

M. Pharm. First Semester (Industrial Pharmacy) (New)  
**35334 : Modern Pharmaceutical Analytical Techniques : MIP 101 T**

P. Pages : 1

Time : Three Hours



**AW - 2396**

Max. Marks : 75

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- Notes :
1. All question carry equal marks.
  2. Answer **any five** question.
  3. Diagrams and chemical equations should be given wherever necessary.
  4. Use of pen Blue/Black ink/refill only for writing the answer book.

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|----|---|----|
| 1. | Describe in detail principle and instrumentation of high performance liquid chromatography. | 15 |
| 2. | a) Write a note on paper chromatography.  | 7  |
|    | b) Discuss about flame emission spectroscopy.   | 8  |
| 3. | Explain theory instrumentation and applications of UV – visible spectroscopy.               | 15 |
| 4. | a) Explain theory and factors affecting fluorescence.                                       | 8  |
|    | b) Give details of production of X-rays & applications of X-ray diffraction.                | 7  |
| 5. | Discuss instrumentation and applications of NMR spectroscopy.                               | 15 |
| 6. | Describe theory and instrumentation of IR spectroscopy.                                     | 15 |
| 7. | Write note on <b>any two</b> .  | 15 |
|    | a) Radio immunology Assay.  |    |
|    | b) Gel Electrophoresis  |    |
|    | c) Paper chromatography   |    |

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