

QP Code: 721006

Reg. No.....

**Seventh Semester B. Pharm Degree Regular/Supplementary  
Examinations February 2023  
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. With the help of a ray diagram, explain the instrumentation requirements of UV spectrophotometer. Discuss the working of Photomultiplier tube in detail.
2. Define and classify Chromatography. With the help of van-Deemter equation and van-Deemter plot, discuss the factors influencing the efficiency of separation.

**Short Notes**

**(7x5=35)**

3. Explain simultaneous equation method of multicomponent analysis.
4. With the help of neat and labelled diagram, write a note on Golay detector used in IR spectroscopy.
5. What is quenching. List and explain the types of quenching and factors affecting quenching.
6. Discuss the steps involved in Paper chromatography. Discuss the importance of Chamber saturation in paper chromatography.
7. Discuss the mechanism of ion exchange chromatography. Discuss the applications of ion exchange chromatography.
8. Explain the construction and working of thermal conductivity detector in GC.
9. What is the principle of Electrophoresis. Explain the factors in electrophoresis. Write the procedure and applications of paper electrophoresis.

**Answer Briefly**

**(10x2=20)**

10. Differentiate between Bathochromic and hypsochromic shifts with the help of UV Spectra.
11. What is Quenching. List the factors responsible for quenching of fluorescence.
12. What are the ideal properties of a UV detector.
13. Why emission wavelength is always longer than absorption wavelength.
14. Write the formulae and explain how the Number of Theoretical plate can be determined from a chromatogram
15. Why activation of chromatographic plate is important in adsorption TLC
16. Explain how softening of hard water could be achieved by using Ion exchange chromatography
17. Differentiate between Isocratic elution and gradient elution in HPLC.
18. Write briefly on carrier gases used in GC.
19. Explain the working of "Rotary sample valve/loop injection" used for sample injection in HPLC.

\*\*\*\*\*

<b>CORRECTION / NO-CORRECTION FILE</b>
--

**QPCODE: 721006**

**Dated: 13-02-2023**

**Question No.5**

Replaced with “Explain the construction and working of Hollow Cathode Lamp with the help of a neat diagram.”

**Question No.16**

Replaced with "Explain the principle of affinity chromatography."

**Corrections/Modifications/Replacement of Questions if any shall be made available to all students. Take the print out of the Correction File in such cases and distribute to all students.**

(Sd/-)

**CONTROLLER OF EXAMINATIONS**