Rajiv Gandhi University of Health Sciences, Karnataka

IV Year B.Pharm Degree Examination – NOV 2016

Time: Three Hours **Max. Marks: 80 Marks**

INSTRUMENTAL & BIO-MEDICAL ANALYSIS
(Revised Scheme - 2)
Q.P. CODE: 1967

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is chromatography? Classify based on principles of separation and explain them briefly.
2. Draw a neat, labeled schematic diagram of a double beam UV-Visible spectrophotometer and explain its working. Discuss the construction and working of any two detectors used in UV-Visible spectrophotometers.
3. What is photoluminescence? Explain the phenomena with the help of an energy diagram. Derive an expression to show the relationship between fluorescence and concentration.

SHORT ESSAYS (Answer any Eight) **8 x 5 = 40 Marks**

4. Discuss the different types of ion sensitive electrodes.
5. What shape of curve do you expect for each of the following conductometric titrations? Justify your answer. (a) HCl versus NaOH (b) sodium acetate versus HCl
6. Give a mathematical expression to show the relationship between absorbance and concentration. Differentiate Specific absorption co-efficient and Molar absorption co-efficient.
7. Briefly explain the methodology for prevention of quality variation.
8. Explain the different nebulizing systems used in flame emission spectroscopy.
9. Explain half wave potential. What is its significance in polarography?
10. What are the structural features required for a compound to show fluorescence?
11. Write a note on spectrophotometric titrations.
12. Describe the preparation, development, detection and recovery of components in preparative TLC.
13. Explain the terms: chemical shift and spin-spin coupling.

SHORT ANSWERS **10 x 2 = 20 Marks**

14. Define R_f and R_m values.
15. Differentiate between GLC and GSC.
16. Name any four radiation sources used in IR spectrophotometers.
17. Name any four solvents used in UV-visible spectrophotometry.
18. List four applications of nephelo turbidometry.
19. Explain the effect of temperature on fluorescence.
20. Draw a typical potentiometric titration curve and first derivative curve.
21. What are the different types of ions produced in a mass spectrometer?
22. Which functional groups are indicated for IR absorption peaks of 1700cm^{-1} and 3400cm^{-1}?
23. What is liquid junction potential? How can it be eliminated?

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