

Pollution Science and Human Health

Pollution Science · Answer Key · 8 Questions

1. Why is particulate matter smaller than 2.5 micrometers (PM2.5) particularly dangerous to human cardiovascular health?

- A) It blocks mechanical digestion in the stomach
- B) It is small enough to enter deep lung alveoli and penetrate the bloodstream**
- C) It permanently dissolves blood plasma proteins
- D) It causes instant calcification of cardiac valves

2. Carbon monoxide reduces oxygen delivery in the human body because its affinity for hemoglobin is approximately how many times greater than that of oxygen?

- A) 2 times
- B) 10 times
- C) 200 times**
- D) 5,000 times

3. In the human body, where is approximately 90% of long-term accumulated lead stored?

- A) In the liver and gallbladder
- B) In the skeletal system (bones and teeth)**
- C) In the cerebrospinal fluid
- D) In the renal cortex of the kidneys

4. Radioactive radon gas inhaled indoors is recognized as the leading environmental cause of which health condition in non-smokers?

- A) Skin melanoma
- B) Lung cancer**
- C) Thyroiditis
- D) Chronic kidney failure

5. Inhalation of microscopic asbestos fibers can lead to malignant mesothelioma, a cancer that affects which body tissue?

- A) The mesothelium lining the lungs and internal organs**
- B) The mucous membrane lining the small intestine
- C) The epidermis layer of the skin
- D) The meninges lining the spinal cord

6. How does ground-level ozone gas (O₃) primarily cause tissue damage in the human respiratory system?

A) By freezing the liquid lining of the bronchial airways

B) By causing oxidative stress that inflames and damages airway tissue

C) By forming solid microscopic crystal deposits inside alveoli

D) By destroying hemoglobin directly inside alveolar capillaries

7. Methylmercury, an environmental pollutant that accumulates in aquatic food chains, damages human health primarily by crossing which protective tissue barrier?

A) The epidermal skin barrier

B) The blood-brain barrier

C) The gastric mucosal barrier

D) The corneal barrier

8. Bisphenol A (BPA), a chemical found in various synthetic materials and plastics, interferes with human physiology by mimicking which hormone?

A) Insulin

B) Thyroxine

C) Estrogen

D) Adrenaline