QB365 Question Bank Software Study Materials

Environmental Science Important 3 & 5 Marks Questions With Answers (Book Back and Creative)

9th Standard

Science

Total Marks : 78

3 Marks

16 x 3 = 48

1) What are the two factors of biosphere?

Answer : i) Biotic or living factors which include plants, animals and all other living organisms.
ii) Abiotic or Non-living factors which includes temperature, pressure, water, soil, air and sunlight.

2) How do human activities affect nitrogen cycle?

Answer : Burning fossil fuels, application of nitrogen-based fertilizers and other activities can increase the amount of biologically available nitrogen in an ecosystem. Nitrogen applied to agricultural fields enters rivers and marine systems. It alters the bio-diversity, changes the food web structure and destroys the general habitat.

3) What is adaptation?

Answer : Any feature of an organism or its part that enables it to exist under conditions of its habitat is called adaptation.

4) What are the challenges faced by hydrophytes in their habitat?

Answer : i) Availability of more water than needed.
ii) Water current may damage the plant body.
iii) Water levels may change regularly.
iv) Maintain buoyancy in water.

5) Why is it important to conserve water?

Answer : 1. It creates more-efficient use of water resources.
2. It ensures that we have enough usable water.
3. It helps in decreasing water pollution.
4. It helps in increasing energy saving.

6) List some of the ways in which you could save water in your home and school?

Answer : At home, we can conserve water by
1. Using a bucket of water to take bath than taking a shower.
2. Using low flow taps.
3. Using recycled water for lawns.
4. Repairing the leaks in the taps.
5. Recycling or reusing water wherever it is possible.

At school we could save water by
1. Collecting roof top water through, Rain water harvesting methods .
2. Creating awareness on water conservation by sticking poster-s.of slogans near the taps.
3. Using recycled water for lawns.
4. If not using any tap turn it off.
5. Report leaks. Make it a classroom activity to check for leaks regularly.
6. Bring a water bottle to school, At the end of the day, any leftover water can be poured onto the garden.

7) What are the uses of recycled water?

Answer : Recycled water is useful in,
1. Agriculture
2. Golf course irrigation
3. Toilet flushing
4. Landscape

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5. Coding water for power plants and oil refineries
6. Dust control
7. Public parks
8. Construction activities.

8) What is IUCN? What is the vision of IUCN?

Answer : 1. IUCN is an International organization working in the field of nature conservation and sustainable use of natural resources.

2. It provides public, private and non-governmental organisations with the knowledge to enable human progress, economic development and nature conservation to take place together.

Vision of IUCN:

The vision of IUCN is 'A just world that values and conserves nature'.

9) Identify the given plant. How does it adapt itself to its habitat?

Answer : The plant is identified as chara, a hydrophyte, commonly called as stoneworts. They are multicellular grey green algae lives underfresh water.

Adaptation:

They have stem like and leaf like structure, they are adapted to protect the plant from excessive light. Their growth based orientation towards light functioning as a mechanism to protect them from excessive light.

10) What is grey water?

Answer : Grey water is reusable waste water from residential, commercial and industrial, bathroom sinks, bath tub, shower drains and washing of clothes.

11) How do human activities affect carbon cycle?

Answer : 1. More carbon moves into the atmosphere due to burning of fossil fuels and deforestation.

2. Most of the carbon in atmospheric is in the form of carbon dioxide. carbon dioxide is a green house gas by increasing the amount of carbon dioxide, earth became warmer. This leads to greenhouse effect and global warming.

12) What is the theme of word water day what does it mean?

Answer : The theme for world water day 2018 is "Nature for water" - exploring nature-based solutions to the water challenge we face in 21st century.

13) What are the major human activities affecting the water cycle?

Answer : Major human activities affecting the water, cycle on land are urbanisation, dumping of plastic waste on land and into water polluting water bodies and deforestation.

14) Given some examples of nitrogen fixing organisms.

Answer : 1. Azatobactor (in soil)

2. Rhizobium (in root nodules)

3. Blue green algae - Nostoc

15) Give the classification of plant based on water availability.

Answer : Plants classified on the basis of water availability are.

i) Hydrophytes

ii) Xerophytes

iii) Mesophytes

16) What are the uses of water hyacinth?

Answer : 1. It is used as a green manure or converted as compost.

2. It is also used as animal fodder.

3. It can be processed to make paper, rope, hand bags and even furniture.

5 Marks 6 x 5 = 30

17) Describe the processes involved in the water cycle.

Answer : The water cycle involves a series of inter connected pathways involving both the biotic and abiotic components of the biosphere.

Water continuously moves between living organisms, such as plants and non-living things such as clouds, rivers and oceans.

The steps involved in the water cycle are as follows,

1. Evaporation:

Water evaporates from the surface of the earth and water bodies such as the oceans, seas, lakes, ponds and rivers turn into water vapour.

2. Sublimation:

Ice sheets and ice caps from north and south poles and ice caps on mountains, get converted into water vapour directly, without converting into liquid.

3. Transpiration:

It is the process by which plants release water vapour into the atmosphere through stomata in leaves and stems.

4. Condensation:

At higher altitudes, the temperature is low the water vapour present there condenses to form very tiny particles of water droplets. These particles come close together to form clouds and fog.

5. Precipitation:

Due to change in wind or temperature, clouds combine to make bigger droplets, and pour down as precipitation (rain). It includes drizzle, rain, snow and hail.

6. Run off:

As the water pours down, it runs over the surface of earth. Runoff water combines to form channels, rivers, lakes and ends up into seas and oceans.

7.Infiltration:

Some of the precipitated water moves deep into the soil, then it moves down and increases the ground water level.

8. Percolation:

Some of the precipitated water flows through soil and porous or fractured rock.

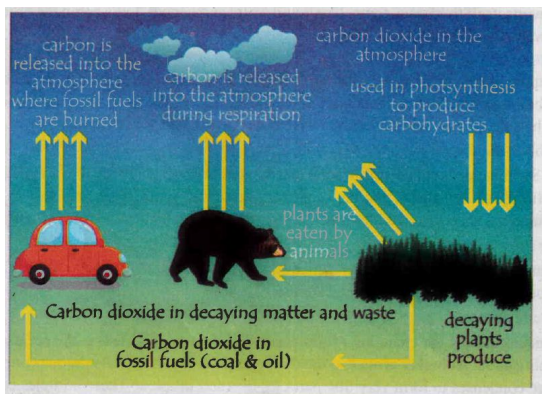
18) Explain carbon cycle with the help of a flow chart?

Answer : 1. Carbon occurs in various forms on earth. Charcoal, diamond and graphite are elemental forms of carbon. Combined forms of carbon include carbon monoxide, carbon dioxide and carbonate salts. All living organisms are made up of carbon containing molecules like proteins and nucleic acids.

2. The atmospheric carbon dioxide enters into the plants through the process of photosynthesis to form carbohydrates.

3. From plants, it is passed on to herbivores and carnivores. During respiration, plants and animals release carbon into atmosphere in the form of carbon dioxide.

4. Carbon dioxide is also returned to the atmosphere through decomposition of dead organic matter, burning fossil fuels and volcanic activities.



Planting more trees to reduce carbondioxide constant in the atmosphere.

19) How does a bat adapt itself to its habitat?

Answer : **Bats adaptations to its habitat:**

1. Bats are the only mammals that can fly.
2. Bats live in caves. Caves provide them protection during the day from most predators and the temperature here is very stable.
3. Apart from caves, bats also live in trees hollowed logs and rock crevices. They are extremely important to humans as they reduce insect population and help to pollinate plants.

Nocturnality:

Bats are active at night, as flight requires a lot of energy during day. Their thin, black wing membrane may cause excessive heat absorption during the day, this may lead to dehydration.

Flight adaptation:

1. Its modified forelimbs serve as wings. The bones in the wings of the bats are elongated fingers and are connected by the flaps of skin on either side of the body known as patagia.
2. Tail supports and controls movement during flight, muscles are well developed and highly powerful and achieve in beating of wings.
3. Tendons of hind limbs provide a tight grasp when the animals are suspended upside down at rest.

Hibernation:

1. Hibernation is a state inactivity in which the body temperature drops with a lowered metabolic rate during winter.
2. Bats let their internal temperature reduce when they are resting.
3. They go to a state of decreased activity to conserve energy.

Echolocation:

1. Bats give out high-frequency sounds, ie. ultrasonic sounds.
2. These sounds are reflected back from its prey and perceived by the ear. Bats use these echoes to locate and identify the prey.

20) What is water recycling? Explain the conventional wastewater recycling treatment methods?

Answer : Water recycling is reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, flushing in toilets and ground water recharge.

Conventional waste water treatment involves the following stages:

Primary treatment:

Primary treatment involves temporary holding of the wastewater in a tank. The heavy solids get settled at the bottom while oil, grease and lighter solids float over the surface. The settled and floating materials are removed. The remaining liquid may be sent for secondary treatment.

Secondary treatment:

Secondary treatment is used to remove the biodegradable dissolved organic matter. This is performed in the presence of oxygen by aerobic microorganisms. The microorganisms must be separated from treated water waste by sedimentation.

After separating the sediments of biological solids, the remaining liquid is discharged for tertiary treatment.

Tertiary treatment:

It involves removal of inorganic constituents such as nitrogen, phosphorus and microorganisms. The fine colloidal particles in the sewage water are precipitated by adding chemical coagulants like alum or ferric sulphate.

21) Plants grow in dry habitat are called

a) Hydrophytes b) mesophytes c) Xerophytes d) Epiphytes

Answer :

22) What are the conditions in a dry habitat to which plants develop adaptations? List out the adaptations of xerophytes?

Answer : **Xerophytes:**

Plants that grow in dry habitat are called xerophytes. They develop special structured and physiological characteristics to meet the following conditions.

i) To absorb as much water as they can get from the surroundings.

ii) To retain water in their organs for very long time.

iii) To reduce transpiration rate.

iv) To reduce consumption of water.

Adaptations of xerophytes:

1. They have well developed roots, Roots grow very deep and reach the layer where water in available as in allotropic.
2. They store water in succulent water storing parenchymatous tissues. eg: Opuntia, Aloe vera.
3. They have small sized leaves with waxy coating ego Acacia. In some plants leaves are modified into spines eg: Opuntia.
4. Some of the xerophytes complete their life cycle within a very short period when sufficient moisture is available.