

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**VII Semester B. Pharm Degree Examination – 18-Jun-2022**

**Time: Three Hours**

**Max. Marks: 75 Marks**

**INSTRUMENTAL METHODS OF ANALYSIS**  
**Q.P. CODE: 5029**

Your answers should be specific to the questions asked  
Draw neat labeled diagrams wherever necessary  
All the Questions are compulsory

**LONG ESSAYS**

**2 x 10 = 20 Marks**

1. Discuss in detail the concept of EMR, energies in organic molecule and electronic transitions in UV-visible spectroscopy.  
**OR**  
Draw a neat labelled diagram of IR spectrometer and explain the sample handling techniques in IR.
2. Explain the instrumentation of HPLC.

**SHORT ESSAYS**

**7 x 5 = 35 Marks**

- Write a note on solvent effects in UV spectroscopy.  
**OR**  
Discuss the factors affecting fluorescence.
4. Explain the steps involved in Flame photometry.  
**OR**  
Define and explain the factors affecting electrophoresis.
5. Discuss the development and visualisation techniques in paper chromatography.
6. Explain the various steps involved in separation of samples by column chromatography.
7. Write the construction and working of any two GC detectors.
8. Classify and explain the mechanism of separation of ion exchangers in ion exchange chromatography.
9. Add a detail note on gel chromatography.

**SHORT ANSWERS**

**10 x 2 = 20 Marks**

10. Define the terms absorptivity and auxochromes.
1. Write the difference between fluorescence and phosphorescence.
12. What are the functional groups absorbing the wave number  $3400\text{cm}^{-1}$  and  $1715\text{cm}^{-1}$ ?
13. Write the difference between nephelo and turbidometry.
14. Define the term retention time & retention volume.
15. Differentiate between normal and reverse phase chromatography.
16. Write the difference between resolution and separation factor.
17. Explain any one derivatisation technique in GC.
18. Application of ion exchange chromatography.
19. What stationary phase is used in affinity chromatography?

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