1. Which particle can *not* be accelerated by the electric or magnetic fields in a particle accelerator?

   A) neutron B) proton
   C) alpha particle D) beta particle

2. A device used to give charged particles sufficient kinetic energy to penetrate the nucleus of an atom is

   A) an accelerator
   B) an electroscope
   C) a Geiger counter
   D) a scintillation counter

3. The primary use of a particle accelerator is to

   A) detect a radioactive particle
   B) isolate a radioactive particle
   C) increase the kinetic energy of a charged particle
   D) increase the potential energy of a charged particle

4. In a particle accelerator, the accelerated particle primarily gains

   A) heat energy B) kinetic energy
   C) nuclear energy D) potential energy

5. A particle accelerator is used to provide charged particles with sufficient

   A) kinetic energy to penetrate a nucleus
   B) kinetic energy to penetrate an electron cloud
   C) potential energy to penetrate a nucleus
   D) potential energy to penetrate an electron cloud

6. Which particle can be accelerated by an electric field?

   A) a proton B) a neutron
   C) a helium atom D) a hydrogen atom

7. Which particles can be accelerated in an electric or magnetic field?

   A) alpha and gamma B) beta and neutron
   C) alpha and beta D) beta and gamma

8. In which list can all particles be accelerated by an electric field?

   A) alpha particles, beta particles, and neutrons
   B) alpha particles, beta particles, and protons
   C) alpha particles, protons, and neutrons
   D) beta particles, protons, and neutrons

9. Artificial transmutation is brought about by using accelerated particles to bombard an atom's

   A) nucleus
   B) valence shells
   C) occupied sublevels
   D) inner principal energy levels

10. Which nuclear emission moving through an electric field would be attracted towards a positive electrode?

    A) alpha particle B) beta particle
    C) gamma radiation D) proton