Rajiv Gandhi University of Health Sciences, Karnataka

IV Year B.Pharm Degree Examination – JAN-2019

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. Compare the principle, technique, limitations and applications of paper chromatography with paper electrophoresis.
2. Describe the construction and working, advantages, disadvantages and applications of a standard hydrogen electrode.
3. Enumerate detectors used in IR spectrometers. Explain with the diagrams, the principle involved in the working of thermal detectors in IR spectroscopy.

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

4. Describe the different analytical methods of determining end-point in potentiometric titrations.
5. What is quenching? Explain various types of quenching with suitable examples.
6. What is the principle underlying conductometric titration? Explain titration curves for displacement conductometric titration with examples.
7. Describe and classify ion exchange resins. Explain the factors that determine the distribution of ions between an ion exchange resin and a solution.
8. Explain two - dimensional and reverse phase chromatography. Emphasize the application of these techniques.
9. What are monochromators? Describe the principle underlying the production of monochromatic radiations using prisms and gratings.
10. What is fluorescence and phosphorescence? Explain the concept of fluorescence through energy level diagram.
11. Derive an equation for "Half wave potential".
12. What is group frequency region and finger print region in an infrared spectrum? Write characteristic fundamental infrared absorption wave numbers for following compounds: a. Aniline b. Acetone
13. With the help of titration curves, describe the principles of potentiometric titrations.

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

14. Draw the spectrophotometric titration curve for a system wherein the product alone absorbs, while the substance titrated and titrant are not absorbing the radiation.
15. Explain the significance of the two filters in a fluorimeter.
16. Write the advantages of thin-layer chromatography over paper chromatography.
17. What is programmed temperature gas chromatography?
18. State Lambert – Beer's law and write its mathematical expression.
19. What is chemical shift?
20. What is the role of a supporting electrolyte in polarography?
21. What are the advantages of a double beam spectrophotometer over a single beam instrument?
22. Define indicator and reference electrode. Give examples.
23. Explain absorption maxima. How it is determined?

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