

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

CLASS: B.PHARM.
BRANCH: PHARMACY

SEMESTER: I
SESSION: MO'25

SUBJECT: BP104T PHARMACEUTICAL INORGANIC CHEMISTRY

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. Define limit test.
- B. State the major differences between the limit test and the modified limit test of chlorides.
- C. Derive Handersonson-Hasselbalch equation.
- D. Define the half-life of radioactive elements.
- E. Define anticaries agents and desensitizing agents with examples.
- F. Define and classify expectorants with examples.
- G. Calculate the pH of 2×10^{-3} M hydrochloric acid solution.
- H. Define acidifiers with an example.
- I. What is Rochelle salt? Draw the chemical structure and mention its uses.
- J. What is the chemical formula of chlorinated lime and state its applications.

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. Write a note on the limit test and the modified limit test of sulphates.
- Q3. Explain various body fluids (use schematic diagram) and the major electrolyte distribution among them.
- Q4. Write a note on 'acid and base' considering Arrhenius, Bronsted-Lowry, and Lewis theory.
- Q5. Write a note on Copper sulphate, considering its preparation, properties, assay procedure, storage and uses.
- Q6. Discuss tonicity and describe various methods to measure isotonicity.
- Q7. Write a note on various classes of antacids.
- Q8. Write a note on the emitted rays from the radioactive materials.
- Q9. Explain the role of fluoride in the treatment of dental caries.
- Q10. Write a note on Ammonium chloride, considering its preparation, properties, assay procedure, storage and uses.

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

(2 x 10 = 20 marks)

- Q11. **Explain various sources of pharmaceutical impurities.**
- Q12. (i) Explain how a buffer solution resists pH change. (ii) Calculate the pH of an 8 M weak acid having the K_a of 2×10^{-8} . (5+5)
- Q13. (i) Discuss the handling and storage of radioactive materials. (ii) Describe the applications of radioisotopes in medical sciences. (5+5)

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