Lesson 158: Nuclear Chemistry Key Terms

1. **Alpha particle** – A positively charged particle, indistinguishable from a helium atom nucleus and consisting of two protons and two neutrons.

2. **Beta particle** – A high-speed electron or positron, especially one emitted in radioactive decay.

3. **Gamma ray** – Electromagnetic radiation emitted by radioactive decay and having energies in a range from ten thousand (104) to ten million (107) electron volts.

4. **Fission** – A nuclear reaction in which an atomic nucleus, especially a heavy nucleus such as an isotope of uranium, splits into fragments, usually two fragments of comparable mass, releasing from 100 million to several hundred million electron volts of energy.

5. **Fusion** – A nuclear reaction in which nuclei combine to form more massive nuclei with the simultaneous release of energy.

6. **Isotope** – One of two or more atoms having the same atomic number but different mass numbers, due to a different number of neutrons in the nucleus.

7. **Nuclear reactor** – Any of several devices in which a chain reaction is initiated and controlled, with the resulting heat typically used for power generation and the neutrons and fission products used for military, experimental, and medical purposes.

8. **Radioactivity** – Spontaneous emission of radiation, either directly from unstable atomic nuclei or as a consequence of a nuclear reaction.

9. **Artificial transmutation** – An artificially induced nuclear reaction caused by the bombardment of a nucleus with subatomic particles or small nuclei.

10. **Bombardment** – - the act (or an instance) of subjecting a body or substance to the impact of high-energy particles.

11. **Nucleon** – A proton or a neutron, especially as part of an atomic nucleus.

12. **Half-life** – The time required for half the nuclei in a sample of a specific isotopic species to undergo radioactive decay.

13. **Particle accelerator** – A device, such as a cyclotron or linear accelerator, that accelerates charged subatomic particles or nuclei to high energies.