



234 Chem. (first semester 2023/2024)

Chemistry

Answer all the following questions: (Total Marks: 60)

Answer

Q1: (30 marks)

Question [1]

Choose the correct answer from column B to match the function of element in column A (Write element and the matching number only) [10 Marks]

a) **Choose the**
(Write element)

Column B
1. important for body growth, and plays part in immune system
2. reduces aging action of free radicals
3. used in production of thyroid hormones
4. essential component of hemoglobin
5. involved in bone growth and metabolism
6. gives strength to bones and teeth
7. plays part in metabolism

Column A
Iodine
Manganese
Selenium
Zinc
Fluorine
Chromium
Cobalt

 جامعة دمياط Damietta University	Environmental Sciences Department	Date: 15/1/2024 Time: 1 hours	
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Final theoretical exam for 2nd year Environmental Sciences/Chemistry program students in Environmental

Copper	8. Plays a major role in balancing body cells as well as digestion
Iron	9. involved in metabolism, production of hemoglobin
Sodium	10. key role in skeletal and smooth muscle contraction
	11. is a cofactor of all enzymes involved in phosphate transfer reactions
	12. membrane and cytoskeletal functions.
	13. prevent blood clotting
	14. Plays a major role in Homeostatic balance
	15. part of vitamin B-12

 <p>Damietta University</p>	<p align="center">Damietta University Faculty of Science Environmental Sciences Department</p>	<p align="center">Jan. 2023/2024 Date: 15/1/2024 Time: 1 hours</p>	
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Final theoretical exam for 2nd year Environmental Sciences/Chemistry program students in Environmental Chemistry-234 Chem. (first semester 2023/2024)

Answer all the following questions: (Total Marks: 60)

Question [1]: (30 marks)

a) **Choose** the correct answer from column B to match the function of element in column A
(Write element and the matching number only) **[10 Marks]**

Column A	Column B
Iodine	1. important for body growth, and plays part in immune system
Manganese	2. reduces aging action of free radicals
Selenium	3. used in production of thyroid hormones
Zinc	4. essential component of hemoglobin
Fluorine	5. involved in bone growth and metabolism
Chromium	6. gives strength to bones and teeth
Cobalt	7. plays part in metabolism of sugar
Copper	8. Plays a major role in balancing body cells as well as digestion
Iron	9. involved in metabolism, production of hemoglobin
Sodium	10. key role in skeletal and smooth muscle contraction
	11. is a cofactor of all enzymes involved in phosphate transfer reactions
	12. membrane and cytoskeletal functions.
	13. prevent blood clotting
	14. Plays a major role in Homeostatic balance
	15. part of vitamin B-12

- b) **Define:** Dose response and **draw** the **Fluoride** dose response curve, **illustrate** the different regions on the curve? [8 Marks]
- c) **Illustrate** by drawing only, **one** of the following: [8 Marks]
- i. Absorption and transportation of Vitamin B12.
 - ii. Iron absorption, transport, and storage.
- d) **Mention** the role of sodium in human body. [4 Marks]

Question [2]:(30 Marks)

- a) **Draw** the Hemoglobin Saturation Curve and **explain** the factors affect it? [8 Marks]
- b) **What** are the Excretion routes for Zn? [6 marks]
- c) **Compare** between **active** and **passive** transport. [6 marks]
- d) **Give the Scientific term for the following:** [6 marks]
- i. is a pathological condition characterized by deposition of excess iron within the body tissues that normally do not contain iron.
 - ii. special carrier molecules that wrap around metal ions so they can pass through the membrane by diffusion.
 - iii. like charged ions are transported in opposite directions.
- e) **Write** on sodium and potassium ion-channels [4 marks]

Best wishes

Dr. Mervat E.F. Senbati