

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

**CLASS: B.PHARM
BRANCH: PHARMACY**

**SEMESTER: 1ST
SESSION: MO/25**

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. (10 x 2 = 20 Marks)

- A. Oxalic acid and potassium dichromate are used as _____ standards in _____ titrations.
- B. Significant figures indicate both _____ and _____ in analytical measurements
- C. Phenolphthalein turns _____ in basic medium and remains _____ in acidic medium.
- D. Sodium benzoate and ephedrine HCl are estimated by _____ and _____ titration respectively
- E. Potentiometry involves measurement of _____ using reference and _____ electrodes.
- F. Define and differentiate between an oxidising agent and a reducing agent with suitable example.
- G. What is precipitation titration? Write the requirements of precipitation titration.
- H. Write the principle of complexometric titration.
- I. What are Metal ion indicators? Mention one example with structure
- J. Mention the principle of diazotisation titration with a suitable example.

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. Discuss the preparation process for 100 mL of 0.1 N Hydrochloric acid solution (Density: 1.19 g/mL and Concentration: 37% w/w)
- Q3. Write a note on significant figures and their importance in reporting analytical results
- Q4. Discuss the working of phenolphthalein and methyl orange as acid-base indicators.
- Q5. Describe conductometric titration with suitable examples.
- Q6. Define potentiometry. What are reference and indicator electrodes?
- Q7. Explain Mohr's method of precipitation titration. How will you prepare and standardise a 0.1N Silver Nitrate solution?
- Q8. What are Metal ion indicators? What are the necessary requirements for metal indicators? Give examples with structure.
- Q9. Derive the equilibrium constant for a Redox reaction with a suitable example. Write its significance
- Q10. Explain the different steps of gravimetric analysis

PART-III

Long Answers

(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. Explain non-aqueous titration with a suitable example.
- Q12. Discuss in detail the principle, construction and applications of polarography with a suitable diagram
- Q13. Provide a detailed description of different types of EDTA titrations, accompanied by suitable examples.