

1. (2 points) Who is considered the father of modern atomic theory?
  - ☐ J.J. Thomson
  - ☐ Ernest Rutherford
  - ☐ John Dalton
  - ☐ Niels Bohr
2. (2 points) Which of the following statements is part of Dalton's atomic theory?
  - ☐ Atoms can be created or destroyed.
  - ☐ All atoms of an element are identical.
  - ☐ Atoms are divisible into smaller particles.
  - ☐ Atoms can exist in different states (solid, liquid, gas).
3. (2 points) What subatomic particle was discovered using the cathode ray tube experiment?
  - ☐ Proton
  - ☐ Neutron
  - ☐ Electron
  - ☐ Photon
4. (2 points) Rutherford's gold foil experiment led to the discovery of which atomic structure?
  - ☐ Electron cloud
  - ☐ Nucleus
  - ☐ Proton
  - ☐ Neutron
5. (2 points) Which particle has a negative charge?
  - ☐ Proton
  - ☐ Neutron
  - ☐ Electron
  - ☐ All of the above

Short Answer Questions

6. (5 points) Describe the main idea of the plum pudding model proposed by J.J. Thomson.

7. (5 points) Explain how the Bohr model of the atom differs from Rutherford's model.

8. (5 points) What is an isotope? Provide an example.

True or False

9. (2 points) The atomic mass of an element is the average mass of all its isotopes.

- ☐ True  
☐ False

10. (2 points) Neutrons are positively charged particles found in the nucleus of an atom.

- ☐ True  
☐ False

Bonus Question 11. How did the development of the quantum mechanical model improve upon earlier models of the atom?