Advanced Environmental Science Quiz

Environmental Science · Answer Key · 20 Questions

1. Which specific chemical process is primarily responsible for the acidification of the world's oceans?

A) Increased absorption of sulfur dioxide
B) Increased absorption of atmospheric carbon dioxide
C) Depletion of the ozone layer
D) Reduction in volcanic particulate matter

2. What is the primary ecological purpose of a riparian buffer zone?

A) To prevent urban sprawl into forests
B) To provide a physical barrier against wildfires
C) To filter pollutants from runoff before entering waterways
D) To increase the rate of nitrogen fixation in soil

3. Which layer of the atmosphere contains the highest concentration of ozone and protects Earth from UV-B radiation?

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

4. In the context of the nitrogen cycle, which process converts atmospheric nitrogen gas into ammonia?

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

5. Which greenhouse gas has a Global Warming Potential (GWP) approximately 28 to 36 times greater than carbon dioxide over a 100-year period?

A) Nitrous oxide
B) Methane
C) Water vapor
D) Chlorofluorocarbons

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6. What term describes the accumulation of toxins in the tissues of organisms at higher trophic levels?

A) Bioaccumulation
B) Biomagnification
C) Eutrophication
D) Biodegradation

7. The 'Keeling Curve' is a long-term data set that tracks the concentration of which substance in the atmosphere?

A) Methane
B) Sulfur dioxide
C) Carbon dioxide
D) Nitrogen oxides

8. Which international agreement was designed to phase out the production of substances responsible for ozone depletion?

A) Paris Agreement
B) Kyoto Protocol
C) Montreal Protocol
D) Basel Convention

9. What phenomenon occurs when excessive nutrients, particularly phosphorus and nitrogen, cause an overgrowth of algae in aquatic ecosystems?

A) Acidification
B) Eutrophication
C) Desalination
D) Desertification

10. What is the primary cause of the 'dead zone' in the Gulf of Mexico?

A) Oil spills
B) Thermal pollution from power plants
C) Hypoxia caused by nutrient runoff
D) Heavy metal contamination

11. Which type of rock is formed from the cooling and solidification of molten magma or lava?

A) Sedimentary
B) Metamorphic
C) Igneous
D) Conglomerate

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12. What is the primary component of natural gas, a fossil fuel often considered 'cleaner' than coal?

A) Ethane
B) Propane
C) Methane
D) Butane

13. Which soil horizon, known as the 'topsoil', contains the highest concentration of organic matter and microorganisms?

A) O horizon
B) A horizon
C) B horizon
D) C horizon

14. What term refers to the variety of life in a particular habitat or ecosystem?

A) Biomass
B) Biodiversity
C) Biotic potential
D) Biome

15. The 'tragedy of the commons' describes a situation where individuals exploit a shared resource for personal gain, ultimately leading to:

A) Resource depletion
B) Increased economic growth
C) Sustainable development
D) Market equilibrium

16. Which biome is characterized by low temperatures, low precipitation, and a layer of permafrost?

A) Taiga
B) Tundra
C) Temperate deciduous forest
D) Savanna

17. What is the primary function of the 'thermohaline circulation' in the global ocean?

A) Driving tidal waves
B) Regulating global heat distribution
C) Creating ocean currents for shipping
D) Increasing salinity in coastal regions

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18. Which element is the most abundant in Earth's atmosphere by volume?

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

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

A) A sewage treatment plant outlet
B) An industrial pipe discharge
C) Agricultural field runoff
D) A leaking underground storage tank

20. What describes the process where plants release water vapor into the atmosphere through their leaves?

A) Evaporation
B) Condensation
C) Transpiration
D) Precipitation

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