



Answer all the questions below then check your answers.

1. Which Greek philosopher first proposed the idea of atoms?

- (a) Aristotle (b) Socrates (c) Democritus (d) Plato

2. J.J. Thomson is credited with the discovery of which subatomic particle?

- (a) Proton (b) Neutron (c) Electron (d) Nucleus

3. According to the modern model of the atom, where are protons and neutrons located?

- (a) In electron shells (b) Orbiting the nucleus
(c) In the nucleus (d) Scattered throughout the atom

4. Which subatomic particle has a negative charge?

- (a) Proton (b) Neutron (c) Electron (d) Nucleus

True or False Questions:

5. Democritus correctly described atoms as solid, unbreakable spheres.

6. The mass of an electron is significantly larger than the mass of a proton.

7. The nucleus of an atom contains protons and neutrons.

8. Atoms are mostly empty space.
9. How did Democritus describe atoms, and how did this differ from later scientific understanding?
10. Describe the contributions of J.J. Thomson, Ernest Rutherford, and Niels Bohr to the development of the atomic model.
11. Compare the relative masses of protons, neutrons, and electrons.
12. Explain why almost all the mass of an atom is concentrated in the nucleus.

Fill in the blanks to complete the sentences below:

13. The word "atom" comes from the Greek word "_____", which means "can't be split."
14. Electrons orbit the nucleus in _____ or levels.
15. If atoms are mostly empty space, why do solid objects feel solid?

Answers

1. Which Greek philosopher first proposed the idea of atoms?

- (a) Aristotle (b) Socrates (c) Democritus (d) Plato

Answer: (c) Democritus

2. J.J. Thomson is credited with the discovery of which subatomic particle?

- (a) Proton (b) Neutron (c) Electron (d) Nucleus

Answer: (c) Electron

3. According to the modern model of the atom, where are protons and neutrons located?

- (a) In electron shells (b) Orbiting the nucleus
(c) In the nucleus (d) Scattered throughout the atom

Answer: (c) In the nucleus

4. Which subatomic particle has a negative charge?

- (a) Proton (b) Neutron (c) Electron (d) Nucleus

Answer: (c) Electron

True or False Questions:

5. Democritus correctly described atoms as solid, unbreakable spheres.

Answer: False

6. The mass of an electron is significantly larger than the mass of a proton.

Answer: False

7. The nucleus of an atom contains protons and neutrons.

Answer: True

8. Atoms are mostly empty space.

Answer: True

9. How did Democritus describe atoms, and how did this differ from later scientific understanding?

Answer: Democritus described atoms as solid, unbreakable spheres. Later scientific discoveries showed that atoms are mostly empty space and made up of smaller particles (protons, neutrons, and electrons).

10. Describe the contributions of J.J. Thomson, Ernest Rutherford, and Niels Bohr to the development of the atomic model.

Answer: J.J. Thomson discovered the electron. Ernest Rutherford discovered the proton and the nucleus. Niels Bohr proposed that electrons orbit the nucleus in shells or rings.

11. Compare the relative masses of protons, neutrons, and electrons.

Answer: Protons and neutrons have approximately the same mass (relative mass of 1). Electrons have a much smaller mass (relative mass of approximately 0).

12. Explain why almost all the mass of an atom is concentrated in the nucleus.

Answer: Protons and neutrons, which are located in the nucleus, are much heavier than electrons. Therefore, almost all the mass of the atom is due to the protons and neutrons in the nucleus.

Fill in the blanks to complete the sentences below:

13. The word "atom" comes from the Greek word "_____," which means "can't be split."

Answer: atomos

14. Electrons orbit the nucleus in _____ or levels.

Answer: Shells or rings

15. If atoms are mostly empty space, why do solid objects feel solid?

Answer: Although atoms are mostly empty space, the electrons surrounding the nucleus create a strong repulsive force with the electrons of other atoms. This force prevents atoms from passing through each other, which is why solid objects feel solid.

Additionally, the forces holding the atoms together in the object contribute to its apparent solidity.