

Advanced Environmental Science Assessment

Environmental Science · Answer Key · 18 Questions

1. Which process in the nitrogen cycle involves the conversion of atmospheric nitrogen gas into ammonia by specialized bacteria?

- A) Denitrification
- B) Nitrogen fixation**
- C) Nitrification
- D) Ammonification

2. In an ecosystem, which organisms occupy the highest trophic level and are responsible for breaking down complex organic compounds into simple nutrients?

- A) Primary producers
- B) Secondary consumers
- C) Tertiary consumers
- D) Decomposers**

3. Which layer of the atmosphere contains the ozone layer that protects the Earth from harmful ultraviolet radiation?

- A) Troposphere
- B) Stratosphere**
- C) Mesosphere
- D) Thermosphere

4. What is the primary cause of ocean acidification?

- A) Increased absorption of carbon dioxide by seawater**
- B) Increased levels of plastic pollution
- C) Rising global sea temperatures
- D) Runoff of agricultural fertilizers

5. Which term describes the maximum population size of a species that an environment can sustain indefinitely without degradation?

- A) Biotic potential
- B) Carrying capacity**
- C) Environmental resistance
- D) Logistic growth

6. Which greenhouse gas has a global warming potential approximately 25 times greater than carbon dioxide over a 100-year period?

- A) Nitrous oxide
- B) Water vapor
- C) Methane**
- D) Ozone

7. What is the primary ecological consequence of eutrophication in freshwater bodies?

- A) Increased biodiversity
- B) Oxygen depletion leading to dead zones**
- C) Enhanced primary productivity of deep-water plants
- D) Reduction of water turbidity

8. Which type of resource is characterized by having a finite supply and requiring millions of years to form?

- A) Renewable resource
- B) Non-renewable resource**
- C) Perpetual resource
- D) Inexhaustible resource

9. The 'Great Pacific Garbage Patch' is primarily composed of which material?

- A) Discarded fishing nets
- B) Microplastics**
- C) Industrial chemicals
- D) Heavy metals

10. What role do keystone species play in an ecosystem?

- A) They are the most abundant species by mass
- B) They hold an ecosystem together and prevent it from collapsing**
- C) They are the first to colonize an area after a disaster
- D) They are the primary producers for the entire food web

11. Which biome is characterized by low precipitation, extreme temperatures, and vegetation adapted to conserve water?

- A) Taiga
- B) Tundra
- C) Desert**
- D) Savanna

12. What process involves the accumulation of toxins in the tissues of organisms at higher trophic levels?

- A) Bioaccumulation
- B) Biomagnification**
- C) Bioremediation
- D) Biodiversity loss

13. Which of the following is a non-point source of water pollution?

- A) A leaking pipe at a factory
- B) A municipal sewage treatment plant discharge pipe
- C) Runoff from agricultural fields**
- D) An oil tanker spill

14. What is the primary reason for the decrease in biodiversity known as the 'sixth mass extinction'?

- A) Natural volcanic activity
- B) Human-induced habitat destruction and climate change**
- C) Increased solar radiation
- D) Periodic ice ages

15. Which atmospheric gas makes up the largest percentage of the Earth's dry air?

- A) Oxygen
- B) Argon
- C) Carbon dioxide
- D) Nitrogen**

16. What is the primary function of the thermohaline circulation in the Earth's climate system?

- A) Regulating local weather patterns
- B) Transporting heat across the global oceans**
- C) Generating tidal energy
- D) Controlling the salinity of freshwater lakes

17. Which of the following describes the 'albedo effect' in the context of climate change?

- A) The absorption of heat by greenhouse gases
- B) The reflection of solar radiation by surfaces like ice and snow**
- C) The cooling effect of volcanic ash
- D) The process of carbon sequestration by forests

18. What is the primary objective of a 'carbon sink'?

- A) To produce carbon dioxide through burning
- B) To remove carbon dioxide from the atmosphere**
- C) To store solar energy for later use
- D) To process nitrogen into fertilizers