

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM - SEMESTER- 7 EXAMINATION – SUMMER -2023**

**Subject Code: BP701TP****Date: 01/07/2023****Subject Name: Instrumental Methods of Analysis****Time:02.30 p.m. to 5.30 p.m.****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

<b>Q.1</b>	(a) Define and explain the following 1. Bathochromic shift      2. Auxochrome      3. Molar Absorptivity	<b>06</b>
	(b) What do you mean by fluorescence? Describe Jablonski diagramme	<b>05</b>
	(c) Discuss the factors affecting the deviation from Beer's law	<b>05</b>
<b>Q.2</b>	(a) Write a note on sampling techniques used in IR spectroscopy	<b>06</b>
	(b) Enlist detectors used in IR spectroscopy and explain any one in detail	<b>05</b>
	(c) Describe various applications of IR spectroscopy	<b>05</b>
<b>Q.3</b>	(a) Define quenching. Explain types of quenching.	<b>06</b>
	(b) Enumerate the detectors used in UV spectroscopy and discuss any one	<b>05</b>
	(c) Write a note on Hollow cathode lamp.	<b>05</b>
<b>Q.4</b>	(a) Discuss absorption chromatography in detail	<b>06</b>
	(b) Write a brief note on turbidimetry	<b>05</b>
	(c) Write principle, methodology and applications of ion exchange chromatography	<b>05</b>
<b>Q.5</b>	(a) Write principle and applications of Flame photometry	<b>06</b>
	(b) Draw a schematic diagramme of Gas chromatography instrument	<b>05</b>
	(c) Discuss theory and applications of Gel chromatography	<b>05</b>
<b>Q. 6</b>	(a) Differentiate between HPLC and GC	<b>06</b>
	(b) Discuss the stationary phases and mobile phases used in reverse phase HPLC	<b>05</b>
	(c) Write theory, instrumentation and applications of affinity chromatography	<b>05</b>
<b>Q.7</b>	(a) Define and explain the following 1. Retention factor      2. Theoretical plates 3. Resolution	<b>06</b>
	(b) Describe types of paper chromatography based on the development	<b>05</b>
	(c) Discuss factors affecting electrophoretic mobility	<b>05</b>

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