

**PRACTICE SET FOR SUBJECTIVE QUESTIONS**  
**End Semester (1<sup>st</sup> Semester) Examination**

**Program: B. Pharm**

**Subject: Pharmaceutical Inorganic Chemistry (Theory)**

**Subject Code: BP 104T**

**Course Learning Objective (CLO)**

- **CLO1:** Describes the historical development of pharmacopoeia and evaluates sources, types, and detection methods of impurities in pharmaceutical substances.
- **CLO2:** Explains the concepts of acids, bases, buffers, isotonicity, and the role of electrolytes in physiological and therapeutic functions.
- **CLO3:** Identifies various gastrointestinal agents and antimicrobials along with their mechanisms, properties, and pharmaceutical applications.
- **CLO4:** Discusses the therapeutic importance of miscellaneous compounds including expectorants, emetics, haematinics, astringents, and antidotes
- **CLO5:** Illustrates the principles of radioactivity, types of radiations, and pharmaceutical applications of radiopharmaceuticals with safety considerations

Unit I			
S No.	Questions	CO	Bloom's Taxonomy Level
<b>Section II</b>		<b>Questions for 5 marks</b>	
1	Describe the importance of IP in the standardization and evaluation of Drugs	CO 1	Understand
2	Describe the importance of BP in the standardization and evaluation of Drugs	CO 1	Understand
3	Describe the importance of EP in the standardization and evaluation of Drugs	CO 1	Understand
4	Define pharmacopoeia and mention any two functions of the Indian Pharmacopoeia	CO1	Remember
5	Write a short note on permissible impurities in pharmaceutical substances with examples	CO1	Remember
6	List any four common impurities found in pharmaceutical preparations.	CO1	Remember
<b>Section III</b>		<b>Questions for 10 marks</b>	
7	Evaluate the adequacy of pharmacopoeial limit tests in ensuring the safety of modern pharmaceutical products. Discuss about the Limit	CO1	Evaluate

	test of Chloride and Modified Chloride.		
8	Pharmacopoeias serve as the legal standard for drug quality worldwide. Compare and evaluate the role of IP, BP, USP, and EP in regulating impurities and ensuring patient safety.	CO1	Evaluate
9	Analyze the significance of Permissible Pharmaceutical Impurities and effects of them in the Pharmaceutical industries	CO 1	Analyze
<b>Unit II</b>			
<b>S No.</b>	<b>Questions</b>	<b>CO</b>	<b>Bloom's Taxonomy Level</b>
<b>Section II</b>		<b>Questions for 5 marks</b>	
10	Explain the term conjugate acid–base pair with an example.	CO2	Remember
11	Write the Henderson–Hasselbalch equation for acidic buffers and basic buffers.	CO2	Remember
12	Define acid and base with two examples each.State two limitations of Arrhenius theory.	CO2	Remember
13	Describe how a buffer solution resists changes in pH when small amounts of acid or base are added. Support your answer with an example.	CO2	Understand
14	Describe the difference between isotonic, hypertonic, and hypotonic solutions with examples, and explain their effects on red blood cells.	CO2	Understand
15	Describe the importance of buffer selection in pharmaceutical formulations like eye drops and creams.	CO2	Understand
<b>Section III</b>		<b>Questions for 10 marks</b>	
16	Critically analyze Arrhenius, Bronsted–Lowry, and Lewis concepts of acids and bases. analyze their applicability and limitations in explaining acid–base behaviour in pharmaceutical systems	CO2	Analyze
17	Buffer systems play a vital role in pharmaceutical formulations. Analyze the importance of buffer capacity and analyze the factors influencing the buffere capacity with proper explanation.	CO2	Analyze
18	Evaluate the two major methods of adjusting isotonicity — the <i>Sodium Chloride Equivalent Method</i> and the <i>Cryoscopic Method</i> . Compare their principles, calculation steps, accuracy, and suitability for different types of drug formulations.	CO2	Evaluate
<b>Unit III</b>			
<b>S No.</b>	<b>Questions</b>	<b>CO</b>	<b>Bloom's Taxonomy Level</b>
<b>Section II</b>		<b>Questions for 5 marks</b>	
19	Discuss the Significance of GIT in food digestion and explain the major characters of antacids.	CO3	Understand
20	Write down the preparation reaction of ALUMINIUM HYDROXIDE GEL and explain it	CO3	Remember
21	What you understand by Acid indigestion or heartburn? And what is the role of antacid in controlling it.	CO3	Understand
22	Explain the difference between Acidifying agents and antacids with examples.	CO3	Remember
23	Write a short note on Antacids with examples and uses.	CO3	Remember
24	Write down the classification off Antacids with examples and formula	CO3	Remember
<b>Section III</b>		<b>Questions for 10 marks</b>	
25	Analyze how the chemical properties of <b>Aluminium Hydroxide Gel</b> contribute to its antacid action compared with other inorganic antacids. Discuss how the assay procedure of Aluminium Hydroxide Gel ensures its quality, and analyze what errors could occur during	CO3	Analysis

	standardization.		
26	Analyze the mechanism and therapeutic role of <b>Aluminium Carbonate</b> as an antacid in comparison with other aluminium-containing antacids, and justify how its physicochemical properties influence its neutralizing efficiency and side effects	CO3	Analysis
27	Evaluate the therapeutic role of Magnesium Carbonate (Magnesite) as purgative and discuss the mechanism of action of Cathartics.	CO3	Evaluate
<b>Unit IV</b>			
<b>S No.</b>	<b>Questions</b>	<b>CO</b>	<b>Bloom's Taxonomy Level</b>
<b>Section II</b>		<b>Questions for 5 marks</b>	
28	Define Haematinics. Write the preparation, properties, and uses of Ferrous sulphate.	CO4	Remember
29	What are Antidotes? Classify antidotes according to their mechanism of action with suitable examples.	CO4	Remember
30	Define Expectorants. Classify them with suitable examples and explain the uses of Ammonium chloride.	CO4	Remember
31	Describe the reflex mechanism by which ammonium chloride acts as an expectorant and state one of its additional systemic uses.	CO 4	Understanding
32	Explain how expectorants help in clearing respiratory tract secretions.	CO 4	Understanding
33	Explain the mechanism of action of antidotes with one example of a chemical antidote and its preparation reaction.	CO 4	Understanding
<b>Section III</b>		<b>Questions for 10 marks</b>	
34	Assess the pharmacological and ethical considerations in the declining medical use of Emetics for poisoning cases. Should induced vomiting ever be reconsidered as a first-line intervention? Support your argument with scientific reasoning.	CO4	Evaluate
35	Critically evaluate the use of <i>Ammonium Chloride</i> as both an expectorant and a systemic acidifier. In what clinical conditions could its dual role be advantageous or potentially harmful?	CO4	Evaluate
36	Compare and contrast the mechanisms of action of <i>Expectorants</i> and <i>Emetics</i> , emphasizing their physiological pathways and therapeutic outcomes. How might overlapping mechanisms affect patient management in cases of chronic cough with nausea?	CO 4	Analysis
<b>Unit V</b>			
<b>S No.</b>	<b>Questions</b>	<b>CO</b>	<b>Bloom's Taxonomy Level</b>
<b>Section II</b>		<b>Questions for 5 marks</b>	
37	Discuss the concept of half-life period ( $t_{1/2}$ )? Write the mathematical relation connecting half-life and disintegration constant ( $\lambda$ ).	CO5	Understand
38	Discuss about the electroscope method of measuring radioactivity.	CO5	Understand
39	Give two reasons why an isotope with too short or too long a half-life may be unsuitable for practical or medical use.	CO5	Understand
40	What are the units of radioactivity? Give examples and their significance in measuring radioactive decay.	CO 5	Remember
41	Explain why the half-life of a radioactive substance is independent of temperature, pressure, and concentration.	CO 5	Remember
42	State the difference between $\alpha$ -rays and $\beta$ -rays based on their mass,	CO 5	Remember

	charge, and penetrating power		
<b>Section III</b>		<b>Questions for 10 marks</b>	
43	Analyze the properties of $\alpha$ , $\beta$ , and $\gamma$ rays based on their properties and activities. How do differences in mass, charge, and penetration explain their experimental behavior?	CO5	Analysis
44	Discuss critically how the concept of half-life helps in determining the usefulness of different radio-nuclides for medical imaging or therapy.	CO5	Analysis
45	Evaluate the significance of half-life in medical and industrial applications. Discuss with examples how inappropriate half-life values can limit the use of certain radioisotopes.	CO 5	Evaluation

### Course Outcome (CO)

On the successful completion of the Course, students will be able to:-

**CO1:** Understand and applies the principles of impurity detection and performs limit tests for pharmaceutical substances as per pharmacopoeial standards.

**CO2:** Understand about the role and preparation of pharmaceutical buffers, evaluates isotonic solutions, and understands the functions of electrolytes and dental products.

**CO3:** Understand and compares various gastrointestinal agents and antimicrobials with respect to their pharmaceutical properties and therapeutic applications.

**CO4:** Understand about uses and mechanisms of action of miscellaneous pharmaceutical compounds including expectorants, emetics, haematinics, and antidotes.

**CO5:** Understand about the principles of radioactivity and explains the use, precautions, and storage of radiopharmaceuticals in medical practice.

## Summary Sheet

### CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8,9	60
CO2	10,11,12,13,14,15,16,17,18	60
CO3	19,20,21,22,23,24,25,26,27	60
CO4	28,29,30,31,32,33,34,35,36,	60
CO5	37,38,39,40,41,42,43,44,45,	60
<b>Total</b>		<b>300</b>

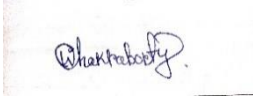
### Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8,9	60
Unit 2	10,11,12,13,14,15,16,17,18	60
Unit 3	19,20,21,22,23,24,25,26,27	60
Unit 4	28,29,30,31,32,33,34,35,36,	60
Unit 5	37,38,39,40,41,42,43,44,45,	60
<b>Total</b>		<b>300</b>

### Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,3,4,5,6, 10,11,12,13,14,15, 19,20,21,22,23,24, 28,29,30,31,32,33, 37,38,39,40,41,42,	150
HOT	7,8,9, 16,17,18,25,26,27,34,35,36, 43,44,45,	150
<b>Total</b>		<b>300</b>

**Note:** All questions from **Section II** will be considered as **LOT**.  
All questions from **Section III** will be considered as **HOT**.



**Prepared By:**



**Reviewed By:**

**Disclaimer:** -This is a Practice Set. The Question in End term examination will differ from the Practice Set.  
This Practice Set is meant for practice only.