

Gamma Decay Quiz PDF

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Which of the following is true about gamma rays?

- They have mass.
- They are electromagnetic radiation.
- They are slower than alpha particles.
- They have charge.

What are common methods for detecting gamma radiation?

- Geiger-Müller counters
- Cloud chambers
- Scintillation detectors
- Semiconductor detectors

Who discovered gamma rays?

- Marie Curie
- Paul Villard
- Henri Becquerel
- Ernest Rutherford

Which interactions can occur between gamma rays and matter?

- Photoelectric effect
- Nuclear fission
- Pair production
- Compton scattering

Gamma rays are positioned where on the electromagnetic spectrum?

- Lower energy than visible light
- Higher energy than X-rays

- Between infrared and ultraviolet
- Between radio waves and microwaves

Which unit is commonly used to measure the energy of gamma rays?

- Joules
- Electronvolts
- Newtons
- Watts

Gamma decay typically occurs after which type of decay?

- Alpha decay
- Neutron emission
- Positron emission
- Beta decay

Which material is most effective for shielding against gamma radiation?

- Wood
- Lead
- Plastic
- Water

What is the primary purpose of gamma decay in a nucleus?

- To increase the atomic number
- To change the element
- To decrease the atomic mass
- To release excess energy

What type of radiation is emitted during gamma decay?

- Alpha particles
- Gamma rays
- Neutrons
- Beta particles

Explain why gamma decay does not change the atomic number or mass number of a nucleus.

Outline the historical significance of the discovery of gamma rays and their impact on the field of nuclear physics.

Describe the process by which gamma rays are emitted from an excited nucleus.

Discuss the safety measures that should be taken when working with gamma-emitting materials.

How do gamma rays differ from alpha and beta particles in terms of their physical properties and interactions with matter?

In which applications are gamma rays used?

- Medical imaging
- Radio broadcasting
- Industrial inspection
- Sterilization

Which of the following are characteristics of gamma rays?

- High energy
- Chargedd particles
- No mass
- Can ionize atoms

What are the effects of gamma radiation on biological tissues?

- Can cause ionization
- Harmless at all levels
- Can damage DNA
- Always visible to the naked eye

Which of the following statements about gamma decay are true?

- It changes the atomic number.
- It involves electromagnetic radiation.
- It reduces the mass number.
- It can occur after beta decay.

What role do gamma rays play in medical imaging, and what are the benefits and risks associated with their use?

