

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. Pharm. – SEMESTER – VI • EXAMINATION – WINTER • 2016**

**Subject Code: 2260003**

**Date: 22-10-2016**

**Subject Name: Pharmaceutical Analysis - IV**

**Time: 02.30 pm To 05.30 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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|-------------|----------------------------------------------------------------------------------------------------------------|-----------|
| <b>Q.1</b>  | <b>(a)</b> Derive Bragg's law. Give importance of X-ray diffraction.                                           | <b>06</b> |
|             | <b>(b)</b> Give Principle of Gas Chromatography.                                                               | <b>05</b> |
|             | <b>(c)</b> What is Nuclear Chemistry? Write a note on Neutron Activation Analysis.                             | <b>05</b> |
| <b>Q.2</b>  | <b>(a)</b> Explain various Scattering Spectroscopy techniques with their applications.                         | <b>06</b> |
|             | <b>(b)</b> Describe generation and characteristic of X-rays.                                                   | <b>05</b> |
|             | <b>(c)</b> Give Principle and Applications of ion-exchange Chromatography.                                     | <b>05</b> |
| <b>Q.3</b>  | <b>(a)</b> What is Intellectual Property Right (IPR)? Write a note on GATT and TRIPS.                          | <b>06</b> |
|             | <b>(b)</b> Write a note on ISO 9001:2000.                                                                      | <b>05</b> |
|             | <b>(c)</b> Write a note on Basic issues of GLP.                                                                | <b>05</b> |
| <b>Q.4</b>  | <b>(a)</b> Give Instrumentation and applications of HPTLC.                                                     | <b>06</b> |
|             | <b>(b)</b> Write a note on detectors used in Gas Chromatography.                                               | <b>05</b> |
|             | <b>(c)</b> Write a note on Isotope dilution analysis.                                                          | <b>05</b> |
| <b>Q.5</b>  | <b>(a)</b> Give instrumentation of HPLC with labeled diagram.                                                  | <b>06</b> |
|             | <b>(b)</b> Give brief introduction of LC-MS and LC-MS/MS.                                                      | <b>05</b> |
|             | <b>(c)</b> Give Pharmaceutical Applications of HPLC.                                                           | <b>05</b> |
| <b>Q. 6</b> | <b>(a)</b> Enumerate Analytical Method Validation parameters as per ICH guidelines. Explain any two in detail. | <b>06</b> |
|             | <b>(b)</b> Write a note on Supercritical Fluid Chromatography.                                                 | <b>05</b> |
|             | <b>(c)</b> Write a note on Radio Immuno Assay (RIA).                                                           | <b>05</b> |
| <b>Q.7</b>  | <b>(a)</b> Explain. HETP, Peak asymmetry factor, Retention volume, Resolution.                                 | <b>06</b> |
|             | <b>(b)</b> Write a note on Stationary Phase and Mobile Phase used in HPLC.                                     | <b>05</b> |
|             | <b>(c)</b> Describe steps involved in filing of patent.                                                        | <b>05</b> |

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