

الإدارة المركزية للتعليم العام

مستشار مادة العلوم



Weekly Home Work

Week (6)

Integrated Science

Secondary one

Second Term 2026

إشراف عام

د/ هالة عبد السلام خفاجي
رئيس الإدارة المركزية للتعليم العام
والمشرف على مستشاري
المواد الدراسية

إشراف

د/ عزيزة رجب خليفة
مستشار مادة العلوم

Lesson Three: Excretion and Homeostasis, and Their Role in the Stability of the Biosphere (part Two)

Choose the correct answer

- 1- **Artificial kidney membranes prevent proteins from passing because of ...**
 - A) their electrical charge
 - B) the large size of their molecules
 - C) their high speed
 - D) the viscosity of the cleaning fluid

- 2- **The bioartificial kidney differs from traditional dialysis machines in its ability to**
 - A) remove excess water
 - B) eliminate urea
 - C) simulate biochemical functions
 - D) cool the blood

- 3- **The property that helps reveal the *texture* of an organ is**
 - A) wave scattering
 - B) regular reflection
 - C) constant sound speed
 - D) tissue viscosity

- 4- **The diagnosis that does *not* require surgery thanks to Ultrasound is ...**
 - A) kidney transplantation
 - B) heart valve replacement
 - C) cell engineering
 - D) detection of stones and inflammations

- 5- **Carbon returns to the atmosphere from living organisms through two processes ...**
 - A) photosynthesis and transpiration
 - B) weathering and deposition
 - C) respiration and decomposition
 - D) fixation and denitrification

- 6- **Lightning contributes to**
 - A) decomposition
 - B) fixation of atmospheric nitrogen
 - C) respiration
 - D) phosphate deposition

- 7- Excretion is not merely the elimination of toxins, but rather
- A) a means of gaining weight B) a purely physical process
C) a source of solar energy
D) an important link in the continuation of element cycles
- 8 - Using *Infrared Thermography* to measure skin temperature is a measurement of
- A) nuclear energy B) soil nitrates
C) energy lost in the process of thermal balance D) sound waves
- 9- Without *decomposer organisms*, the element cycles
- A) stop B) accelerate
C) become gaseous only D) depend on the artificial kidney
- 10- The *boundaries* in Ultrasound mean the transition from
- A) liquid to gas only B) carbon to phosphorus
C) bacteria to nitrates
D) one medium with acoustic impedance to another medium
- 11- Excretion processes and natural cycles together ensure
- A) depletion of resources
B) the survival and sustainability of life in the biosphere
C) the cessation of sound waves
D) the freezing of the Earth
- 12- Increasing the amount of urea in soil leads to
- A) increased nitrates available to plants
B) decreased rate of photosynthesis
C) accumulation of carbon dioxide in the atmosphere
D) stoppage of the carbon cycle
- 13- Which of the following reflects a disruption in the nitrogen cycle due to human activity?
- A) planting diverse crops B) crop rotation
C) excessive use of chemical fertilizers
D) presence of nitrifying bacteria in soil

Essay Questions

1- Explain: the role of *photosynthesis* as a chemical driver of the carbon cycle.

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2- Explain: The *nitrogen cycle* represents an example of cooperation among living organisms.

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3- Explain: The bioartificial kidney can contribute to reducing dependence on traditional dialysis.

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4- Clarify the role of humans in disrupting the carbon cycle.

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Weekly Assessment

Week (6)

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Lesson Three: Excretion and Homeostasis, and Their Role in the Stability of the Biosphere (part Two)

Model (A)

Choose the correct answer:

- 1) **Ultrasound devices used for imaging organs rely on sound properties such as**
 - a) evaporation and transpiration
 - b) weathering and deposition
 - c) fixation and denitrification
 - d) reflection and refraction
- 2) **The process that "pulls" carbon from the atmosphere is**
 - a) respiration
 - b) combustion
 - c) photosynthesis
 - d) decomposition
- 3) **Farmers rely on planting legumes to improve soil fertility because they ...**
 - a) consume small amounts of nitrogen
 - b) produce more proteins than other plants
 - c) prevent nitrification
 - d) contain bacteria that fix nitrogen in their roots
- 4) **The phosphorus cycle differs from the carbon and nitrogen cycles in that**
 - a) the atmosphere is not part of it
 - b) it does not require decomposers
 - c) it is very fast
 - d) it occurs in outer space

Essay Question

5- Explain: The skin plays a vital role in "thermal regulation" in hot environments.

Model (B)

Choose the correct answer:

- 1) **Ultrasound waves of *high frequency* are specifically used because they**
 - a) kill bacteria
 - b) heat tissues
 - c) provide high resolution for imaging small details
 - d) travel faster than light

- 2) **Carbon moves from plants to animals through**
 - a) respiration
 - b) evaporation
 - c) decomposition
 - d) feeding

- 3) **The decomposition of urea in soil by bacteria produces**
 - a) ammonia and then nitrates absorbed by plants
 - b) oxygen gas
 - c) rock phosphates
 - d) sound echoes

- 4) **The process that releases phosphorus from rocks is called**
 - a) Respiration
 - b) Evaporation
 - c) Weathering
 - d) Nitrification

Essay Question

5- Explain: Phosphorus is not considered a pollutant of the atmosphere.

Model (C)

Choose the correct answer

- 1) **The strength of *ultrasound wave reflection* depends on**
 - a) the acoustic impedance of the tissue
 - b) the color of the organ
 - c) its temperature
 - d) the amount of urea in the blood

- 2) **The role of *factories* in the carbon cycle is**
 - a) absorbing carbon
 - b) releasing carbon oxides
 - c) fixing nitrogen
 - d) recycling proteins

- 3) **Eliminating nitrogen-fixing bacteria in the soil leads to**
 - a) increased protein production in plants
 - b) increased rate of cellular respiration
 - c) accumulation of nitrogen gas in the atmosphere
 - d) decreased soil fertility

- 4) **Which of the following reflects the importance of excretion in ecological balance?**
 - a) Accumulation of wastes without decomposition
 - b) Cessation of carbon dioxide excretion
 - c) Decomposition of urea into ammonia in the soil
 - d) Absence of decomposer bacteria

Essay Question

5- Explain: Animal respiration contributes to the sustainability of plant life.