Earth Science and Human Physiology

Earth Science · Answer Key · 8 Questions

1. Which naturally occurring radioactive gas, produced by the decay of uranium in soil and rock, is the second leading cause of lung cancer globally?

A) Radon
B) Thoron
C) Argon
D) Xenon

2. The condition known as 'caisson disease' or 'the bends' is caused by the rapid reduction of ambient pressure, affecting human tissues primarily due to the formation of bubbles of which gas?

A) Oxygen
B) Nitrogen
C) Carbon Dioxide
D) Helium

3. Which mineral deficiency is most strongly correlated with regions where the soil is severely depleted of iodine, leading to endemic goiter?

A) Selenium
B) Iron
C) Iodine
D) Zinc

4. What is the primary physiological mechanism by which high-altitude exposure (hypobaric hypoxia) initially triggers an increase in red blood cell production?

A) Increased solar radiation
B) Enhanced Vitamin D synthesis
C) Erythropoietin release by the kidneys
D) Reduced atmospheric nitrogen

5. Geophagy, the practice of consuming earth or soil-like substances, is most frequently associated with the human body's physiological attempt to mitigate deficiencies in which mineral?

A) Calcium
B) Iron
C) Potassium
D) Magnesium

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6. Which specific atmospheric condition, exacerbated by stagnant air masses and thermal inversions, is historically linked to the 'Great Smog' respiratory health crises?

A) High humidity
B) Atmospheric pressure drops
C) Particulate matter accumulation
D) Increased ozone layer density

7. Exposure to high concentrations of which volcanic gas, characterized by a rotten-egg odor, can cause immediate respiratory paralysis and olfactory fatigue in humans?

A) Sulfur dioxide
B) Hydrogen sulfide
C) Carbon monoxide
D) Methane

8. Which trace element, when found in high concentrations in groundwater due to local geology, is known to cause 'blackfoot disease' through peripheral vascular damage?

A) Arsenic
B) Lead
C) Mercury
D) Cadmium

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