Con. 5239-08.

Nov. 08

RS-4727

(2 Hours)

[Total Marks : 35

2008-09

N.B. : (1) Question No. **1** is **compulsory**.
     (2) Attempt any **four** questions from the remaining **six** questions.
     (3) **Figures** to the **right** indicate **full** marks.
     (4) Draw **neat** labelled diagram wherever **necessary**.

1. (a) Explain the following terms (any **four**) :–   4
     (i) Radio Chemical Purity
     (ii) Gradient elution
     (iii) R_f value
     (iv) RIA
     (v) Head space analysis.
   (b) Name the following (any **three**) :–   3
     (i) A scintillant used in scintillation counter.
     (ii) Two spraying reagents used to develop paper chromatography.
     (iii) A statistical parameter which gives an indication of the linearity of a method
     (iv) A bulk property detector for HPLC.

2. (a) What is meant by validation of analytical method ? Define the following parameters :–   4
     (i) Limit of Quantification
     (ii) Robustness
     (iii) Accuracy.
   (b) Discuss the various columns used in gas chromatography.   3

3. (a) What are immunoassays ? When are they used ? Explain in brief Elisa technique.   4
   (b) Draw the diagram of an injection valve used in HPLC in load and inject position.   3

4. (a) Explain the principle for thermogravimetry and give its pharmaceutical applications.   4
   (b) Write a short note on TLC.   3

5. (a) Draw the block diagram of flame photometry. List the various types of burners used in flame photometry and explain any one in brief.   4
   (b) Define the term sampling. Discuss in detail the sampling plan.   3

6. (a) What are the safety measures to be taken for radiation protection in laboratory ? Write a note on isotope dilution analysis.   4
   (b) The following replicate data were obtained for the concentration of a drug in the sample :   3
     0·09 mg,   10·15 mg,   10·12 mg,   10·20 mg,
     10·10 mg,   10·02 mg,   10·29 mg,
     10·27 mg,   10·31 mg,   10·19 mg.
     Given : The tabulated value of t at 95% confidence interval and 9 degree of freedom is 1·83
     Use t-test to see if the true mean concentration of the drug is 10·27 mg at 95% confidence interval.

7. Write short notes on (any **two**) :–   7
     (a) Statistical Quality control charts.
     (b) Size exclusion chromatography
     (c) Atomic absorption spectroscopy
     (d) Quality control of Radio-pharmaceuticals.