

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

**Subject Code: BP701TP****Date: 01/12/2023****Subject Name: Instrumental Methods of Analysis****Time: 10.30 a.m. to 1.30 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.

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| <b>Q.1</b>  | (a) Write a note on Radiation Source, detectors and monochromators used in UV – VIS spectrophotometer.           | <b>06</b> |
|             | (b) Write a detailed account on Partition Chromatography.  | <b>05</b> |
|             | (c) Write in brief application of Flame photometry.  | <b>05</b> |
| <b>Q.2</b>  | (a) What are the modes of development in Paper chromatography?   | <b>06</b> |
|             | (b) Explain briefly (i) Nephelometry (ii) Turbidometry.  | <b>05</b> |
|             | (c) State and derive Beer-Lambert's Law.   | <b>05</b> |
| <b>Q.3</b>  | (a) Write a note on Gel electrophoresis along with its applications.   | <b>06</b> |
|             | (b) Write a detail note on sample handling in IR spectroscopy.   | <b>05</b> |
|             | (c) Describe Principle and instrumentation of Flame photometry.  | <b>05</b> |
| <b>Q.4</b>  | (a) Give instrumentation of HPLC with labeled diagram.   | <b>06</b> |
|             | (b) Write factors affecting ion exchange chromatography.   | <b>05</b> |
|             | (c) Enlist the applications of GC and HPLC.  | <b>05</b> |
| <b>Q.5</b>  | (a) Give in brief the instrumentation of Fluorimetry.  | <b>06</b> |
|             | (b) Write a short note on Affinity Chromatography.   | <b>05</b> |
|             | (c) Give advantages and disadvantages of Adsorption chromatography.  | <b>05</b> |
| <b>Q. 6</b> | (a) Explain the concept of singlet, doublets and triplet electronic transitions.                                 | <b>06</b> |
|             | (b) Give in brief the instrumentation of Gel chromatography.   | <b>05</b> |
|             | (c) Describe principle and applications of AAS.  | <b>05</b> |
| <b>Q.7</b>  | (a) Explain the principle and development techniques, adsorbent, mobile phase and detection methods used in TLC. | <b>06</b> |
|             | (b) Write in detail application of fluorimetry.  | <b>05</b> |
|             | (c) Give applications of TLC.  | <b>05</b> |

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