**COURSE N 08**

**ENVIRONMENTAL PROBLEMS**

**5) Global Warming**

**Understanding Global Warming**

1. **Definition**

**Global warming** is the **gradual increase in Earth's average surface temperature** due to the accumulation of **greenhouse gases (GHGs)** such as carbon dioxide, methane, and nitrous oxide in the atmosphere, trapping more heat within the atmosphere.

**2: Causes of Global Warming**

* **Natural Causes**
* Volcanic eruptions.
* Variations in solar radiation.
* Human-Induced Causes
* Burning of fossil fuels for energy.
* Deforestation and land-use changes.
* Industrial processes and agricultural practices.

**3: Impacts of Global Warming**

* Environmental Impacts
* Melting glaciers and rising sea levels.
* Changes in weather patterns and extreme weather events.
* Loss of biodiversity and ecosystem disruption.
* Social and Economic Impacts
* Effects on agriculture and food security.
* Health consequences: heatwaves, diseases, and water scarcity.

**4: Mitigating Global Warming**

1. **Reducing Greenhouse Gas Emissions**
   * Transition to renewable energy: solar, wind, and hydropower.
   * Energy efficiency and conservation.
   * Sustainable transportation and urban planning.
2. **Carbon Sequestration الاحتجاز الكربوني**
   * Natural methods: afforestation and reforestation.
   * Technological innovations: carbon capture and storage (CCS).
3. **Policy and Global Agreements**

Paris Agreement and Kyoto Protocol. Aim to limit the rise in global temperature by reducing greenhouse gas emissions.

* + Role of governments, industries, and individuals.

**5: Role of Individuals and Communities**

* **Sustainable Practices**
* Reducing energy consumption at home.
* Supporting local and sustainable businesses.
* Community Engagement التفاعل المجتمعي أو المشاركة المجتمعية
* **Environmental education and awareness programs.**
* Participating in local conservation projects.

**Written Examination**

1. Fill in the Gaps

**Complete the sentences with the appropriate words from the text:**

Global warming is caused by the accumulation of \_\_\_\_\_\_ gases like carbon dioxide and methane in the atmosphere.

One natural cause of global warming is \_\_\_\_\_\_ \_\_\_\_\_\_, which releases greenhouse gases into the air.

The \_\_\_\_\_\_ Agreement aims to limit global temperature rise by reducing greenhouse gas emissions.

\_\_\_\_\_\_ and \_\_\_\_\_\_ are examples of natural carbon sequestration methods.

Melting \_\_\_\_\_\_ and rising \_\_\_\_\_\_ levels are environmental impacts of global warming.

**2. Matching Exercise**

Match each term in **Column A** with its correct description in **Column B**.

|  |  |
| --- | --- |
| 1. Volcanic eruptions | a. Community engagement to protect the environment. |
| 2. Paris Agreement | b. Releases greenhouse gases naturally. |
| 3. Deforestation | c. Encourages global cooperation to reduce emissions. |
| 4. Carbon Capture and Storage | d. Increases carbon dioxide levels by cutting trees. |
| 5. Participating in conservation | e. Technology for trapping and storing CO₂. |

1. **True or False**

Decide if the following statements are **True** or **False**:

1. burning fossil fuels is a natural cause of global warming.
2. Rising sea levels result from melting glaciers caused by global warming.
3. Carbon capture and storage is only a natural method for reducing atmospheric CO₂.
4. The Kyoto Protocol is an example of a global agreement to combat global warming.
5. Deforestation reduces greenhouse gas emissions in the atmosphere.

**4. Multiple Choice**

**Choose the correct option for each question:**

1. Which of the following is **NOT** a natural cause of global warming?  
   a. Volcanic eruptions  
   b. Variations in solar radiation  
   c. Burning of fossil fuels
2. What is one **social impact** of global warming?  
   a. Rising sea levels  
   b. Increased food security  
   c. Heatwaves and diseases  
   d. Loss of biodiversity
3. Which renewable energy source is used to reduce greenhouse gas emissions?  
   a. Solar power  
   b. nuclear power  
   c. Coal power  
   d. Oil
4. What does **afforestation** mean?  
   a. Cutting down trees for land use  
   b. Planting new forests in previously barren areas  
   c. Removing forests for urbanisation  
   d. Clearing land for agriculture
5. How can individuals help mitigate global warming?  
   a. Using more fossil fuels  
   b. Supporting local businesses  
   c. Participating in local conservation projects  
   d. Both b and c

**Answers: Written Examination**

**1. Fill in the Gaps**

1. Global warming is caused by the accumulation of **greenhouse** gases like carbon dioxide and methane in the atmosphere.
2. One natural cause of global warming is **volcanic eruptions**, which release greenhouse gases into the air.
3. The **Paris** Agreement aims to limit global temperature rise by reducing greenhouse gas emissions.
4. **Forests** and **oceans** are examples of natural carbon sequestration methods.
5. Melting **glaciers** and rising **sea** levels are environmental impacts of global warming.

**2. Matching Exercise**

1. Volcanic eruptions → **b. Releases greenhouse gases naturally.**
2. Paris Agreement → **c. Encourages global cooperation to reduce emissions.**
3. Deforestation → **d. Increases carbon dioxide levels by cutting trees.**
4. Carbon Capture and Storage → **e. Technology for trapping and storing CO₂.**
5. Participating in conservation → **a. Community engagement to protect the environment.**

**3. True or False**

1. **False** - Burning fossil fuels is a human activity, not a natural cause of global warming.
2. **True** - Rising sea levels result from melting glaciers caused by global warming.
3. **False** - Carbon capture and storage is a technological, not solely a natural, method for reducing atmospheric CO₂.
4. **True** - The Kyoto Protocol is an example of a global agreement to combat global warming.
5. **False** - Deforestation increases greenhouse gas emissions in the atmosphere.

**4. Multiple Choice**

1. **c. Burning of fossil fuels** - This is not a natural cause of global warming.
2. **c. Heatwaves and diseases** - This is a social impact of global warming.
3. **a. Solar power** - A renewable energy source used to reduce greenhouse gas emissions.
4. **b. Planting new forests in previously barren areas** - This is the definition of afforestation.
5. **d. Both b and c** - Supporting local businesses and participating in local conservation projects help mitigate global warming.

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