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1  What is the significance of the periodic table of elements? Choose the best answer.

- A It lists all the different metals known to humans
- B It predicts and lists all the chemical elements in the universe
- C It explains where different atoms can be found
- D It proves that atoms are the building blocks of matter

2 What do electrons in the same shell have in common?

- A They have the same amount of energy
- B They are all positively charged
- C They are all made up of atoms
- D They all have neutral charges

3 Which of the following is an example of a subatomic particle?

- A Carbon
- B Oxygen
- C Electron
- D Hydrogen

4 What might happen if the strong force didn't exist?

- A Electrons would have positive charges
- B Atomic nuclei would fly apart
- C It would be more difficult to split atoms
- D Neutrons would not exist

5  What two types of particles exist within an atomic nucleus?

- A Protons and neutrons
- B Neutrons and electrons
- C Protons and neutrinos
- D Positrons and neutrons

6 Oxygen has an atomic number of 8. What can you conclude from this fact?

- A An atom of oxygen weighs 8 grams
- B An atom of oxygen has 4 protons and 4 electrons
- C An atom of oxygen has 8 positrons
- D An atom of oxygen has 8 protons

7 The word "atom" comes from a Greek word for "indivisible." In what way are atoms indivisible?

- A They cannot be separated once they've bonded with other atoms
- B They cannot be broken apart without losing their chemical properties
- C They cannot form bonds with other atoms
- D They cannot gain or lose electrons

8 How are molecules different from atoms?

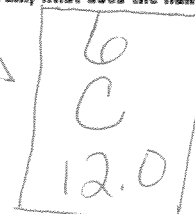
- A They consist of several atoms bonded together
- B They do not contain neutrons
- C They do not have nuclei
- D Their particles do not have electrical charges

9 What can you conclude from the fact that electrons orbit far away from atomic nuclei?

- A Electrons are extremely small
- B Atoms are comprised mostly of empty space
- C Protons have a positive charge
- D Atoms consist of subatomic particles

10  In the following diagram, what does the number 12 represent?

- A An atomic number
- B A number of electrons
- C An atomic mass
- D A chemical symbol



Brain POP[®] ATOMIC MODEL

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1 How do scientists know how atoms are structured?

- A By looking at them under a microscope
- B By running experiments that expose their properties
- C By examining only the largest atoms
- D By splitting them apart

2 What can you conclude from the fact that scientists continue to update the atomic model?

- A New information about atoms continues to be discovered
- B Old information about atoms is completely useless
- C Scientists did not have any information about atoms until a few years ago
- D Scientists still have no idea what atoms look like

3  What contribution did John Dalton make to atomic theory?

- A He discovered that every atom was positively charged
- B He discovered that every element consisted of one type of atom
- C He discovered that atoms had nuclei
- D He discovered that atoms could be divided into smaller parts

4 Place the following scientists in order, from earliest to latest: A) Ernest Rutherford; B) J.J. Thomson; C) John Dalton

- A B, C, A
- B C, A, B
- C A, C, B
- D C, B, A

SKIP

5 The majority of an atom's mass exists where?

- A In the nucleus
- B In the electron cloud
- C In the space between the nucleus and the electrons
- D In the neutrons

6 What are electrons?

- A Positively charged particles
- B Neutrally charged particles
- C Negatively charged particles
- D Uncharged particles

7 Ernest Rutherford discovered that atoms were mostly:

- A Negatively charged
- B Positively charged
- C Electrons
- D Empty space

8  What does the nucleus of an atom contain?

- A Electrons and neutrons
- B Protons and neutrons
- C Neutrinos and positrons
- D DNA and RNA

9 How are neutrons different from protons and electrons?

- A They are more massive than protons and electrons
- B They have no electrical charge
- C They are less massive than protons and electrons
- D Protons and electrons exist in atomic nuclei; neutrons orbit the nucleus in a "cloud"

10 How are electrons arranged in an atom?

- A In groups of five
- B In energy levels
- C By color
- D By shape