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Total No. of printed pages = 4

BP 102 T

Roll No. of candidate

2023

B.Pharm. 1st Semester (Regular) End-Term Examination

PHARMACEUTICAL ANALYSIS – I

(New Regulation)

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Multiple Choice Questions (MCQ / Answer *all* questions) : (20 × 1 = 20)

(i) Molarity is molecular weight of substance present in ————————.

(a) 1000 ml of solution (b) 500 ml solution

(c) 100 ml of solvent (d) 100 gm of solvent

(ii) Potassium dichromate is used

(a) For assay of reducing agents (b) For assay of metal ions

(c) As an indicator (d) To control pH in titrations

(iii) Determination involving direct titration with iodine is known as

(a) Iodometry (b) Iodine sodium titration

(c) Iodimetry (d) Dichromometry

(iv) Closeness of results to true value is ————————.

(a) Precision (b) Error

(c) Accuracy (d) Standard deviation

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(v) When EDTA is used in the complexometric titration, the pH of the solution kept is basic? Why?

(a) Reaction rate is optimum in basic pH

(b) There is less number of side reaction

(c) For the stability of complex formed

(d) All of the above

(vi) ———— is not an amphiprotic solvent.

(a) Water (b) Acetic acid

(c) Alcohol (d) None of these

(vii) The assay of ———— is performed by non-aqueous titration.

(a) Magnesium sulphate (b) Barium sulphate

(c) Ephedrine hydrochloride (d) Benzoic acid

(viii) The number of significant figures in 0.030500 km are

(a) 7 (b) 6

(c) 5 (d) 3

(ix) The indicator(s) used in Fazan's method is

(a) Potassium chromate (b) Fluorescein

(c) Tartrazin (d) Both (b) and (c)

(x) Potentiometry is type of ———— method.

(a) Spectroscopic (b) Chromatographic

(c) Classical (d) Electro-chemical

(xi) PPM means

(a) Parts per million (b) Percent per million

(c) Percentage purity in millions (d) None of these

(xii) ———— is the process by which a coagulated colloid reverts to its original dispersed state.

(a) Peptization (b) Precipitation

(c) Chelation (d) Granulation

(xiii) Which of the following drugs can be estimated by diazotization titration?

(a) Ephedrine (b) Amphetamine

(c) Procaine (d) All

(xiv) Which of the following ions has the highest ion mobility in aqueous solution at 298 K?

(a) Ba^{+2} (b) OH^-

(c) CH_3COO^- (d) H^+

(xv) Example of polyprotic base is

(a) NO_3^- (b) PO_4^{3-}

(c) OH^- (d) Cl^-

(xvi) Name the assay method for calcium gluconate tablets

(a) Non aqueous titration (b) Acid base titration

(c) Complexometric titration (d) Iodometric

(xvii) In polarography any change in diffusion current is denoted by

(a) Ikovic equation (b) Nernst equation

(c) Arrhenius equation (d) Oswald's equation

(xviii) Co-precipitation occurs

(a) In acidic medium (b) In alkaline medium

(c) At the time of precipitation (d) After the precipitation

(xix) Which of the following compound contains carbon with oxidation number '–3'?

(a) $CHCl_3$ (b) C_2H_6

(c) C_2H_2 (d) C_2H_4

(xx) Which electrode is used in potentiometry?

(a) pH meter (b) Dropping mercury electrode

(c) Polarisable electrode (d) All

2. Answer any *seven* questions : $(7 \times 5 = 35)$

(a) What is diffusion current? Discuss the factors that affect this current during a polarographic analysis. (1 + 4)

(b) Write the theory and applications of diazotization titration.

(c) Briefly describe various categories of errors with suitable examples.

(d) Which one between aqueous and non-queous titration would be preferred for the titration of a weak base? Justify your choice. Name two drugs for their estimation using non-aqueous titration method. (3 + 2)

(e) Explain the colors of Phenolphthalein in different pH using Quinonoid theory.

(f) Give an account on complexometric titration and its types.

(g) Describe construction and working of one reference electrode with neat diagram.

(h) What are redox indicators? Classify them. Define cerimetry. (3.5 + 1.5)

(i) Write a note on Mohr's method with all its advantages and disadvantages.

3. Answer the following questions : (any *two*) (2 × 10 = 20)

(a) What do you understand by equivalent conductivity? Explain in detail about various conductometric titrations. (2 + 8)

(b) What is precipitation gravimetry? Write a note on filtration and washing of precipitate in gravimetry. Write the features of colloidal precipitates. (1 + 7 + 2)

(c) Write notes on the following : (4 + 3 + 3)

(i) Mixed indicators

(ii) Titration curve of weak acid and weak base

(iii) Common Ion Effect.