

GUJARAT TECHNOLOGICAL UNIVERSITY
B.Ph. SEMESTER-VII • EXAMINATION – WINTER-2020

Subject Code: BP701TP**Date:01/01/2021****Subject Name: Instrumental Method of Analysis****Time: 10:30AM To 12:30PM****Total Marks: 54****Instructions:**

1. Attempt any **THREE** questions from Q-1 to Q-6.
2. Q.7 is compulsory to attempt.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.

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|-------------|---|-----------|
| Q.1 | (a) Derive Beer's Law. Give reasons for deviations from Beer's law? | 06 |
| | (b) Define Chromophores, auxochromes and Bathochromic shift with example. | 05 |
| | (c) What is chemical quenching? Give its example. | 05 |
| Q.2 | (a) Explain sample handling in IR spectroscopy. | 06 |
| | (b) Describe Principle and instrumentation of Flame photometry. | 05 |
| | (c) Describe thermal detectors used in IR spectrophotometry. | 05 |
| Q.3 | (a) Describe principle involved in separation in TLC along with stationary Phases used in TLC. | 06 |
| | (b) Give advantages and disadvantages of Adsorption chromatography | 05 |
| | (c) What are the modes of development in paper chromatography? | 05 |
| Q.4 | (a) Write a note on Gel electrophoresis along with its applications. | 06 |
| | (b) Give applications of Thin Layer Chromatography. | 05 |
| | (c) Describe principle and applications of Atomic absorption spectroscopy | 05 |
| Q.5 | (a) What is the principle and which carrier gas is suitable for use in
a. Katharometer b. Flame ionization detector c. Electron capture detector | 06 |
| | (b) Differentiate between isocratic and gradient elution technique. | 05 |
| | (c) Define Retention time, Retention Volume, Resolution and HETP. | 05 |
| Q. 6 | (a) What is an Ion exchange resin? | 06 |
| | (b) Write factors affecting ion exchange chromatography | 05 |
| | (c) Give application of Gel and affinity chromatography. | 05 |
| Q.7 | (a) Which principle is involved in Normal Phase and Reverse Phase chromatography | 06 |
| | OR | |
| | (a) What are the different types of vibrations? Explain in detail | 06 |
| | OR | |
| | (a) Explain Instrumentation of UV-Visible spectrophotometer | 06 |
