

## Environmental Science

### Climate Change and Ecosystems Quiz

**Instructions:**

- Answer all questions.
- For Questions 1–5, choose the best option.
- For Questions 6–8, mark True or False.
- For Questions 9–10, write detailed answers with scientific reasoning.

1. Which gas is the most significant contributor to the anthropogenic greenhouse effect?
  - (A) Methane ( $\text{CH}_4$ )
  - (B) Nitrous oxide ( $\text{N}_2\text{O}$ )
  - (C) Carbon dioxide ( $\text{CO}_2$ )
  - (D) Chlorofluorocarbons (CFCs)
2. The term “carbon sink” refers to:
  - (A) A source of carbon emissions
  - (B) A reservoir that absorbs more carbon than it releases
  - (C) A method of carbon taxation
  - (D) Industrial carbon capture facilities only
3. Ocean acidification is primarily caused by:
  - (A) Increased water temperature
  - (B) Absorption of atmospheric  $\text{CO}_2$
  - (C) Agricultural runoff
  - (D) Oil spills
4. Which of the following is a positive feedback loop in climate change?
  - (A) Increased cloud cover reflecting sunlight
  - (B) Melting ice reducing Earth’s albedo
  - (C) Plants absorbing more  $\text{CO}_2$  as levels rise
  - (D) Ocean absorption of heat

- 5.** The Paris Agreement aims to limit global temperature increase to:
- (A) 1.0°C above pre-industrial levels
  - (B) 1.5°C to well below 2°C above pre-industrial levels
  - (C) 3°C above pre-industrial levels
  - (D) Pre-industrial levels exactly
- 6.** The greenhouse effect is entirely harmful and did not exist before human industrialization.  
(True/False)
- 7.** Coral bleaching events are primarily caused by elevated ocean temperatures. (True/False)
- 8.** Deforestation contributes to climate change by reducing carbon sequestration capacity. (True/False)
- 9.** Explain the carbon cycle and how human activities have disrupted this natural process.  
Discuss at least three major anthropogenic sources of carbon emissions.
- 10.** Analyze the impacts of climate change on biodiversity. Discuss specific examples of affected ecosystems and species, and evaluate potential conservation strategies.