

Roll No _____

END-TERM EXAMINATION

Odd Semester 2024-25

Course Code - BP104T

Course Name_ Pharmaceutical Inorganic chemistry

Programme Name: B.Pharma

Sem- Ist



K.R. MANGALAM UNIVERSITY
THE COMPLETE WORLD OF EDUCATION

Time: 3 Hours

Maximum Marks: 75

Instructions: The question paper consists of 32 questions divided into three-part A, B and C. Attempt all questions from section-A comprises 20 MCQs, Any two questions out of three from section-B and Any seven questions out of Nine from section-C

Section-A (20 X 1 = 20 Marks)

1	Which of the following is an example of an organic impurity in a pharmaceutical substance? A. Lead B. Ethanol C. Sulphate D. Hydrochloric acid	CO2	L2
2	In the limit test for sulphates, which reagent is commonly used to detect the presence of sulphate ions? A. Barium chloride B. Silver nitrate C. Lead acetate D. Sodium hydroxide	CO1	L2
3	In the limit test for lead, which of the following is used as the reagent to react with lead ions? A. Potassium iodide B. Dithizone C. Silver nitrate D. Barium chloride	CO2	L2
4	The main objective of conducting a limit test for impurities in pharmaceuticals is to: A. Improve drug solubility B. Ensure purity and safety of product C. Enhance drug stability D. Increase drug potency	CO3	L3
5	What is the conjugate base of H_2SO_4 (sulfuric acid) according to the Bronsted-Lowry theory? A. HSO_4^- B. SO_4^{2-} C. H_2O D. H_3O^+	CO2	L2
6	Which of the following best defines a Bronsted-Lowry acid?	CO1	L2

	A. A substance that produces H^+ ions in solution B. A substance that accepts a proton (H^+) C. A substance that donates a proton (H^+) D. A substance that produces OH^- ions in solution		
7	Which of the following is an example of a biological buffer system? A. Phosphate buffer system B. $NaCl / HCl$ system C. Acetic acid / acetate buffer D. Ammonia / ammonium buffer	CO4	L3
8	Which of the following is an example of a diagnostic procedure that uses radiopharmaceuticals? A. Chemotherapy for breast cancer B. Positron emission tomography (PET) C. Insulin injection for diabetes D. Dialysis for kidney failure	CO2	L2
9	Tonicity of a buffer is important in which of the following applications? A. Pharmaceutical formulations for intravenous administration B. Determining the pH range of a buffer solution C. Calculating the molarity of a buffer D. Selecting the correct conjugate acid-base pair for a buffer	CO2	L2
10	Which of the following ingredients in dentifrice helps in the removal of plaque? A. Fluoride B. Abrasives like calcium carbonate C. Glycerin D. Sodium lauryl sulfate	CO2	L2
11	What is the major extracellular electrolyte in the human body? A. Sodium (Na^+) B. Potassium (K^+) C. Calcium (Ca^{2+}) D. Chloride (Cl^-)	CO1	L2
12	The phosphate buffer system is most effective in which environment? A. Blood plasma B. Gastric juice C. Intracellular fluid D. Lymphatic fluid	CO2	L2
13	What is the purpose of humectants in dentifrices? A. To prevent tooth decay B. To create foam during brushing C. To prevent the dentifrice from drying out D. To provide flavor to the dentifrice	CO4	L3
14	Which of the following is a key component of Oral Rehydration Solution (ORS)? A. Glucose B. Sodium chloride C. Potassium chloride D. All of the above	CO2	L2

15	Which of the following is used to prepare the standard solution for the limit test for iron? A. Iron sulfate B. Iron chloride C. Iron nitrate D. Ferric ammonium sulphate	CO3	L3
16	Which of the following is the primary source of impurities in raw materials used for pharmaceutical products? A. Packaging materials B. Manufacturing processes C. Storage conditions D. All of the above	CO2	L2
17	Which of the following is the correct definition of an acid according to the Arrhenius theory? A. An acid is a substance that donates an electron. B. An acid is a substance that produces hydroxide ions (OH-) in water. C. An acid is a substance that produces hydrogen ions (H+) in water. D. None of the above	CO3	L3
18	Which of the following is the primary function of a radiopharmaceutical in the body? A. To act as a therapeutic agent B. To interact with specific tissues or organs and emit radiation for imaging purposes C. To increase the solubility of drugs D. To regulate the immune system	CO2	L2
19	Which is the scientific term for low potassium levels in body A. Hyponatremia B. Hyperkalemia C. Hypokalemia D. Hypercalcemia	CO4	L3
20	What is the use of Potash Alum? A. As an analgesic B. As a local antiseptic and disinfectant C. As an astringent D. As an anti-inflammatory	CO2	L2

Section B (2 X 10 = 20 Marks)

1	What are impurities and discuss the various sources of impurities in pharmaceutical substances	CO2	L2
2	Explain the role of buffers in maintaining pH stability in pharmaceutical formulations and derive the Henderson-Hasselbalch equation	CO3	L3
3	Explain the concept of radioactivity and discuss the properties of α , β , and γ radiations	CO3	L2

Section C (7 X 5 = 35 Marks)

1	What are expectorants? Explain potassium iodide and ammonium chloride as expectorants	CO1	L2
2	What is the role of acidifiers as gastrointestinal agents? Explain the mechanism by which ammonium chloride acts as an acidifier in the body.	CO1	L2
3	Explain role of fluoride in the treatment of dental caries?	CO5	L4
4	What is a limit test? Explain the principle behind the limit test for chlorides and sulphates	CO3	L4
5	Describe the principle and procedure for the assay of sodium chloride? Why is silver nitrate used as a titrant in this assay.	CO5	L4
6	Describe the limit test for lead with dithizone as the reagent?	CO3	L2
7	What are antacids? Discuss the structure and uses of sodium bicarbonate and magnesium hydroxide.	CO3	L2
8	Explain in detail Arrhenius acid-base theory along with suitable example	CO3	L3
9	What are antimicrobials? Explain general classification of antimicrobials	CO2	L2