANALYSIS			
TIME: 2.00 Hour		**FULL MARK:**	**30**

PART I

A. Objective type questions (Answer all questions)	(5 x 02 = 10 marks)
1. Common light sources for UV-Visible spectroscopy include a _____ lamp for the UV region and a _____ lamp for the visible region.	
2. A compound has an absorbance of 0.45 at its λmax in a 1.0 cm path length cell with a concentration of 2.5×10^{-5} M. The molar absorptivity (ϵ) of the compound is _____.	
3. Calculate the wave number of stretching vibration of carbon-carbon double bond ($K=10\times10^{5}$ dynes cm^{-1})	
4. Write the significance of the fingerprint region in IR Spectroscopy	
5. Mention the different types of stretching and bending vibrations observed in FTIR.	

PART II

B. Long Answers (Answer any one out of two)	(01x10=10 marks)
1. Explain the instrumentation of the UV-Vis Spectrophotometer with a suitable neat ray diagram.	
2. Give a detail note on different types of detectors used in IR Spectroscopy	

PART III

C. Short Answers (Answer any two out of three)	(02x05=10 marks)
1. Define Lambert's Law and Beer's Law and their significance in UV-Vis Spectroscopy.	
2. Draw and explain the Jablonski diagram.	
3. Explain the factors affecting vibrational frequency	

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