

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 (CH_4)
- (B) Nitrous oxide (N_2O)
- (C) Carbon dioxide (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 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 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.