

Rajasthan Board Class 12, 2026 Environmental Science Question Paper with Solutions

Time Allowed :3 Hours	Maximum Marks :100	Total questions :38
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. The MP Board Class 12 History Exam is of a total of 100 marks, and the duration of the examination is 3 hours.
2. The paper is divided into two sections – Section A (Compulsory) and Section B (Elective).
3. Section A is compulsory for all candidates and generally includes objective-type questions, short answer questions, and long answer questions from the prescribed syllabus.
4. In Section A, candidates are required to answer all questions. The questions will cover topics from ancient, medieval, and modern history as prescribed by the syllabus.
5. Section B consists of elective questions. Candidates are required to attempt questions from the chosen topic according to the provided options.
6. The questions in Section A will be in the form of multiple-choice, short answer, and essay-type questions.
7. Use of unfair means or electronic devices during the examination is strictly prohibited.

1. If the COD value is low then -

- (A) The level of quality of water is low
(B) The level of quality of water is high

- (C) The level of quality of water is medium
- (D) None of above

Correct Answer: (B) The level of quality of water is high

Solution:

COD (Chemical Oxygen Demand) is a measure of the amount of oxygen required to oxidize organic compounds in water. A low COD value indicates that the water has a low concentration of organic pollutants, which typically means the water quality is good, or high. Hence, when the COD value is low, it implies that the water has high quality.

Step 1: Analyze the options.

- (A) The level of quality of water is low: This is incorrect. A low COD value reflects less organic contamination, implying better water quality.
- (B) The level of quality of water is high: This is correct. A low COD value means that there are fewer pollutants, which indicates high water quality.
- (C) The level of quality of water is medium: This is incorrect. A low COD value indicates that the water is cleaner than medium-quality water.
- (D) None of above: This is incorrect, as option (B) correctly describes the situation.

Step 2: Conclusion.

The correct answer is (B) since a low COD value indicates high water quality.

Final Answer:

(B) The level of quality of water is high

Quick Tip

A low COD value signifies low pollution and high water quality because fewer organic compounds need to be oxidized.

2. Which of the following is non-degradable?

- (A) CO₂

- (B) DDT
- (C) O₃
- (D) SO₂

Correct Answer: (B) DDT

Solution:

DDT (Dichlorodiphenyltrichloroethane) is a synthetic pesticide that is non-degradable and remains in the environment for a long period, causing harm to the ecosystem. Unlike CO₂, O₃, and SO₂, which either break down naturally or play essential roles in atmospheric processes, DDT accumulates in organisms and can cause severe ecological damage.

Step 1: Analyze the options.

(A) CO₂: Carbon dioxide is a naturally occurring gas that is part of the carbon cycle and is degradable by natural processes like photosynthesis.

(B) DDT: This is the correct answer because DDT is non-degradable and harmful to the environment.

(C) O₃: Ozone is a naturally occurring gas in the Earth's stratosphere and is involved in the ozone-oxygen cycle. It is degradable and does not accumulate in harmful ways.

(D) SO₂: Sulfur dioxide is produced naturally (e.g., from volcanic eruptions) and by human activities, and it breaks down in the atmosphere.

Step 2: Conclusion.

DDT is the only non-degradable compound listed, making (B) the correct answer.

Final Answer:

(B) DDT

Quick Tip

DDT is persistent in the environment, causing bioaccumulation and ecological harm, unlike naturally occurring gases like CO₂, O₃, and SO₂.

3. The warning limit for noise pollution is-

- (A) 85dB
- (B) 90dB
- (C) 70dB
- (D) 80dB

Correct Answer: (A) 85dB

Solution:

The warning limit for noise pollution is generally considered to be **85 dB**. Exposure to sound levels above this can cause hearing impairment and other health issues over prolonged periods. The noise level of 85 dB is a common threshold set by environmental health standards to indicate that noise levels are dangerously high for human health.

Step 1: Analyze the options.

(A) 85dB: This is the correct answer. The warning limit for noise pollution is typically set at 85 dB to prevent hearing damage and other negative health effects.

(B) 90dB: Although this is close, it is generally considered a high-risk level rather than a warning limit.

(C) 70dB: This is below the warning threshold. Noise at 70 dB is considered moderate and does not generally pose a health risk over short periods.

(D) 80dB: This is also below the standard 85 dB threshold, though it may still contribute to discomfort in noisy environments.

Step 2: Conclusion.

The correct answer is (A), as 85 dB is the widely accepted warning limit for noise pollution.

Final Answer:

(A) 85dB

Quick Tip

Prolonged exposure to noise levels above 85 dB can lead to hearing loss and other health problems. It is crucial to manage noise pollution effectively.

4. Photovoltaic solar panels are manufactured from -

- (A) Carbon
- (B) Silver
- (C) Silicon
- (D) Germanium

Correct Answer: (C) Silicon

Solution:

Photovoltaic solar panels are primarily made from **Silicon**, a semiconductor material. Silicon is used because of its efficient ability to convert sunlight into electricity through the photovoltaic effect. While other materials like carbon and germanium have also been explored, silicon remains the most widely used material in the production of solar panels.

Step 1: Analyze the options.

- (A) Carbon: While carbon-based materials like graphene are under research for future solar technologies, carbon itself is not commonly used in current photovoltaic solar panels.
- (B) Silver: Silver is used in solar cells for electrical contacts but is not the primary material in the construction of the solar panel itself.
- (C) Silicon: This is the correct answer. Silicon is the most commonly used material in photovoltaic solar panels due to its excellent semiconductor properties.
- (D) Germanium: Germanium was historically used in solar cells but has largely been replaced by silicon in modern photovoltaic technology.

Step 2: Conclusion.

Silicon is the primary material used to manufacture photovoltaic solar panels, making (C) the correct answer.

Final Answer:

(C) Silicon

Quick Tip

Silicon's efficiency and abundance make it the most widely used material in photovoltaic solar panel technology.

5. The Stockholm conference was held in-

- (A) In 1972
- (B) In 2004
- (C) In 1975
- (D) In 1986

Correct Answer: (A) In 1972

Solution:

The first Stockholm Conference, also known as the United Nations Conference on the Human Environment, was held in 1972. It was a landmark event in the history of environmental diplomacy and played a crucial role in setting the stage for subsequent international environmental agreements. The conference brought global attention to environmental issues, including pollution and resource management.

Step 1: Analyze the options.

- (A) In 1972: This is the correct answer. The Stockholm Conference took place in 1972 and marked a major turning point in international environmental policy.
- (B) In 2004: The Stockholm conference was not held in 2004. That year saw later developments in environmental policies, but not a major UN conference.
- (C) In 1975: This is incorrect. The first Stockholm Conference took place in 1972, not in 1975.
- (D) In 1986: This is incorrect as well. The Stockholm conference was in 1972, not 1986.

Step 2: Conclusion.

The correct answer is (A), as the first Stockholm Conference was held in 1972.

Final Answer:

(A) In 1972

Quick Tip

The 1972 Stockholm Conference was the first international conference to address global environmental issues, marking a significant milestone in environmental diplomacy.

6. It was first used for insulin production -

- (A) Plasmodium
- (B) Eisenia fetida
- (C) GMO Bacteria
- (D) Fungi

Correct Answer: (C) GMO Bacteria

Solution:

Genetically Modified Organisms (GMO) Bacteria were the first to be used for insulin production. In the 1970s, scientists successfully introduced the human insulin gene into bacteria like Escherichia coli (E. coli), allowing these bacteria to produce insulin in large quantities. This breakthrough revolutionized diabetes treatment, making insulin widely available.

Step 1: Analyze the options.

- (A) Plasmodium: Plasmodium is the genus of parasites that causes malaria and is not related to insulin production.
- (B) Eisenia fetida: This is a species of earthworm, and while it has various uses in agriculture and ecology, it is not used for insulin production.
- (C) GMO Bacteria: This is the correct answer. Genetically modified bacteria, like E. coli, were used to produce insulin after the gene for human insulin was introduced into them.
- (D) Fungi: Fungi have been used in biotechnology, but they were not the first to be used for insulin production. GMO bacteria were the breakthrough in this area.

Step 2: Conclusion.

The correct answer is (C) as genetically modified bacteria were the first used for insulin production.

Final Answer:

(C) GMO Bacteria

Quick Tip

GMO bacteria, particularly *E. coli*, revolutionized insulin production, making it widely available for diabetes treatment.

7. Which of the following layers is electrically charged?

- (A) Mesosphere
- (B) Stratosphere
- (C) Troposphere
- (D) Ionosphere

Correct Answer: (D) Ionosphere

Solution:

The **Ionosphere** is the layer of Earth's atmosphere that is electrically charged. It contains a high concentration of ions and free electrons, making it conductive. This charged layer plays a key role in radio communication, as it reflects radio waves back to Earth. The other layers—mesosphere, stratosphere, and troposphere—do not exhibit the same electrical properties.

Step 1: Analyze the options.

- (A) Mesosphere: This layer is located above the stratosphere but is not electrically charged in the way the ionosphere is.
- (B) Stratosphere: The stratosphere contains the ozone layer, but it is not electrically charged.
- (C) Troposphere: The troposphere is the lowest layer of Earth's atmosphere and does not exhibit electrical properties.
- (D) Ionosphere: This is the correct answer as it is the only layer of the atmosphere that is electrically charged, containing ions and free electrons.

Step 2: Conclusion.

The ionosphere is the layer of the atmosphere that is electrically charged, making (D) the correct answer.

Final Answer:

(D) Ionosphere

Quick Tip

The ionosphere is crucial for long-distance radio communication because it can reflect radio waves back to Earth due to its electrical properties.

8. Which type of radiation from sunlight is absorbed by ozone before it reaches the earth's surface?

- (A) UV-rays
- (B) X-rays
- (C) -rays
- (D) -rays

Correct Answer: (A) UV-rays

Solution:

The ozone layer primarily absorbs **UV-rays** (Ultraviolet rays) from the Sun. This absorption is crucial because UV-rays can be harmful to living organisms, causing skin cancer, eye damage, and other health issues. The ozone layer effectively filters out most of the UV-rays, preventing them from reaching the Earth's surface in large amounts. X-rays, -rays, and -rays are also types of radiation, but they are either not absorbed by the ozone layer in the same way or do not come from the Sun in the same significant quantities.

Step 1: Analyze the options.

- (A) UV-rays: This is the correct answer. The ozone layer absorbs UV-rays, particularly the harmful UV-B rays, preventing them from reaching the Earth's surface.
- (B) X-rays: X-rays are not absorbed by the ozone layer but are typically blocked by the Earth's atmosphere, particularly at higher altitudes.
- (C) -rays: Alpha rays are a type of particle radiation, which do not come from the Sun and are not absorbed by the ozone layer.

(D) -rays: Gamma rays are highly energetic, but they are not significantly blocked by the ozone layer, as they are absorbed primarily by the Earth's atmosphere.

Step 2: Conclusion.

UV-rays are the primary radiation absorbed by the ozone layer before they can reach the Earth's surface, making (A) the correct answer.

Final Answer:

(A) UV-rays

Quick Tip

The ozone layer protects life on Earth by absorbing the majority of harmful UV-rays from the Sun, which can cause serious health issues.

9. The plants in the Minimata valley were infected from-

- (A) Methyl Mercury
- (B) Lead
- (C) Zinc
- (D) Methyl Orange

Correct Answer: (A) Methyl Mercury

Solution:

The Minamata disease outbreak in Japan was caused by the release of **Methyl Mercury** into the bay from industrial wastewater. The plants and animals in the region were contaminated with this toxic substance, which later entered the food chain, causing neurological damage in humans and animals. Methyl mercury is highly toxic and can cause severe environmental and health problems.

Step 1: Analyze the options.

(A) Methyl Mercury: This is the correct answer. The contamination of the Minamata Valley was due to methyl mercury poisoning from industrial pollution.

(B) Lead: Lead is another toxic substance, but it was not the primary cause of the Minamata outbreak.

(C) Zinc: Zinc is an essential trace element for plants but was not responsible for the Minamata disease.

(D) Methyl Orange: Methyl orange is a pH indicator dye and is not related to the Minamata disease outbreak.

Step 2: Conclusion.

The plants in the Minamata Valley were primarily infected by **Methyl Mercury**, making (A) the correct answer.

Final Answer:

(A) Methyl Mercury

Quick Tip

Methyl mercury is a potent neurotoxin, and its contamination in water bodies can cause widespread environmental damage, as seen in the Minamata disaster.

10. The plants in the Minamata valley were infected from-

(A) Methyl Mercury

(B) Lead

(C) Zinc

(D) Methyl Orange

Correct Answer: (A) Methyl Mercury

Solution:

The Minamata disease outbreak in Japan was caused by the release of **Methyl Mercury** into the bay from industrial wastewater. The plants and animals in the region were contaminated with this toxic substance, which later entered the food chain, causing neurological damage in humans and animals. Methyl mercury is highly toxic and can cause severe environmental and health problems.

Step 1: Analyze the options.

(A) Methyl Mercury: This is the correct answer. The contamination of the Minamata Valley was due to methyl mercury poisoning from industrial pollution.

(B) Lead: Lead is another toxic substance, but it was not the primary cause of the Minamata outbreak.

(C) Zinc: Zinc is an essential trace element for plants but was not responsible for the Minamata disease.

(D) Methyl Orange: Methyl orange is a pH indicator dye and is not related to the Minamata disease outbreak.

Step 2: Conclusion.

The plants in the Minamata Valley were primarily infected by **Methyl Mercury**, making (A) the correct answer.

Final Answer:

(A) Methyl Mercury

Quick Tip

Methyl mercury is a potent neurotoxin, and its contamination in water bodies can cause widespread environmental damage, as seen in the Minamata disaster.

11. Where was the world's first environmental conference held?

- (A) Brazil
- (B) Stockholm
- (C) New York
- (D) London

Correct Answer: (B) Stockholm

Solution:

The world's first environmental conference, known as the United Nations Conference on the Human Environment, was held in **Stockholm** in 1972. The conference addressed global

environmental issues and laid the foundation for future environmental policy discussions. It was a landmark event that marked the beginning of international cooperation on environmental matters.

Step 1: Analyze the options.

(A) Brazil: Although Brazil has hosted many environmental discussions, it was not the location of the first global environmental conference.

(B) Stockholm: This is the correct answer. The first international environmental conference was held in Stockholm in 1972.

(C) New York: New York is home to the United Nations headquarters, but the first environmental conference was not held there.

(D) London: London is a major center for international politics, but it was not the location of the first environmental conference.

Step 2: Conclusion.

The correct answer is (B), as Stockholm hosted the first global environmental conference in 1972.

Final Answer:

(B) Stockholm

Quick Tip

The Stockholm Conference of 1972 was a key milestone in international environmental diplomacy, helping to establish environmental policies and global cooperation.

12. Write the importance of the Ozone layer in the atmosphere, write the reason for its depletion.

Solution:

Step 1: Importance of the Ozone Layer.

The ozone layer is an essential part of the Earth's atmosphere, found in the stratosphere, approximately 15 to 30 kilometers above the Earth's surface. This layer is crucial for life on

Earth because it absorbs and blocks the majority of the sun's harmful ultraviolet (UV) radiation, particularly UV-B and UV-C rays. These types of radiation can have devastating effects on living organisms. Exposure to increased levels of UV radiation is linked to various health problems, including skin cancer, cataracts, and weakened immune systems.

Besides human health, UV radiation can also harm other life forms. For instance, it can disrupt the growth of phytoplankton, which forms the foundation of aquatic food chains.

Furthermore, increased UV radiation can stunt plant growth, negatively impacting crop yields, and thus agricultural productivity. The ozone layer also plays a critical role in preserving the balance of ecosystems and biodiversity by protecting the delicate processes that occur within the atmosphere and at Earth's surface. In short, the ozone layer is a protective barrier that helps maintain the health and sustainability of life on Earth.

Step 2: Reasons for Ozone Depletion.

The depletion of the ozone layer is primarily caused by human activities. The main culprits are certain chemicals known as ozone-depleting substances (ODS), particularly chlorofluorocarbons (CFCs), halons, and other chemicals that contain chlorine and bromine. These chemicals are commonly found in products such as refrigerants, air conditioning systems, solvents, foam-blowing agents, and pesticides.

When these chemicals are released into the atmosphere, they slowly rise to the stratosphere, where the ozone layer is located. Once there, ultraviolet (UV) radiation from the sun breaks down these chemicals, releasing chlorine and bromine atoms. These atoms then react with ozone (O₃) molecules, breaking them apart into oxygen molecules (O₂) and individual oxygen atoms (O). This process reduces the concentration of ozone in the stratosphere, leading to thinning of the ozone layer.

A particularly concerning phenomenon is the depletion of the ozone layer over the polar regions, particularly over Antarctica, which leads to the formation of the "ozone hole."

During the colder months, chemicals like CFCs and halons react with ice particles in the stratosphere, triggering chemical reactions that further break down ozone. As a result, large portions of the ozone layer are lost, allowing more harmful UV radiation to reach the Earth's surface.

Step 3: Consequences of Ozone Depletion.

The depletion of the ozone layer has severe consequences for both human health and the

environment. With less ozone to absorb harmful UV radiation, more UV-B rays reach the Earth's surface. This increases the incidence of skin cancer, cataracts, and other health problems in humans. Moreover, the immune system can also be weakened, making individuals more susceptible to infections and diseases.

In the environment, increased UV radiation can cause significant disruptions. For example, aquatic ecosystems, especially phytoplankton, which are crucial for the marine food chain, are highly sensitive to UV radiation. This can result in the decline of marine biodiversity, affecting the entire ecosystem. Similarly, terrestrial plants, including crops, are vulnerable to increased UV exposure, leading to reduced agricultural productivity. In turn, this can lead to food insecurity and economic losses.

Step 4: Solutions and Mitigation Efforts.

To address the damage caused by ozone depletion, global efforts have been made to regulate and eliminate the use of ozone-depleting substances. The most notable initiative is the Montreal Protocol, which was adopted in 1987 to phase out the production and consumption of CFCs and other ODS. This international treaty has been successful in reducing the use of harmful chemicals and promoting the development of alternative substances that are less damaging to the ozone layer. As a result, the ozone layer is slowly recovering, though full recovery may take several decades.

Individuals can also contribute to protecting the ozone layer by using products that do not contain harmful chemicals, supporting legislation that regulates the use of CFCs, and spreading awareness about the importance of ozone protection.

Step 5: Conclusion.

In conclusion, the ozone layer is vital for the survival of life on Earth. It acts as a protective shield, preventing harmful UV radiation from reaching the Earth's surface. The depletion of this layer, caused primarily by human-made chemicals such as CFCs and halons, has serious consequences for human health, ecosystems, and agriculture. While global efforts such as the Montreal Protocol have led to significant reductions in the use of ozone-depleting substances, ongoing efforts are necessary to ensure the recovery and protection of the ozone layer for future generations.

Quick Tip

Ozone depletion is a global environmental issue that requires concerted efforts from governments, industries, and individuals to mitigate the harmful effects of UV radiation.

13. Write the definition of soil pollution and its effects.

Solution:

Soil pollution refers to the contamination of the soil by harmful chemicals, waste materials, and pollutants that degrade its quality and disrupt its ability to support plant and animal life. This pollution can be caused by various human activities such as industrial waste disposal, excessive use of pesticides and fertilizers, mining activities, and improper waste management.

Effects of Soil Pollution: The effects of soil pollution are numerous and can be severe:

- 1. Loss of Soil Fertility:** Pollutants can reduce the soil's ability to retain nutrients, leading to a decline in agricultural productivity. This results in reduced crop yields and poor-quality food.
- 2. Contamination of Water Resources:** Soil pollution can lead to the contamination of groundwater and surface water, which are essential for drinking and irrigation. Harmful chemicals can leach into these water sources, making them unsafe for consumption.
- 3. Harm to Ecosystems:** Soil pollution can disrupt ecosystems by harming the organisms that live in the soil, including earthworms, insects, and microorganisms. This, in turn, affects the food chain and overall biodiversity.
- 4. Health Hazards:** The pollutants in the soil, such as heavy metals and toxic chemicals, can enter the human body through contaminated food, water, and air, leading to various health issues, including cancer, neurological disorders, and reproductive problems.

Quick Tip

Preventing soil pollution is essential for maintaining soil fertility and protecting the environment. Proper waste disposal, reduced pesticide use, and sustainable farming practices can help mitigate soil pollution.

14. Explain the traditional waste water treatment processes in India.

Solution:

In India, traditional wastewater treatment processes have been practiced for centuries, particularly in rural areas, before modern methods were introduced. These traditional methods are generally simple, low-cost, and highly effective in specific contexts. Some common traditional wastewater treatment methods in India include:

1. Constructed Wetlands: Constructed wetlands are artificial systems designed to treat wastewater by using vegetation, soil, and microbial life. The wastewater flows through plant roots, where it is filtered by bacteria and the plant roots, absorbing contaminants and pollutants. This method is highly effective in reducing organic matter and improving water quality.

2. Biological Filtration: In some rural areas, wastewater is treated through biological filtration using sand, gravel, and other natural materials. This method allows microorganisms to break down pollutants and organic waste naturally.

3. Soak Pits and Pits for Solid Waste Disposal: Soak pits are a traditional method for treating domestic wastewater in rural areas. In this system, wastewater from household activities is directed to a pit filled with gravel, sand, and soil, which helps in the filtration and percolation of water into the ground. Similarly, pits are used to dispose of solid waste.

4. Cesspools: Cesspools are underground chambers used for the storage of sewage, often built using bricks or concrete. Over time, the waste decomposes, and the treated water seeps into the surrounding soil. Though effective for small-scale wastewater treatment, this method is not commonly used in urban areas anymore.

5. Use of Natural Water Bodies: Traditional systems often relied on rivers, ponds, and lakes for wastewater disposal. In ancient India, wastewater from homes and temples was directed to nearby water bodies, where natural processes, including sedimentation and filtration, helped treat the water. While this was effective in some cases, it has led to contamination of water bodies over time.

Quick Tip

Traditional methods, though effective in rural areas, have limitations in urban settings. Modern, sustainable wastewater treatment technologies are essential to address growing urbanization and pollution.

15. Explain the method of vermi composting technique.

Solution:

Step 1: Understanding Vermi Composting.

Vermi composting is an eco-friendly and efficient method of organic waste management, using earthworms to break down organic matter into nutrient-rich compost. The process involves the use of specific species of earthworms that are capable of digesting organic waste materials and converting them into high-quality compost. This compost is highly beneficial for enriching the soil with essential nutrients, improving its structure, and promoting healthy plant growth. Vermi composting is a natural process that requires minimal human intervention and can be done on a small scale or large scale, depending on the amount of organic waste being processed.

Step 2: The Vermi Composting Process.

The method of vermi composting involves several steps:

- 1. Preparation of the Bed:** The first step is to create a suitable environment for the earthworms. A composting bed is prepared using organic materials like vegetable scraps, manure, straw, and shredded paper. This is placed in a bin or container that has proper ventilation. The earthworms are introduced into the bin to start the composting process.
- 2. Feeding the Earthworms:** The earthworms are fed with organic waste like vegetable peels, food scraps, and other biodegradable material. These materials should not be too acidic, and non-biodegradable waste, such as plastic or metal, should be avoided. The earthworms consume the organic matter, breaking it down in their digestive system.
- 3. The Digestive Process:** As the earthworms digest the organic waste, they produce castings, which are rich in nutrients like nitrogen, phosphorus, and potassium. These castings are then mixed with other organic matter to create compost. The waste material

passes through the digestive system of the earthworms, where beneficial microbes help in the decomposition process.

4. **Harvesting the Compost:** After about 2-3 months, the composting process is complete, and the compost can be harvested. The vermi-compost is rich in beneficial nutrients and is typically dark, crumbly, and smells earthy. It can be used directly in gardens or farms to enrich the soil, improve water retention, and promote plant health.

5. **Maintenance:** During the composting process, it is important to maintain the right balance of moisture, oxygen, and temperature. The bed should be turned periodically to ensure proper aeration and avoid the growth of harmful bacteria. The temperature of the compost should also be monitored to ensure it does not become too hot, as this could harm the earthworms.

Step 3: Advantages of Vermi Composting.

- **Sustainability:** Vermi composting is an environmentally friendly method of recycling organic waste and converting it into valuable compost that improves soil quality. It reduces the need for chemical fertilizers and helps in reducing landfill waste.
- **Soil Health:** Vermi compost improves the physical, chemical, and biological properties of the soil, making it more fertile and conducive to plant growth.
- **Cost-Effective:** Vermi composting can be done on a small scale at home or on a larger scale in agricultural settings, making it an affordable and sustainable solution for waste management.

Quick Tip

Vermi composting is an excellent way to manage organic waste while producing nutrient-rich compost for gardening and farming. Proper maintenance of the earthworms and composting bed is essential for successful results.

16. Write the importance of Ozone layer in the atmosphere, write the reason for its depletion.

Solution:

The ozone layer, located in the stratosphere, plays a crucial role in protecting life on Earth by absorbing the majority of the sun's harmful ultraviolet (UV) radiation. Its importance includes:

1. Protection from UV Radiation: The ozone layer acts as a shield by absorbing harmful UV rays from the Sun. This protects living organisms from the harmful effects of excessive UV radiation, which can lead to skin cancer, cataracts, and other health problems. It also helps in preventing damage to plant life and marine ecosystems.

2. Climate Regulation: The ozone layer also contributes to maintaining the Earth's climate by regulating the amount of solar radiation reaching the Earth's surface. This helps maintain a stable temperature, essential for the survival of many species.

Reason for Ozone Depletion: Ozone depletion refers to the thinning of the ozone layer due to the release of certain chemicals, particularly chlorofluorocarbons (CFCs), halons, and other ozone-depleting substances (ODS). The main reasons for ozone depletion include:

1. Use of Ozone-Depleting Chemicals: The use of CFCs in air conditioning, refrigeration, and aerosol propellants has led to the release of chlorine and bromine compounds into the atmosphere. These compounds break down ozone molecules, leading to thinning of the ozone layer.

2. Industrial and Agricultural Activities: Other chemicals such as halons, carbon tetrachloride, and methyl chloroform, which are released during industrial and agricultural activities, also contribute to ozone layer depletion.

Quick Tip

The Montreal Protocol, signed in 1987, is a key international agreement aimed at phasing out the use of ozone-depleting substances, helping to protect the ozone layer.