

## Alpha Decay Quiz PDF

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**Which of the following best describes the penetration power of alpha particles?**

- High
- Moderate
- Low
- Extremely high

**Describe the process of alpha decay and its impact on the original atom's nucleus.**

**Which safety precautions are necessary when handling alpha emitters?**

- Wearing lead aprons
- Using gloves and masks
- Ensuring proper ventilation
- Using thick concrete barriers

**What happens to the atomic number of an element after alpha decay?**

- It increases by 2
- It decreases by 2
- It remains the same
- It decreases by 4

**How does alpha decay contribute to the stability of a radioactive nucleus? Provide an example.**

**Which of the following materials can stop alpha particles?**

- Lead
- Aluminum foil
- Paper
- Concrete

**Explain why alpha particles have low penetration power compared to other types of radiation.**

**Discuss the potential health risks associated with exposure to alpha particles and how they can be mitigated.**

**What is an alpha particle composed of?**

- 1 proton and 1 neutron
- 2 protons and 2 neutrons
- 2 electrons and 2 protons

- 3 protons and 3 neutrons

**Which element is commonly known to undergo alpha decay?**

- Carbon-14  
 Uranium-238  
 Iodine-131  
 Cesium-137

**Write the nuclear equation for the alpha decay of Uranium-238.**

**Compare and contrast alpha decay with beta decay in terms of particles emitted and changes in the nucleus.**

**What is the charge of an alpha particle?**

- +1  
 -1  
 +2  
 0

**Alpha decay typically results in the formation of which type of element?**

- A lighter element  
 A heavier element

- An isotope of the same element
- A non-radioactive element

**What is the primary reason for alpha decay in a nucleus?**

- To increase atomic mass
- To achieve nuclear stability
- To emit gamma rays
- To increase the number of neutrons

**Which of the following are characteristics of alpha particles?**

- High mass
- High penetration power
- Positive charge
- Short range in air

**What are potential applications of alpha particles?**

- Cancer treatment
- Smoke detectors
- Power generation in nuclear reactors
- Imaging in medical diagnostics

**Which isotopes are known to undergo alpha decay?**

- Uranium-238
- Radium-226
- Carbon-14
- Polonium-210

**What changes occur in the nucleus during alpha decay?**

- Loss of 2 protons
- Gain of 2 neutrons
- Loss of 2 neutrons
- Gain of 2 electrons

**Which of the following statements about alpha decay are true?**

- It increases the atomic number of the element.
- It decreases the mass number by 4.
- It results in the emission of a helium nucleus.
- It is a form of beta decay.