

QP Code: 721006

Reg. No.....

**Seventh Semester B. Pharm Degree Special Supplementary  
Examinations July 2022  
Instrumental Methods of Analysis  
(2017 Scheme)**

**Time: 3 Hours**

**Max. Marks: 75**

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw diagrams wherever necessary*

**Essays**

**(2x10=20)**

1. Explain Beer-Lambert's law. Derive the Beer-Lambert's equation and explain the deviations.
2. With the help of a schematic diagram, explain the instrumentation of HPLC. Add a note on detectors used in HPLC.

**Short Notes**

**(7x5=35)**

3. Explain the different types of spectral shifts observed in UV – visible spectroscopy.
4. Classify sampling techniques in IR spectroscopy. How to prepare solid samples by pressed pellet technique to obtain IR spectrum.
5. Enlist and explain with example the qualitative applications of UV spectroscopy.
6. What is programmed temperature gas chromatography. Write its principle and advantages.
7. Why high pressure pumps are important in HPLC. Explain the working of reciprocating pump.
8. Define and classify chromatography. Explain the mechanisms of separation in chromatography.
9. Differentiate between free boundary electrophoresis and zone electrophoresis. Write the procedure and applications of paper electrophoresis.

**Answer Briefly**

**(10x2=20)**

10. Define quenching of fluorescence.
11. Differentiate between Hyperchromic and hypochromic effect using UV Spectra.
12. Why photomultiplier tube is considered as the most sensitive detector in UV spectroscopy.
13. What is the finger print region of IR Spectrum.
14. Any two applications of gel filtration chromatography.
  
15. What are the factors affecting the "Chromatographic column efficiency.
16. Explain how softening of hard water could be achieved by using "Ion exchange chromatography
17. What is two dimensional development in TLC. Explain its importance.
18. Explain with examples the specific and non-specific detection techniques in TLC.
19. Differentiate between normal phase and reversed phase chromatography.

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