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BP 102 T

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2021

B.Pharm. 1st Semester (Regular) Examination

PHARMACEUTICAL ANALYSIS – I (Theory)

(New Regulation w.e.f. 2017-18)

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) Accuracy is defined as:
- (a) A measure of how often an experimental value can be repeated
(b) The closeness of a measured value to the real value
(c) The number of significant figures used in a measurement
(d) None of these
- (ii) Diazotization titrations are directly used for
- (a) Primary Amines (b) Secondary Amines
(c) Primary Aromatic amines (d) Secondary aromatic amines
- (iii) The Ilkovic equation is
- (a) $i_d = 600 n C D^{1/2} m^{2/3} t^{1/6}$ (b) $i_d = 600 n C D^{1/5} m^{2/3} t^{1/6}$
(c) $i_d = 607 n C D^{1/2} m^{2/8} t^{1/9}$ (d) $i_d = 607 n C D^{1/2} m^{2/3} t^{1/6}$
- (iv) Which of the following is protogenic solvent?
- (a) Sulphuric acid (b) Formic acid
(c) Both (d) None of these

[Turn over

- (v) As the $[\text{H}_3\text{O}^+]$ in a solution decreases, the $[\text{OH}^-]$
- Increases and the pH increases
 - Increases and the pH decreases
 - Decreases and the pH increases
 - Decreases and the pH decreases
- (vi) The number of significant digits in 540.00610 is
- 5
 - 6
 - 7
 - 8
- (vii) The colour change for methyl red is _____ when pH changes from acidic to alkaline.
- Colourless to pink
 - Yellow to red
 - Red to blue
 - Red to yellow
- (viii) All of the following drugs are assayed by complexometric titrations except.
- Calcium gluconate
 - Amantadine
 - Calcium levulinate
 - Magnesium stearate
- (ix) Digestion involves dissolution of small particles and reprecipitation on larger ones resulting in particle growth and better precipitate characteristics. This process is called:-
- Adsorbate
 - Occlusion
 - Inclusion
 - Ostwald ripening
- (x) Which is not a self indicator?
- Ceric sulphate
 - Potassium ferricyanide
 - Iodine
 - Potassium permanganate
- (xi) Solubility product of the precipitate formed must be.
- High
 - Low
 - Zero
 - It does not have any effect
- (xii) Non-aqueous titration is carried out for
- Weakly Insoluble drugs
 - Weakly acidic drugs
 - Weakly basic drugs
 - All of the above

- (xiii) A person unable to judge the lower meniscus of burette at the end point during the titration comes under
- (a) Error of method (b) Instrumental error
(c) Personal error (d) All of the above
- (xiv) The Ag/AgCl electrode used in potentiometric titrations consists of:
- (a) Silver wire coated with silver chloride
(b) A silver wire coated with KCl
(c) A silver wire coated with AgCl and dipped into a solution of KCl
(d) All of the above
- (xv) Precision is calculated by
- (a) Standard deviation (b) Mean
(c) Median (d) Mode
- (xvi) pH for Eriochrome black T indicator is _____
- (a) 2-3 (b) 6-7
(c) 8-9 (d) 4-5
- (xvii) The most widely used indicator electrode in polarography is
- (a) Saturated calomel electrode (b) Dropping mercury electrode
(c) Pool of mercury (d) None of the above
- (xviii) When the amount of solute is expressed as moles per kilogram of the solvent, it is called
- (a) Normality (b) Molarity
(c) Mole fraction (d) Molality
- (xix) Which is not a primary standard substance
- (a) Na_2CO_3 (b) $\text{Na}_2\text{C}_2\text{O}_4$
(c) H_2SO_4 (d) KHP
- (xx) Find the incorrect statement for direct titration method under complexometric titration.
- (a) Slow complexation reaction
(b) Interference occurs due to the presence of other ions
(c) Both
(d) None of the above

2. Short answers (Answer seven out of nine) (7 × 5 = 35)
- (a) Write the working principle and construction of calomel electrode. (5)
 - (b) What are conductometric titrations. Explain the conductometric method used to determine the end point of strong acid and strong base. (1 +4)
 - (c) Explain in detail the indicator theory of acid-base titration. (5)
 - (d) What are primary standards? What are the properties of primary standard? Explain the procedure for the standardization of potassium permanganate. (1+2+2)
 - (e) Write the basic principle and application of diazotisation titration. (2+3)
 - (f) Write the procedure for estimation of barium sulphate. (5)
 - (g) Explain the different types of EDTA titrations. (5)
 - (h) Describe the methods to determine the end point of potentiometric titration. (5)
 - (i) What are neutralization titration? Explain the neutralization curve for weak acid and weak base. (1 +4)
3. Long answers (Answer two out of three) (2 × 10 = 20)
- (a) Describe the principle and application of cerimetry, iodometry, iodimetry, dichrometry and bromatometry. (2+2+2+2+2)
 - (b) Define errors. Briefly explain the different types of error with examples. What are the methods to minimize these errors? (1+5+4)
 - (c) Describe the principle and procedure involved in the modified Volhard's method of titration with example. (2+4+4)
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