

11.06.14 (2nd Sem Reg.)

ASTU

Total No. of printed pages = 6

PY132203

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2014

(Even Semester)

PHARMACEUTICAL ANALYSIS - I

Full Marks-100 Pass Marks-35 Time-Three hours

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

1. Choose the correct answer : $1 \times 10 = 10$

(a) Salicylic acid is assayed by :

- (i) Non-aqueous titration
- (ii) Complexometric titration
- (iii) Acid base titration
- (iv) Redox titration.

(b) Phenolphthalein indicator shows red colour
between pH range

- (i) 8-10
- (ii) 7-8
- (iii) 6-8
- (iv) 5-7

[Turn over

(c) Hydrogen peroxide is a

- (i) Oxidizing agent
- (ii) Reducing agent
- (iii) Both (i) and (ii)
- (iv) None of these

(d) pH of 1M HCl is

- (i) 1
- (ii) 0
- (iii) 2
- (iv) 1.3

(e) Equivalent weight of sulphuric acid is

- (i) 31
- (ii) 36.5
- (iii) 49
- (iv) 98

(f) Potassium chromate indicator is used in the

- (i) Acid base titration
- (ii) Precipitation titration
- (iii) Redox titration
- (iv) Iodometric titration

(g) Starch indicator is used in iodometric titration (at the)

- (i) Beginning of the titration
- (ii) Middle of titration
- (iii) Nearing the end point
- (iv) Indicator not required

(h) Colour of methyl orange indicator in acid solution is

- (i) Red
- (ii) Orange
- (iii) Yellow
- (iv) Pink

(i) Reducing agents

- (i) Accept electron
- (ii) Donate electron
- (iii) Both (i) and (ii)
- (iv) None of these

(j) Potassium permanganate can be used as a primary standard

- (i) Yes
- (ii) No

2 Answer any *ten* questions : $4 \times 10 = 40$

- (a) Why freshly boiled and cooled water is used while preparing sodium thiosulphate solution ?
- (b) Two indicators are used in the titration of sodium hydroxide. Why ?
- (c) Explain the modern concept for acid and bases.
- (d) Explain and derive Henderson-Hasselbach equation.
- (e) Discuss the precipitation techniques used in gravimetric analysis.
- (f) Significance of quantitative analysis in quality control.
- (g) Explain the principle of common ion effect.
- (h) Discuss the importance of Law of Mass Action.
- (i) State the difference between Mohr's and Volhard's method of titration.
- (j) Differentiate between precision and accuracy.
- (k) Write a note on thermogravimetric curves.
- (l) What are solubility products ? Explain.

3 Answer any *five* questions : $5 \times 10 = 50$

- (a) Discuss the method of preparation and standardization of 1M KMnO_4 solution.
- (b) Explain the theory of neutralization and the method for choosing indicators.
- (c) (i) A buffer solution of 100 ml is prepared by mixing 0.5M acetic acid and 0.5M sodium acetate. Calculate the change of pH upon addition of 5 ml of 0.1M HCl.
- (ii) Calculate the pH of 0.5M potassium benzoate solution. (pK_a of benzoic acid = 3.5)
- (d) State the essential factors for successful gravimetric analysis and explain the role of super saturation in deciding the condition of precipitation.
- (e) What do you mean by oxidation reduction cell ? Describe the estimation of vitamin C tablets by ceric ammonium nitrate.
- (f) Discuss the theory of indicators in argentometric titration involving potassium chromate and ferric thiocyanate as examples.

(g) (i) Show the steps involved in balancing chemical equations for oxidation of H_2O_2 with KMnO_4 in acidic media.

(ii) Define oxidation number and state the rules followed to determine oxidation number.