

GUJARAT TECHNOLOGICAL UNIVERSITY**B. Pharm- SEM-VII• EXAMINATION – WINTER-2021****Subject Code:BP701TP****Date: 24/11/2021****Subject Name: Instrumental Methods of Analysis****Time: 10:30 AM TO 01:30 PM****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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| Q.1 | (a) Explain Principle and applications of HPLC | 06 |
| | (b) Discuss various Detectors and Pumps used in HPLC | 05 |
| | (c) Define: (i) Retention time (ii)Tailing factor (iii)Capacity factor (iv)Selectivity factor (v)Resolution | 05 |
| Q.2 | (a) Explain instrumentation with Schematic diagram and applications of HPTLC | 06 |
| | (b) What is gas chromatography? Explain different stationary phases used in gas chromatography | 05 |
| | (c) Enlist various detectors used in Gas chromatography. Explain any one in detail. | 05 |
| Q.3 | (a) Explain the principle and Instrumentation of affinity chromatography | 06 |
| | (b) Explain terms HETP, Peak asymmetry factor, Retention volume, Resolution | 05 |
| | (c) Write a brief note on Nephelometry and Turbidimetry with its applications | 05 |
| Q.4 | (a) Explain instrumentation with Schematic diagram and applications of HPTLC | 06 |
| | (b) Define: (i) Limit of detection (ii) Accuracy (iii) Precision (iv) Rf value (v) Calibration | 05 |
| | (c) Explain in detail flame and nebulizer burner system in flame photometry | 05 |
| Q.5 | (a) Write application, advantages and limitation of atomic absorption and atomic emission spectroscopy | 06 |
| | (b) Discuss about interferences in AAS. Write merits and demerits of AAS over AES | 05 |
| | (c) What is the Pharmacopoeial application of IR spectroscopy, how it helpful in identification | 05 |
| Q. 6 | (a) Explain the principle, working and advantages of FTIR with labeled diagram. | 06 |
| | (b) Explain HOOK'S LAW for prediction of IR frequency. Discuss factor affecting IR frequency. | 05 |
| | (c) Draw a well labeled diagram of Spectrofluorimeter. Write an instrumentation advantages, Limitation and application of fluorescence spectroscopy | 05 |
| Q.7 | (a) Write a note on Radiation Source, detectors and monochromators used in UV – VIS spectrophotometer | 06 |
| | (b) Discuss the effect of solvent and pH on spectral characteristic in UV visible spectroscopy | 05 |
| | (c) Explain the terms with reference to EMR: Diffraction, Reflection and Refraction | 05 |
