



Semester
First
2024/2025

Lesson ONE

Unit One
Aquatic
ecosystem

Class
First
secondary

Subject
Integrated
sciences



Question 1

Choose the correct answer from the following options:

1) Water is present on the surface of the Earth in.....

- One physical state
- Two physical states
- Three physical states
- Four physical states

2) Which of the following layers of the Earth represents the solid part of the Earth....

- Hydrosphere
- Lithosphere
- Atmosphere
- Biosphere

3) Nitrogen gas represents a large part of.....

- Hydrosphere
- Atmosphere
- Biosphere
- Lithosphere

4) Frozen water represents of the water on the Earth's surface

- 3%
- 1%
- 2%
- 80%





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5) The ratio between the land area to the water area on planet Earth

.....

- Greater than one
- Less than one
- Equal to one

6) There are two main opposite processes in the hydrological cycle, which are....

- Melting and boiling
- Evaporation and snow
- Condensation and freezing
- Evaporation and Condensation

7) Acid rain reacts with.....

- Basic oxides
- Acid oxides
- Alkalis
- Basic salts

8) All of the following gases, when reacting with water vapor in clouds, form rain that corrodes metal structures except.....

- So_2
- No_2
- Co_2
- NH_3

9) The biological process that occurs in plants and animals and contributes to the formation of rain is.....

- Transpiration
- Respiration
- Evaporation





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Infiltration

10) All of the following lead to an increase in the percentage of water vapor in the atmosphere except....

- The process of transpiration in plants
- The process of respiration in plants and humans
- The process of rainfall
- There is no correct answer

11) Acid rain leads to the erosion of building facades due to.....

- The formation of new fragile compounds
- Its descent in large quantities and submerging them
- Severe collision with it and its fragmentation
- All of the above

12)expresses the transfer of water from the soil to the atmosphere through the pores of plant leaves

- The process of respiration
- The process of transpiration
- The process of evaporation
- Precipitation

13) The water reservoir that is formed as a result of water seeping through the soil and rocks downwards and some of it comes out in the form of springs is...

- Rivers
- Lakes
- Bays
- Groundwater





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14) The highest percentage of water in the Earth's crust is found in.....

- Seas and oceans
- Springs and wells
- Rivers and freshwater lakes
- Glaciers and polar regions

15) Water is in the state of at a temperature higher than 100°C and is considered one of the components of the.....

- Liquid - atmosphere
- Solid - ice
- Vapor - water
- Vapor - atmosphere

Question 2

Write the scientific term in the following phrases

- 1) Rain resulting from the chemical reaction of water vapor in clouds with compounds present in the atmosphere ()
- 2) Chemical bonds between the hydrogen atom and the oxygen atom in the water molecule ()
- 3) Fresh water that is formed as a result of water seeping through the pores of the soil from sedimentary rocks ()
- 4) A bond that arises between a water molecule and another water molecule and is responsible for the high boiling point of water ()
- 5) A nearly closed system capable of changing the surface of the earth physically, chemically and biologically through a continuous change between the three states of water ()





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Question 3

Explain the following

- 1) Water has an important role inside the cells of living organisms
- 2) Water is a polar compound
- 3) The solution resulting from dissolving sodium bicarbonate salt in water is basic
- 4) The boiling point of water increases
- 5) The solution resulting from dissolving sodium chloride in water is neutral

Question 4

What happens in each of the following cases

- 1) Adding ammonium chloride salt to water in relation to pH?
- 2) Acid rain falling on rocks?
- 3) The reaction of water vapor with carbon dioxide and sulfur trioxide in the atmosphere with respect to rain?

Question 5

Mention the main processes involved in the water cycle in nature





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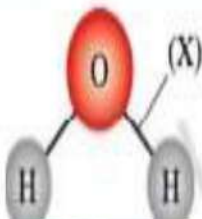


Question 6 Compare between
seawater and freshwater in terms of pH

Question 7

Why should salinity levels and changes in ionic composition within natural water bodies be monitored continuously?

Question 8 What is the type of X bond?





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- Evaporation and Condensation**

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- Co₂
- NH₃**

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15) Water is in the state of at a temperature higher than 100°C and is considered one of the components of the.....

- Liquid - atmosphere
- Solid - ice
- Vapor - water
- Vapor - atmosphere

Question 2

Write the scientific term in the following phrases

- 6) Rain resulting from the chemical reaction of water vapor in clouds with compounds present in the atmosphere (**acid rain**)
- 7) Chemical bonds between the hydrogen atom and the oxygen atom in the water molecule (**single covalent bonds**)
- 8) Fresh water that is formed as a result of water seeping through the pores of the soil from sedimentary rocks (**groundwater**)
- 9) A bond that arises between a water molecule and another water molecule and is responsible for the high boiling point of water (**hydrogen bond**)
- 10) A nearly closed system capable of changing the surface of the earth physically, chemically and biologically through a continuous change between the three states of water (**hydrological cycle**)





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Question 3

Explain the following

6) Water has an important role inside the cells of living organisms

Because all cells of the living organism have a membrane through which water passes, carrying the materials necessary to produce energy from inside the cell to outside it to get rid of waste

7) Water is a polar compound

Because The electronegativity of the oxygen atom is greater than the electronegativity of the hydrogen atom, so the electrons of the covalent bond are attracted to the oxygen atom.

8) The solution resulting from dissolving sodium bicarbonate salt in water is basic

Because it hydrolyzes causing a decrease in the concentration of positive hydrogen ions and an increase in the concentration of negative hydroxide ions

9) The boiling point of water increases

Because the water molecules are linked to each other by a hydrogen bond

10) The solution resulting from dissolving sodium chloride in water is neutral

Because the concentration of positive hydrogen ions equals the concentration of negative chloride ions

Question 4

What happens in each of the following cases

4) Adding ammonium chloride salt to water in relation to pH?

It hydrolyzes and causes a decrease in the concentration of negative hydroxide ions and an increase in the concentration of positive hydrogen ions, making the solution acidic and the pH value less than 7.





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5) Acid rain falling on rocks?

It works to break them up and decompose them.

6) The reaction of water vapor with carbon dioxide and sulfur trioxide in the atmosphere with respect to rain?

Some acids that fall in the form of acid rain

Question 5 Mention the main processes involved in the water cycle in nature

Evaporation

Condensation

Rain or snowfall

Question 6 Compare between

seawater and freshwater in terms of pH

pH of seawater = 7.5 : 8.4

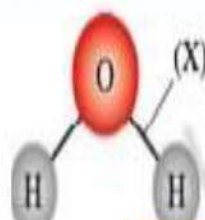
PH of freshwater = 6.5 : 8.5

Question 7

Why should salinity levels and changes in ionic composition within natural water bodies be monitored continuously?

Because hydrolysis affects water chemistry and results in potential negative effects on water quality and the health of living organisms

Question 8 What is the type of X bond?



Single covalent bond

