

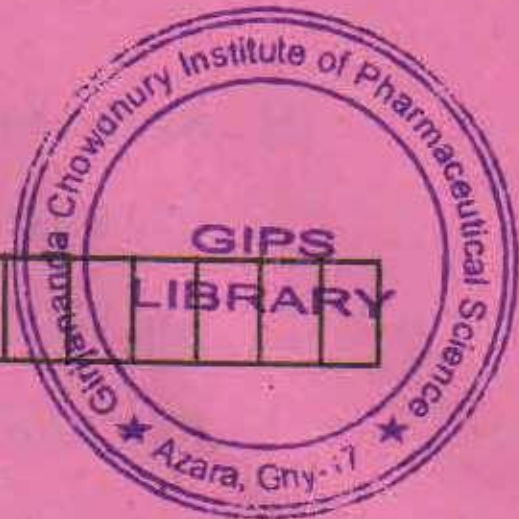
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2017

B. Pharm 2nd Semester End-Term Examination

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 answers : $1 \times 10 = 10$

(a) Potassium permanganate can be used as

- (i) Oxidising agent
- (ii) Reducing agent
- (iii) Both the above
- (iv) None of the above.

(b) pH of 1 M hydrochloric acid is

- (i) > 1
- (ii) < 1
- (iii) 0
- (iv) None of the above.

[Turn over

(c) Silver chloride is assayed by

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

(d) Oxidation number of Mn in MnO_2 is

- (i) -4
- (ii) $+2$
- (iii) -2
- (iv) $+4$

(e) K_a value for acetic acid is

- (i) 1.8×10^{-5}
- (ii) 4.76
- (iii) Acetic acid does not have K_a value
- (iv) None of the above.

(f) 1 M Hydrochloric acid is equal to

- (i) 0.5 N
- (ii) 1.5 N
- (iii) 2 N
- (iv) 1 N

- (g) Iodometry is defined as
- (i) Indirect titration of iodine
 - (ii) Direct titration of iodine
 - (iii) Both (i) and (ii)
 - (iv) None of the above.
- (h) Sodium acetate is
- (i) a basic salt
 - (ii) an acidic salt
 - (iii) a neutral salt
 - (iv) None of the above.
- (i) The colour of Methyl orange indicator in acidic medium is
- (i) Violet
 - (ii) Red
 - (iii) Blue
 - (iv) None of the above.
- (j) 1,10-phenanthroline is
- (i) an acid base indicator
 - (ii) a redox indicator
 - (iii) an indicator used in precipitation titration
 - (iv) not an indicator.

2. Answer any *five* questions : 2×5=10

- (a) Define titrant and molal solution.
- (b) Why potassium iodide is added in the preparation of iodine solution ? Write down the function of starch in oxidation reduction titration.
- (c) What is water of hydration ?
- (d) What is principle of standardization of potassium bromate ?
- (e) How potassium permanganate behaves as self indicator ?
- (f) (i) The example of method of error is _____.
 - (a) Kjedadahl's method
 - (b) Mohr's method
 - (c) Gary-Cussac method
 - (d) Volhard's method
- (ii) The strengths of the acids and bases depends upon
 - (a) Degree of dissociation
 - (b) Degree of saturation
 - (c) Both (a) and (b)
 - (d) None of the above.

3. Answer any *eight* questions : 8×5=40

- (a) Why freshly boiled and cooled water is used to dissolve sodium thiosulfate ?
- (b) Explain common ion effect with suitable example.
- (c) Hydrogen peroxide behaves as both oxidising and reducing agent. Why ?
- (d) Glycerol is added in the titration of boric acid. Why ?
- (e) State the rule for determining oxidation number.
- (f) Starch is added near the end point of iodometric titration. Why ?
- (g) Derive Handerson-Hasselbatch equation for buffers.
- (h) Explain why water behaves as an amphoteric solvent.
- (i) What is the pH of 0.01 M ammonia solution ? (pK_b for ammonia is 9.3)
- (j) Potassium permanganate can not be used as primary standard. Why ?

4. Answer any *four* questions : 4×10=40

- (a) State the official method for titration of sodium hydroxide with necessary chemical reaction.

- (b) Explain the theory of redox titration. Explain the various methods for detection of end point in redox titration.
- (c) State the essential factors for successful gravimetric analysis and explain the role of super saturation in deciding the condition of precipitation.
- (d) Derive an equation for the hydrolysis of salts formed from a weak base and a strong acid.
- (e) Define the following terms :
- Stoichiometrical point
 - Normality
 - Molarity
 - Oxidation
 - Reduction
 - Oxidising agent
 - Reducing agent
 - Precision and accuracy
 - Mean deviation and Buffer solution.
- (f) Differentiate between Mohr's and Volhard's method with suitable titrimetric example and explain the theory behind adsorption indicators.