# CBSE Class 10 Biology Our Environment Important Questions and Answers

## MULTIPLE CHOICE QUESTIONS

**Q.1. In a given food chain if the amount of energy at the fourth trophic level is 6 kJ, what will be the energy available at the producer level?**

**(a) 6000 kJ**

(b) 20 kJ

(c) 60 kJ

(d) 600 kJ

**Q.2. Environment includes:**

(a) Land, air, water

(b) Light, temperature, rainfall

(c) Plants, animals, microbes

**(d) All of these**

**Q.3. Which of the following is a biodegradable waste ?**

(a) DDT

(b) Aluminum can

(c) Plastic bag

**(d) Cow dung**

**Q.4. Which of the following is the best way for disposal of vegetable and fruit peels?**

(a) Landfill

(b) Recycling

**(c) Composting**

(d) Burning

**Q.5. Which group of waste materials can be classified as Non biodegradable ?**

(a) Plant waste, used tea bags

**(b) Polyethene bags, plastic toys**

(c) Used tea bags, paper straw

(d) Old clothes, broken footwear

**Q.6. Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as:**

(a) Eutrophication

(b) Pollution

**(c) Biomagnification**

(d) Accumulation

**Q.7. The % of solar radiation absorbed by all green plants for photosynthesis is about ————.**

**(a) 1%**

(b) 5%

(c) 8%

(d) 10%

**Q.8. In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of :**

(a) heat energy

(b) light energy

**(c) chemical energy**

(d) mechanical energy

**Q.9. Which of the statements is incorrect?**

(a) All green plants and blue green algae are producers

(b) Green plants get their food from organic compounds

**(c) Producers prepare their own food from inorganic compounds**

(d) Plants convert solar energy into chemical energy

**Q.10. If a grasshopper is eaten by frog, then the energy transfer will be from:**

(a) producers to decomposers

(b) producer to primary consumer

**(c) primary consumer to secondary consumer**

(d) secondary consumer to primary consumer

**Q.11. What will happen if Deer is missing in the food chain given below?**

**Grass → Deer → Tiger**

(a) The population of tiger increases

(b) The population of grass decreases

(c) Tiger will start eating grass

**(d) The population of tiger decreases and the population of grass increases**

**Q.12. The transfer of Energy in a food chain is always:**

**(a) Unidirectional**

(b) Methane

(c) Bi-directional

(d) Random

**Q.13. When is the World Environment Day celebrated?**

(a) 16 June

(b) 5 December

**(c) 5 June**

(d) 5 July

**Q.14. Which of these is a greenhouse gas?**

(a) Hydrogen Sulphide

**(b) Methane**

(c) Ozone

(d) Carbon monoxide

**Q.15. The decomposers are not included in the food chain. The correct reason for the same is because decomposers:**

**(a) Act at every trophic level of the food chain**

*(b) If both Assertion and Reason are true but Reason is not a correct explanation of the Assertion*

*(c) If Assertion is true but the Reason is false*

*(d) If both Assertion and Reason are false*

Q.1. Assertion (A) : Garden is an artificial ecosystem.

Reason(R) : Biotic and abiotic components are manipulated by humans.

**ANSWER: A**

Q.2. Assertion (A) : Food chain is responsible for the entry of harmful chemicals in our bodies.

Reason(R) : The length and complexity of food chain vary greatly.

**ANSWER: B**

Q. 3. Assertion (A) : Biotic components of ecosystem continuously require energy to carry on life processes.

Reason(R) : Abiotic components are non-living factors of ecosystem.

**ANSWER: B**

**CASE STUDY QUESTIONS**

Q.1. Ganga river has been severely polluted. All the towns along its length contribute to the pollution load. It has been assessed that more than 80 per cent of the total pollution load (in terms of organic pollution expressed as biochemical oxygen demand (BOD)) arises from domestic sources, i.e., from the settlements along the river course. Due to over-abstraction of water for irrigation in the upper regions of the river, the dry weather flow has been reduced to a trickle. Rampant deforestation in the last few decades, resulting in topsoil erosion in the catchment area, has increased silt deposits which, in turn, raise the river bed and lead to devastating floods in the rainy season and stagnant flow in the dry season. Along the main river course there are 25 towns with a population of more than 100,000 and about another 23 towns with populations above 50,000. In addition, there are 50 smaller towns with populations above 20,000. There are also about 100 identified major industries located directly on the river, of which 68 are considered as grossly polluting. Fifty-five of these industrial units have complied with the regulations and installed effluent treatment plants (ETPs) and legal proceedings are in progress for the remaining units. The natural assimilative capacity of the river is severely stressed. The principal sources of pollution of the Ganga River can be characterized as follows:

**1. Which of the following activities may pollute the river water more?**

**(a) Bathing using detergent and soap**

(b) Discharging animals excreta

(c) Deposit flowers and leaves as the part of puja

(d) Bathing without soap and detergent

**2. Which of the following organisms grow abundant in water when the water get mixed with nutrients like sulphates, phosphates etc.?**

**(a) Algae**

(b) Zooplankton

(c) Small fishes

(d) Large fishes

**3. When toxic chemicals and nutrients get deposited in the water bodies, which of the following gases get depleted in the water bodies?**

(a) Oxygen

(b)Carbon dioxide

**(c) Both oxygen and carbon dioxide**

Q.2. The atmosphere is a blanket of air and a precious natural resource for sustaining life on the Earth. Unfortunately, human activities based on national/personal interests are causing harm to this common resource, notably by depleting the fragile ozone layer, which acts as a protective shield for life on the Earth. Ozone molecules consist of three oxygen atoms, Ozone molecules are exceeding rare: fewer than ten in every million molecules of air. However, for nearly a billion years, their presence in the atmosphere has played a vital role in safeguarding life on Earth. The ozone in the troposphere (up to 110 kilometres above the Earth's surface) is 'bad' ozone which can damage lung tissues and plants. But about 90 per cent of ozone found in the stratosphere (between 10 and 40 kilometres above the Earth's surface) is "good" ozone which plays a beneficial role by absorbing dangerous ultraviolet (UV-B) radiations from the Sun. Without this beneficial ozone layer, humans would be more susceptible to certain diseases due to the increased incidence of ultraviolet rays from the Sun.

**1. Ozone holes are more pronounced at the :**

(a) Equator

(b) Tropic of cancer

(c) Tropic of Capricorn

**(d) Poles**

**2. Ozone molecules consists of:**

**(a) Three oxygen atoms only**

(b) two oxygen atoms only

(c) Only one atom of oxygen

(d) None of the above

**3. U-V rays can cause diseases in humans like**

(a) Skin cancer only

(b) Cataract only

(c) Lung cancer

**(d) Both (a) and (b)**

**4. Which of the following is an ozone depleting substance?**

(a) Sulphur dioxide

**(b) Methyl chloride**

**VERY SHORT ANSWER TYPE QUESTIONS**

**Q1- Give any two ways in which biodegradable substances would affect the environment.**

Ans: They keep the environment clean as they are easily decomposed.

They can easily go through the geochemical cycle with the help of decomposers.

**Q 2- In a food chain, 10,000 joules of energy is available to the producer. How much energy will be available to the secondary consumer to transfer it to the tertiary consumer?**

Ans: 10 J

**Q 3- The flow of energy in the food chain is unidirectional. Why?**

Ans: Energy flows from sun to plants (autotroph), plants to animals (consumer).

**Q 4 - Name any two abiotic components of an environment.**

Ans: (a) Climatic factors (light, temperature, rainfall)

(b) Edaphic factor (Soil)

**Q 5- Producers always occupy the first trophic level in any food chain. Why?**

Ans: Only producers have the ability to trap solar energy and manufacture organic food through the process of photosynthesis.

**Q 6- What is the full form of CFCs and UNEP?**

Ans: CFC=Chlorofluorocarbons UNEP = United Nations Environment Programme

**SHORT ANSWER TYPE QUESTIONS**

**Q 1 - Differentiate between biodegradable and non-biodegradable substances with the help of one example each. List two changes in habit that people must adapt to dispose non-biodegradable waste for saving the environment.**

Ans: Biodegradable substances: Substances that can be slowly destroyed and broken down into very small parts by natural processes i.e., by bacteria, fungi, etc. For example, organic wastes like vegetables and fruit peels.

Non-biodegradable substances: Substances that cannot be broken down or decomposed into the soil by natural agents are called as nonbiodegradable.For example, plastic. a. Segregating and treating the non-biodegradable waste before putting in dustbins. b. Recycle the plastics or glass present in non-biodegradable wastes. c. Motivate people to use paper or jute bags instead of plastic bags.

**Q 2 - What will happen if we kill all the organisms in one trophic level?**

**define?**

Ans: Bio-magnification

Bio-magnification is the increase in the level of a toxic substance with each successive rise in the trophic level of a food chain.

**Q 4 - How can we help in reducing the problem of waste disposal? List two ways.**

Ans: i-Separation of biodegradable and non-biodegradable wastes

ii-Preparation of compost / vermicomposting from biodegradable waste

iii-Recycling of waste

**Q 9 - Why is a lake considered to be a natural ecosystem?**

Ans: In Lake living organisms grow, reproduce and interact with other biotic and abiotic components. In lake different components carry out all activities in nature by themselves without any human interference; therefore it is referred to as a natural ecosystem.

**Q 10 -Which gas shield the surface of earth from harmful radiation of the sun. why these radiations are supposed to be harmful for us?**

Answer- Ozone gas

Harmful radiation of the sun like UV radiation may causes skin cancer, cataract, fall in immunity in infants, decline in photosynthesis rate etc

**LONG ANSWER TYPE QUESTIONS**

**Q1- Why are bacteria and fungi called decomposers? List any two advantages of decomposers to the environment.**

Ans: Decomposers degrade breakdown the complex organic substances into simple inorganic substances that go into the soil and are used up once more by the plants.

Advantages: i- Clean environment by decomposing dead bodies of plants/ animals

ii- Replenish nutrients (Inorganic substance) into soil

iii- Helps in Nutrient recycling

**Q2- "Energy flow in a food chain is unidirectional". Justify this statement. Explain how the pesticides enter a food chain and subsequently get into our body.**

Ans: Because the energy moves progressively through the various trophic levels and is no longer available to the previous trophic level. The energy captured by autotrophs does not revert to the solar input.

a. Pesticides, used for crop protection when washed down into the soil/ water body, are absorbed by the plant along with water and minerals

b. Plants are consumed by animals and these chemicals get into animal body

c. Being non-biodegradable, these chemicals get accumulated progressively in the food chain and into our body

d. As we go into higher levels of food chain amount of harmful substances will increase in the body of organisms as a result of biomagnification

**Q3- Answer the following: i- What is ozone? How is it formed in the atmosphere?**

**ii- How ozone layer is useful**

**iii- Name the substances responsible for the depletion of ozone layer.**

Ans: i- Ozone is a triatomic form of oxygen, O3. Ozone is formed in the upper atmosphere by the action of ultraviolet (UV) radiations over oxygen (O2)

ii- It protects us from harmful UV radiation from the sun.

iii- The important ozone depleting substances chlorofluorocarbons (CFC), methane, N2O, chlorine.

**Q4- (a) Write two harmful effects of using plastic bags on the environment. Suggest alternatives to the usage of plastic bags.**

**(b) List any two practices that can be followed to dispose of the waste produced in our homes.**

Ans: (a) Harmful effects of using plastic bags :

(i) These are non-biodegradable substances. They cannot be decomposed and therefore remain as pollutants in nature for many years.

(ii) The plastic bags choke drains and cause waterlogging.

(iii)The plastic releases harmful chemicals in soil, water slowly over years. Jute bags and cloth bags are the alternatives to the polyethene bags.

(b) Practices to dispose off the waste produced in our homes:

(i) Separation of biodegradable and non- biodegradable wastes.

(ii)The biodegradable waste can be converted to manure.

(iii)Non-biodegradable waste should be disposed off at suitable places from where municipal authorities can pick them up and dispose properly and scientifically.

(iv) Reuse the waste

**Q5- In the following food chain, 100 J of energy is available to the lion. How much energy was available to the producer?**

Ans : simple food chain: Plants ———> Deer ———> Lion.

As per 10 % law only 10 % of energy is transferred to next trophic level-

Energy available to deer = 100J x 10 = 1000 J

Energy available to plants = 1000 x 10 = 10,000 J.

**Q.6. In a food chain, if 10000 Joules of energy is available to the producer, how much energy will be available to the secondary consumer to transfer it to the tertiary consumer?**

Ans: Energy which will be available to the secondary consumer to transfer it to the tertiary consumer are

a. Energy available to producers = 10,000 Joules. Energy transfer to producer = 1% of 10,000 Joules = 100 Joules.

b. According to Ten percent law, Energy transfer to primary consumer = 10100 × 100 = 10 Joules.

c. Energy transfer to secondary consumer = 10100 × 10 = 1 Joule. d. Energy transfer to tertiary consumer = 10100 × 1 = 0.1 Joule