



## Daily Subject wise Quiz Day 29 Environment IV (Online Prelims Test)

1) Consider the following statements with respect to Biochemical Cycle

1. It is the way in which an element or compound moves between its several biotic and abiotic forms and locations in the biosphere.
2. It starts by absorbing the chemical elements by the organism and is returned to the air, water, and soil through decomposition.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

### Biochemical Cycle



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- Energy flows through an ecosystem and is released as heat, but chemical elements are recycled.
- It is a movement of nutrients and other elements between living and non-living beings.
- The sun is the basic source of energy on which all life depends, Life on earth comprises a great variety of living organisms.
- These living organisms exist and survive in a diversity of associations.
- The balance of the chemical elements is maintained by a cyclic movement through the tissues of plants and animals.
- The cycle starts by absorbing the chemical elements by the organism and is returned to the air, water, and soil through decomposition.
- These cycles are largely energized by solar insolation.

2) Which of the following are correct about Types of Biochemical cycles?

1. In the gaseous cycle, the main reservoir is the soil and the sedimentary and other rocks of the earth's crust.
2. In the sedimentary cycle, the main reservoir of nutrients is the atmosphere and the ocean.

Select the correct answers using the codes given below:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : d

## Types of Biochemical cycles

- There are two types of biogeochemical cycles:

1. In the gaseous cycle, the main reservoir of nutrients is the atmosphere and the ocean.
2. In the sedimentary cycle, the main reservoir is the soil and the sedimentary and other rocks of the earth's crust.

3) Which of the following highlights the difference between the phosphorous cycle and carbon cycle

- a. The phosphorous cycle does not include a gaseous phase but the carbon cycle does
- b. The phosphorous does not enter living entities but carbon enters
- c. The phosphorous cycle includes a solid phase, the carbon cycle does not
- d. Primary reservoir of the phosphorous cycle is the atmosphere, but rocks are the primary reservoirs for carbon cycle

Answer : a

## Phosphorous Cycle

- The phosphorus cycle is the biogeochemical cycle that describes the movement of phosphorus through the lithosphere, hydrosphere, and biosphere.
- The production of phosphine gas occurs in only specialized, local conditions.

## Carbon Cycle

- Carbon is the main component of biological compounds as well as a major component of many minerals such as limestone.
- Along with the nitrogen cycle and the water cycle, the carbon cycle comprises a sequence of events that are key to make Earth capable of sustaining life.
- It describes the movement of carbon as it is recycled and reused throughout the biosphere, as well as long-term processes of carbon sequestration to and release from carbon sinks.

4) Which of the following statements are correct about Nitrification

1. Nitrification is the process that converts ammonia to nitrite and then to nitrate.
2. Most nitrification occurs aerobically and there are two distinct steps of nitrification that are carried out by distinct types of microorganisms.

Select the correct answers using the codes given below:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

## Nitrification

- Nitrification is the process that converts ammonia to nitrite and then to nitrate.
- Most nitrification occurs aerobically and there are two distinct steps of nitrification that are carried out by distinct types of microorganisms.
- The first step is the oxidation of ammonia to nitrite, which is carried out by microbes known as ammonia-oxidizers.
- The second step in nitrification is the oxidation of nitrite ( $\text{NO}_2^-$ ) to nitrate ( $\text{NO}_3^-$ ).

- This step is carried out by a completely separate group of prokaryotes (a unicellular organism), known as nitrite-oxidizing bacteria.

5) Consider the following statements with respect to Sulphur dioxide

1. Atmospheric sulphur dioxide is carried back to the earth after being dissolved in rainwater as weak sulphuric acid (acid rain).
2. Whatever the source, sulphur in the form of sulphates is taken up by plants

Which of the above statements is/are incorrect?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : d

### **Sulphur dioxide**

- The sulphur cycle is mostly sedimentary except two of its compounds, hydrogen sulphide ( $\text{H}_2\text{S}$ ) and sulphur dioxide ( $\text{SO}_2$ ), which add a gaseous component.
- Sulphur enters the atmosphere from several sources like volcanic eruptions, combustion of fossil fuels (coal, diesel etc.), from the surface of the ocean and gases released by decomposition.
- Atmospheric hydrogen sulphide also gets oxidised into sulphur dioxide.
- Atmospheric sulphur dioxide is carried back to the earth after being dissolved in rainwater as weak sulphuric acid (acid rain).
- Sulphur bound in a living organism is carried back to the soil, to the bottom of ponds and lakes and seas through excretion and decomposition of dead organic material.