QP Code: 101350 **Reg No: ……**

First Year M.Pharm Degree Supplementary Examinations February 2018

Modern Analytical and Research Methods

(Common for all branches)

Time: 3 hrs **Maximum Marks: 100**

- ***Answer all questions***
- ***Draw diagrams wherever necessary***

Essays: **(2x20 =40)**

1. Critically evaluate the significance of statistical methods used in pharmaceutical research. Explain the following: ● Standard deviation ● Accuracy ● Precision ● Regression ● Coefficient of correlation

2. Explain the effect of infra red (IR) radiation in organic molecules with the help of a pictorial representation. Add a note on sample handling in IR spectroscopy and Fourier transform IR spectrophotometer.

Short Essays: **(6x10=60)**

3. Explain the working principle of gas chromatography. Add a note on significance of Van Deemter equation in understanding the chromatographic columns.

4. Explain nuclear overhauser effect (NOE) and spin-spin coupling and how the two differ in determination of molecular structures.

5. Describe X-ray crystallography and explain the principle & application of Bragg's law.

6. Explain fluorescent immunoassay and its applications

7. Explain the theory and instrumentation of an atomic absorption spectrophotometry (AAS). Add a note on hydride generator and its uses in AAS.

8. Explain the theory of chromatographic separation in thin layer chromatography (TLC). What are the different stationary phases used in TLC

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