

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END-SEMESTER EXAMINATION)

CLASS: BPHARM
BRANCH: PHARMACY

SEMESTER: I/BACKLOG
SESSION: MO 2018

SUBJECT: BP102T PHARMACEUTICAL ANALYSIS I

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.

PART-I

Objective types questions (Instruction: Answer all questions)

Q1.

A. Fill in the blanks (2 x 2)

- (i) According to Ostwald's theory, indicators are either or
- (ii) grams are oxalic acid dihydrate is required to prepare 250 mL of 0.05 N solution.

B. State True or False (2 x 1)

- (i) Gravimetric factor is the ratio of precipitant to precipitate
- (ii) pM indicators are used in complexometric titrations

C. Match the following (4 x 1)

A	Sodium thiosulphate solution	I	Assay of Calcium lactate
B	Potassium permanganate solution	II	Assay of ascorbic acid
C	Acetous perchloric acid solution	III	Assay of sodium chloride
D	Disodium EDTA solution	IV	Assay of copper sulphate
		V	Assay of ferrous sulphate
		VI	Assay of Ephedrine HCl

D. Complete & balance the following equations (3 x 2)

- (i) $\text{KMnO}_4 + \text{FeSO}_4 + \text{H}_2\text{SO}_4 \rightarrow$
- (ii) $\text{NaOH} + \text{I}_2 \rightarrow$
- (iii) $\text{K}_2\text{Cr}_2\text{O}_7 + \text{KI} + \text{HCl} \rightarrow$

E. Write the (2 x 2)

- (i) Ilkovic equation
- (ii) Nernst equation for Ag-AgCl electrode

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 marks)

- Q2. List the source of impurities in pharmaceutical substances.
- Q3. Enumerate the characteristics of a Primary standard substance.
- Q4. Calculate the quantity of HCl (in mL) required to prepare 500 mL of 0.1 M solution.
- Q5. Discuss in detail the levelling and differentiating effect of solvents.
- Q6. Explain the preparation of potassium permanganate solution with reason for the steps adopted.
- Q7. Elaborate the principle behind the assay of copper sulphate with equation.
- Q8. Explain with reason the conditions to obtain crystalline precipitate in gravimetric analysis.
- Q9. How will you determine the chloride content in acidic samples?
- Q10. With a neat and labelled diagram explain the different types of current in polarography.

PART-III
Long Answers
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. Derive the equation for calculating the pH of the solution at the beginning, middle and at the endpoint for the titration involving weak acid (Vs) strong base.
- Q12. Calculate the amount of $\text{Na}_2\text{S}_2\text{O}_3$ required to prepare 500 mL of 0.1 N solution. Write the procedure for its preparation with reason for each step adopted. Calculate the amount of $\text{K}_2\text{Cr}_2\text{O}_7$ required for the preparation of 0.1 N solution. Write the procedure for the standardization of 0.1 N $\text{Na}_2\text{S}_2\text{O}_3$. Write the equations.
- Q13. Draw a neat and labelled diagram of Dropping Mercury Electrode. Discuss its advantages and disadvantages.

:::10/12/2018:::M