Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Sessional I(ODD) Semester Examination,Late admission, November 2025

Roll no.....

Name of the Paper: Pharmaceutical Inorganic Chemistry
Paper Code: BP104T
Time: 1.5-hour Maximum Marks: 30

Note:
(i) This question paper contains three sections
(ii) All the sections are compulsory

Section-A

MULTIPLE CHOICE QUESTION **10 X 1= 10 MARKS**

1. Which of the following was the first official pharmacopoeia to include chemical tests for the determination of impurities in drugs? CO-1
   a) Indian Pharmacopoeia 1955
   b) British Pharmacopoeia 1864
   c) United States Pharmacopoeia 1820
   d) British Pharmacopoeia 1948

2. Which of the following impurities is most likely to arise from glass containers used for storage of pharmaceutical preparations? CO-1
   a) Arsenic
   b) Lead
   c) Iron
   d) Alkali metals (Na^+ , K^+)

3. The indicator used in the limit test for lead is: CO-1
   a) Diphenylcarbazone
   b) Hydrogen sulphide
   c) Ammonium citrate
   d) Hydroxylamine hydrochloride

4. In the limit test for arsenic, the principle involves:CO-1
   a) Formation of brown ferric hydroxide precipitate in alkaline medium
   b) Reduction of arsenic compounds to arsine gas, which reacts with mercuric chloride paper to produce a yellow stain
   c) Formation of black metallic arsenic after heating with H_2SO_4
   d) Precipitation of arsenic as insoluble arsenate in presence of ammonium molybdate

5. The modified limit test for sulphate differs from the classical test because:CO-1
   a) It uses barium sulphate solubility in alkaline medium
   b) It avoids interference of color and turbidity by introducing a gelatin solution before precipitation
   c) It measures sulphate content by direct titration with barium chloride

d) It involves gravimetric estimation of barium sulphate instead of turbidity comparison

6. The buffer capacity of a solution is maximum when: CO-2
   a) [Salt] = 0
   b) [Acid] = 10 × [Base]
   c) [Acid] = [Base]
   d) [Acid] = 0

7. The cryoscopic method measures tonicity based on: CO-2
   a) Osmotic pressure
   b) Depression of freezing point
   c) Boiling point elevation
   d) Viscosity changes

8. In the physiological context, which of the following electrolytes is the principal intracellular cation and plays a vital role in maintaining resting membrane potential?
   a) Sodium (Na^+) CO-2
   b) Potassium (K^+)
   c) Calcium (Ca^{2+})
   d) Chloride (Cl^-)

9. The anticaries effect of fluoride is primarily due to: CO-2
   a) Formation of calcium fluoride on enamel surface
   b) Chelation with dentin
   c) Removal of calcium ions
   d) Reduction in saliva production

10. Oral Rehydration Salts (ORS) recommended by WHO restore electrolyte balance mainly by: CO-2
    a) Enhancing sodium absorption through a sodium-potassium ATPase pump
    b) Promoting glucose-mediated co-transport of sodium and water across the intestinal mucosa
    c) Increasing passive diffusion of chloride ions, followed by osmotic water absorption
    d) Providing buffering capacity to counteract metabolic alkalosis

Section B

Short Questions: Attempt any two **2x5 = 10**

1. Write in detail about the sources and types of impurities. **CO-1**
2. Describe the method of preparation and uses of any two dental products. **CO-2**
3. Write the principle and reaction involved in the heavy metals (IP) limit test. **CO-1**

Section C

Long questions: Attempt any one **1x10 = 10**

1. Explain the various sources of impurities in pharmaceuticals. Discuss the importance of Limit tests in quality control of pharmaceuticals. **CO-1**

2. Explain the preparation, assay principle, storage conditions and medical uses of calcium Gluconate injection **CO-2**