# UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
## End Semester Examination, December 2022

**Course: Pharmaceutical Inorganic Chemistry**  **Semester: I**
**Program: B. Pharm.**  **Time: 03 hrs.**
**Course Code: BP104T**  **Max. Marks: 75**
**Instructions: All the sections are compulsory.**

## SECTION A

1. Each Question will carry 1 Marks
2. Instruction: Select the correct answer(s), Answers all the 20 questions.

| S. No. | Questions | CO |
|---|---|---|
| | | |
| Q 1 | **Blue vitriol is used as an**<br>a) Astringent　　　　　　b) Emetic<br>c) Antacid　　　　　　　d) Expectorant | **CO2** |
| Q 2 | **Solvay process is used for the preparation of**<br>a) Sodium bicarbonate　　b) Hydrogen peroxide<br>c) Chlorinated lime　　　d) Aluminium hydroxide | **CO2** |
| Q 3 | **Which one of the redox indicators is also used as a purgative?**<br>a) Methyl orange　　　　b) Phenol red<br>c) Phenolphthalein　　　d) Methyl red | **CO2** |
| Q 4 | **The acid neutralizing capacity is expressed in**<br>a) Molarity　　　　　　b) Normality<br>c) Milliequivalent　　　d) Millimolar | **CO1** |
| Q 5 | **Achlorhydria occurs due to**<br>a) Insufficient secretion of HCl　b) Excessive secretion of HCl<br>c) Both a and b　　　　d) Excessive secretion of Pepsin | **CO2** |
| Q 6 | **Hydrogen peroxide is stable in**<br>a) Acidic solution　　　b) Alkaline solution<br>c) Ammonia solution　　d) None of the above | **CO1** |
| Q 7 | **Green vitriol is the synonym of**<br>a) Copper sulphae　　　b) Zinc sulphate<br>c) Ferrous sulphate　　　d) Aluminium sulphate | **CO2** |
| Q 8 | **Expectorant is used for the treatment of**<br>a) Vomiting　　　　　　b) Diarrhoea<br>c) Constipation　　　　d) Cough | **CO2** |

| Q 9 | **Iodine is readily dissolved in** | **CO1** |
|---|---|---|
| | a) Aqueous solution of Potassium iodide    b) Water | |
| | c) Aqueous solution of Sodium hydroxide    d) All of the above | |
| Q 10 | **Sodium thiosulphate is used as an** | **CO2** |
| | a) Antacid                  b) Antimicrobial | |
| | c) Antidote             d) Expectorant | |
| Q 11 | **Replacement therapy is required during** | **CO2** |
| | a) excess loss of water       b) metabolic acidosis | |
| | c) metabolic alkalosis       d) All of these. | |
| Q 12 | **Which one of the following acid is used in the limit test for sulphur?** | **CO1** |
| | a) Hydrochloric acid       b) Thioglycollic acid | |
| | c) Nitric acid            d) Barium chloride | |
| Q 13 | **The major storage of iron in body is** | **CO1** |
| | a) transferrin            b) apoferritin | |
| | c) ferritin               d) none of these | |
| Q 14 | **You are presented with a solution that has a pOH of 2.13. What is the pH of this solution?** | **CO1** |
| | a) 2.13                b) 6.57 | |
| | c) 11.87            d) None of these | |
| Q 15 | **An example of lewis base is** | **CO1** |
| | a) $NH_3$              b) $BF_3$ | |
| | c) both (a) and (b)       d) NaOH | |
| Q 16 | **An example of amphoteric substance is** | **CO1** |
| | a) $Al(OH)_3$          b) NaOH | |
| | c) $Ca(OH)_2$         d) None of these | |
| Q 17 | **_____ is used to prevent dental caries.** | **CO2** |
| | a) Sodium chloride       b) sodium fluoride | |
| | c) Potassium chloride      d) stannous chloride | |
| Q 18 | **What is the pH for a 0.05M solution of hydrochloric acid?** | **CO1** |
| | a) 1.3                b) 0.05 | |
| | c) 2.7                d) 1.7 | |
| Q 19 | **An example of physiological buffer is** | **CO2** |
| | a) HCl                b) Hemoglobin | |
| | c) $NH_4OH$          d) All of these | |
| Q 20 | **The white precipitate formed in sulphate limit test** | **CO1** |
| | a) Ferrous sulphate       b) Barium chloride | |
| | c) Barium sulphate       d) none of these | |

### SECTION B

**1. Each question will carry 10 marks. Answer any two questions out of three questions.**

**2. Instruction: Long Answer type questions**

| Q 1 | a) Explain the difference between absorbable and non-absorbable antacids. (2 marks) | CO2 |
|---|---|---|
| | b) Why are aluminum compounds more effective than other antacids? (2 marks) | |
| | c) Why are combinations of antacids therapy required? (2 marks) | |
| | d) Write a short note on milk of magnesia (4 marks) | |
| Q 2 | a) How can one substance, such as water, be both an acid and a base, according to the Brønsted-Lowry definition? Explain it with examples (3 marks) | CO2 |
| | b) In a buffer made by mixing 0.40 moles of sodium hydrogen carbonate with 0.61 moles of sodium carbonate, how much acid can be added before the pH changes by more than 1 pH unit? (4 marks) | |
| | c) What are the conditions required to get maximum buffer capacity of an acidic buffer? (3 marks) | |
| Q 3 | a) What is the difference between laxative and purgative? (2 marks) | CO1 |
| | b) Write down the classification of laxative with examples. (3 marks) | |
| | c) Briefly discuss the mechanism of action of laxative. (5 marks) | |

**SECTION C**
**1. Each question will carry 5 marks. Answer any seven questions out of nine questions**
**2. Instruction: Short Answers type questions**

| | | | 35 |
|---|---|---|---|
| Q 1 | | Define the term emetics and expectorants with example. | CO2 |
| Q 2 | | (a) Write the role of citric acid in the limit test of iron (2 marks). | CO1 |
| | | (b) What is the Lewis Concept for Acid and Base. What are the limitations of Arrhenius theory concept (3 marks) | |
| Q 3 | | Prove that pH + pOH = 14. Calculate the pH of a buffer solution made from 0.30 mol/L $HC_2H_3O_2$ and 0.50 mol/L $C_2H_3O_2^-$. The acid dissociation constant of $HC_2H_3O_2$ is $1.8 \times 10^{-5}$. | CO1 |
| Q 4 | | What is the remedy of cyanide poisoning? | CO2 |
| Q 5 | | Discuss different ways to determine pharmaceutical impurities. | CO1 |
| Q 6 | | What do you mean by tooth decay? Write down the mechanism of action of sodium fluoride (NaF). | CO2 |
| Q 7 | | Write a short note on ammonium hydroxide gel used as an anticid. | CO2 |
| Q 8 | | What are the use of radiopharmaceuticals? How to handle radiopharmaceuticals? | CO2 |
| Q 9 | | Illustrate the physiological acid-base balance. | CO1 |