

Environmental Impact of Waste Management

Waste Management · Practice Test · 20 Questions

1. Which specific substance found in plastic marine debris is known to act as a chemical sponge, adsorbing persistent organic pollutants like PCBs from the surrounding seawater?

- A) Polyethylene terephthalate
- B) Hydrophobic organic contaminants
- C) Polylactic acid
- D) Phthalate esters

2. In the context of landfill ecology, which gas byproduct poses the greatest risk of thermal atmospheric trapping and is generated via the anaerobic decomposition of organic matter?

- A) Nitrogen dioxide
- B) Methane
- C) Sulfur hexafluoride
- D) Carbon monoxide

3. Which marine species is critically threatened by the ingestion of balloon fragments, which cause fatal blockages in the gastrointestinal tract due to their resemblance to gelatinous prey?

- A) Loggerhead sea turtle
- B) Blue whale
- C) Great white shark
- D) Emperor penguin

4. What is the primary mechanism by which leachate from unlined landfills negatively impacts local groundwater biodiversity?

- A) Increased salinity levels
- B) Heavy metal contamination
- C) Depletion of atmospheric nitrogen
- D) Excessive thermal discharge

5. Which toxic chemical, historically added to plastics as a flame retardant, has been found to bioaccumulate in the fatty tissues of Arctic apex predators?

- A) Polybrominated diphenyl ethers (PBDEs)
- B) Bisphenol A
- C) Polyvinyl chloride
- D) Polyethylene glycol

6. What term describes the process where plastic debris enters the marine food web at the microscopic level through ingestion by zooplankton?

- A) Biomagnification
- B) Trophic transfer
- C) Bio-uptake
- D) Sedimentation

7. Microplastics are defined by researchers as plastic particles having a diameter of less than:

- A) 50 micrometers
- B) 5 millimeters
- C) 1 centimeter
- D) 1 nanometer

8. Which bird species is often used as an indicator for marine plastic pollution due to its habit of feeding at the ocean surface where plastics accumulate?

- A) Albatross
- B) Penguin
- C) Ostrich
- D) Eagle

9. What negative impact does excessive nitrogenous waste in agricultural runoff have on aquatic environments?

- A) Eutrophication leading to hypoxic dead zones
- B) Increased biodiversity of freshwater fish
- C) Rapid growth of healthy coral reefs
- D) Depletion of heavy metals in sediment

10. Which heavy metal, frequently released during the improper disposal of electronic waste (e-waste), is a known potent neurotoxin that accumulates in aquatic sediment?

- A) Mercury
- B) Calcium
- C) Iron
- D) Magnesium

11. The Great Pacific Garbage Patch is primarily composed of what type of plastic material that has undergone photodegradation?

- A) Low-density polyethylene
- B) Polyurethane foam
- C) Polyester fibers
- D) Polytetrafluoroethylene

12. How does the accumulation of non-biodegradable waste on sandy beaches affect the nesting success of sea turtles?

- A) It increases the incubation temperature of the sand
- B) It alters the chemical composition of eggshells
- C) It prevents hatchlings from reaching the water
- D) It attracts invasive predators to the nest sites

13. What is the primary biological consequence of 'entanglement' in discarded fishing gear (ghost nets) for marine mammals like seals?

- A) Infection of the respiratory tract
- B) Physical trauma and restriction of movement leading to drowning
- C) Increased vulnerability to bacterial skin diseases
- D) Interference with echolocation abilities

14. Which process involves the transformation of waste organic material into stable humus through the action of soil macro-invertebrates?

- A) Vermicomposting
- B) Incineration
- C) Pyrolysis
- D) Gasification

15. Which chemical additive commonly found in plastic water bottles is a known endocrine disruptor that leaches into the environment upon degradation?

- A) Bisphenol A (BPA)
- B) Sodium bicarbonate
- C) Titanium dioxide
- D) Calcium carbonate

16. In landfill waste streams, which category of material is the largest contributor to the production of acidic leachate?

- A) Inorganic construction debris
- B) Food and organic yard waste
- C) Rubber tires
- D) Glass bottles

17. What phenomenon occurs when plastic debris inhibits the photosynthetic capacity of coral reefs by blocking light and carrying pathogens?

- A) Coralline bleaching
- B) Increased skeletal calcification
- C) Rapid polyp regeneration
- D) Enhanced symbiotic algae growth

18. Which waste management process is technically considered an 'exothermic' reaction that releases energy while converting carbonaceous materials into biochar and syngas?

- A) Pyrolysis
- B) Composting
- C) Aerobic digestion
- D) Landfilling

19. Persistent organic pollutants (POPs) accumulate in the environment and exhibit which characteristic that makes them dangerous to wildlife?

- A) High water solubility
- B) Rapid metabolic degradation
- C) Lipophilic (fat-loving) nature
- D) Low toxicity at high concentrations

20. The term 'leachate' refers to:

- A) The liquid that drains from a landfill after rainfall or decomposition
- B) The gaseous emissions from waste incineration
- C) The solid residue remaining after plastic recycling
- D) The synthetic fibers shed by clothing during washing