

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5042

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Unique Paper Code : 2174001210

Name of the Paper : GE: Role of Metals in Medicine

Name of the Course : B.Sc. (Hons.)

Semester : II/IV/VI/VIII

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **FOUR** questions in all.
3. Each question carries **15** marks.

1. a. Define acid neutralizing capacity. Name any one salt of sodium which is used in the treatment of heart burn and digestive disorders and explain its mechanism of action.
b. Give the name of platinum based complex used in the treatment of cancer and explain its mechanism of action in the biological system.
c. Name the enzyme and write the chemical equation involved in the functioning of sodium potassium pump. Explain its mechanism in detail.

(5, 5, 5)

2. a. Define the following terms and give one example each
 - i. Anti-Microbial agent
 - ii. Anti-Therapeutic agent
 - iii. Anti cancer drug
 - iv. Anti-inflammatory agent
 - v. Anti-Rheumatoid agent

P.T.O.

b. Discuss the biological importance of vitamin B12. Name the disease caused by the deficiency of vitamin B12.

c. Which arsenic containing compound is commercially available to treat sleeping sickness? Give its mechanism of action and side effects associated.

(5, 5, 5)

3. a. How are metals utilized in the medicines? Describe the purpose of medication and identify the metal involved in the following

i. Pepto-bismol

ii. Gaviscon

iii. De-nol

b. "Bioinorganic chemistry is a bridge between Inorganic chemistry and biochemistry". Justify the statement.

c. What is the role of chromium chloride in various metabolic processes when it is consumed as a multivitamin? Enlist few side effects.

(5, 5, 5)

4. a. Name any two water soluble vitamins. What are the sources and functions of vitamin C?

b. What is the role of hemoglobin and myoglobin in the biological system? Enlist few differences between the two.

c. Name an alkali metal-based medicine used for mental stability. Discuss its mode of action in the human body.

(5, 5, 5)

5. a. Give full form of the following:

1. GERD 2. ATP 3. MRI 4. SSRP 5. BAL

b. Discuss in detail the function of sodium selenite in the biological system and discuss adverse effects associated with it.

c. Define therapeutic agent. Discuss the role of vanadium in the treatment of diabetes.

(5, 5, 5)

6. a. Explain the significance and function of technetium-99m (^{99m}Tc) in heart or brain or bone imaging.

b. What is the importance of zinc oxide and ferric oxide in the treatment of skin diseases? Differentiate between Lacto calamine and calamine lotion.

c. Mention the disease/s caused by deficiency of the following elements

1. Iron 2. Zinc 3. Molybdenum 4. Copper 5. Cobalt

(5, 5, 5)

(300)