CS/B.PHARM(N)/SEM-3/PT-301/2012-13

2012

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 :

$$10 \times 1 = 10$$
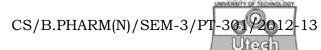
   i)   Separation in ThC is based on the principle of

   a)   adsorption   b)   partition

   c)   absorption   d)   none of these.

   ii) The factor affecting the diffusion current in polarography is measured by

   a)   Beers law   b)   Nernst equation

   c)   Ilkonic equation   d)   Ionic equation.

   iii) A catalyst used in Kjeldhal method of nitrogen estimation is

   a)   sulphuric acid   b)   potassium sulphate

   c)   copper sulphate   d)   ammonium sulphate.

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iv) Diazotization titration for a drug can be carried out when it has

    a) at least one aromatic amine group

    b) at least one aliphatic primary amine group

    c) at least two aromatic amine function

    d) all of these.

v) The digestive acid in Kjeldhal nitrogen estimation is

    a) HCl b) H_2SO_4

    c) $HClO_4$ d) HNO_3.

vi) Temporary hardness of water is due to the presence of

    a) calcium chloride   b) calcium bicarbonate

    c) calcium sulphate   d) calcium carbonate.

vii) Which of the following compound is suitable for detection of water in Karl-Fischer titration ?

    a) Ascorbic acid   b) Starch

    c) Zinc oxide   d) Ampicillin.

viii) Triethanolamine is used to make

    a) aluminium   b) magnesium

    c) potassium   d) all of these.

ix) The Rf value in ThC indicates

    a) retention factor   b) retention time

    c) release factor   d) resolution factor.

x) In titration of EDTA and zinc with EBT indicator pH should be

    a) 1   b) 2

    c) 7   d) 10.

xi) Which one can be used as amphitrotic solvent in non-aqueous titration ?

    a) Alcohol   b) Ammonia

    c) Acetic acid   d) Both (b) and (c).

xii) In reverse phase chromatography the mobile phase is

    a) silica gel   b) ODS

    c) polar   d) non-polar.

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GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following   3 × 5 = 15

2. What is half-wave potential ? How to determine the pH of a solution by using Glass electrode ?   2 + 3

3. What is Diazotization titration ? What is the principle of the titration ?

4. Show the typical conductometric curve (i) Weak acid with a strong base, (ii) Strong acid with strong base, (iii) Strong acid with weak base, (iv) Strong acid with strong base.

5. Differentiate (any *two*) :   2 × 2½

 i) Peak tailing and fronting

 ii) Wall coated and support coated open tubular column

 iii) Gradient and isocratic elution.

6. What is chromatography ? Write the principle of HPLC and TLC. What is stationary phase ?   2 + 2 + 1

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.   3 × 15 = 45

7. a) What do you mean by masking reaction ? Give example. What is the effect pH and stability constant on complex formation ?

 b) Why the titration of weak bases are done with perchloric acid in acetic acid ? Write proper reactions.

 c) Write in brief about the solvents used in non-aqueous titration ?   (2 + 3 + 3) + 4 + 3

8. a) Give working principle of Gas Liquid Chromatography and describe its operation with a neat labelled diagram.

   b) Define Warner's Coordination number. How do you prepare and standardize 0·05 M disodium EDTA solution. $7 + (3 + 5)$

9. What do you mean by potentiometry ? Write the principle of it. Write a detail note on it with diagram of a simple potentiometer. Give a note on electrodes used in potentiometry. Write the application of potentiometry in analysis of substarces. $1 + 2 + 4 + 3 + 5$

10. a) Why love temperature is used in diazotization reaction. Name one indicator used in such a titration. How does the indication factor.

   b) Prepared and standardized of 0·1 N sodium methoxide solution. Role of acetic anhydride during standardization of 0·1 N perchloric acid.

   c) A 10 ml sample solution of 0·5% w/v magnesium sulphate $MgSO_4$, $7H_2O$ (MW 246·48), into it add 100 ml water 2 ml ammonia ammonium chloride buffer and erichrome black-T indicator was added and heat at 40°C and mixture was titrated with 3·9 ml, 0·051 M ethylenediamine tetra acetic acid. Calculate the percent purity of the sample. $5 + (5 + 2) + 3$

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