



Name :

Roll No. :

Invigilator's Signature :

CS/B.Pharm (NEW)/SEM-3/PT-301/2010-11

2010-11

PHARMACEUTICAL ANALYSIS

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :
10 × 1 = 10
- i) Complexing agent soluble in water is called as
 - a) Complexing formation agent
 - b) Chelating agent
 - c) Sequestering agent
 - d) Additional agent.
 - ii) The catalyst used in Kjeldahl's method of nitrogen estimation is
 - a) CuSO_4
 - b) $(\text{NH}_4)_2\text{SO}_4$
 - c) K_2SO_4
 - d) H_2SO_4 .
 - iii) In gel permeation chromatography molecules are separated on the basis of their
 - a) chemical properties
 - b) physicochemical properties
 - c) partition coefficient
 - d) size and shape.

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- iv) In reverse phase HPLC the stationary phase would be
- Polar
 - Non-polar
 - Non-polar with long chain hydrocarbon
 - None of these.
- v) $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]$ is called
- Tetraaquo chromium (II) chlorochloride
 - Tetraaquo chlorochromium (IV) chloride
 - Tetraaquo chlorochromium (III) chloride
 - Tetraaquo chromium (III) cobalt chloride.
- vi) Retention time is associated with
- TLC
 - HPLC
 - Gas chromatography
 - Complexometric titration.
- vii) Which of the following indicators is used in complexometric titration ?
- | | |
|--------------------|-------------------|
| a) EBT | b) methyl red |
| c) phenolphthalein | d) none of these. |
- viii) Photodiode array detector is used in
- HPLC
 - TLC
 - GC
 - Paper chromatography.
- ix) Dropping mercury electrode consists of
- | | |
|----------------------|-----------------------|
| a) mercury reservoir | b) tungsten reservoir |
| c) silver reservoir | d) all of these. |



- x) In GLC, Katharometer acts by measuring
- Ionisation
 - Thermal conductivity
 - UV absorption
 - Refractive index.
- xi) To remove iron impurities from silica gel G layer, solvents used are
- Methanol and Chloroform
 - Chloroform and Ethanol
 - Ethanol and Petroleum Ether
 - Methanol and conc. HCl.
- xii) The composition of Karl Fischer reagent is
- I_2 , SO_2 , C_5H_5N & CH_3OH
 - Br_2 , SO_2 , C_5H_5N & CH_3OH
 - I_2 , NH_3 , C_5H_5N & CH_3OH
 - I_2 , SO_2 , C_2H_5OH & C_5H_5N .

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- How would you prepare and standardise 0.1 (N) perchloric \bar{a} .
- Determine the pH of a solution by using a glass electrode. Draw and label a standard calomel electrode. $3 + 2$
- Write a short note on making and damasking agents with suitable examples.
- Write down the principle involved in the estimation of nitrogen by Kjeldahl method.
- What do you mean by gradient and successive elution.



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Explain the detectors used in Gas chromatography. What do you mean by wall coated and open tubular column ? Give the methods of plate preparation in TLC. $8 + 3 + 4$
8. Give the working principle of HPLC and describe its operation along with a neat labelled diagram. Give the applications of HPLC. $12 + 3$
9. What is the basic principle of diazotization titration ? Why is temperature control essential for such titration ? How will you prepare and standardize 0.1 (M) 800 nitrite solution ? Give examples of three omgs where diazotization titration can be used ? $4 + 2 + 6 + 3$
10. What do you mean by Warner's Co-ordination number ? “ p^M indicators are chelating agent but all chelating agents are not p^M indicators”. Explain. What is the nature of the complexes of EDTA with di-, tri- and tetravalent metals ? Write down the general principles involved in EDTA titration ? $1 + 4 + 6 + 4$
11. Describe briefly the apparatus used in Amperometric titration. Write down three advantages and disadvantages of Amperometric titration. What do you mean by Potentiometric analysis ? Write down the advantage and disadvantage of Potentiometric titration over indicator titration. $4 + 4 + 2 + 5$

