

- (1) The atom is the fundamental building block of everything we hear, feel, see, and experience. (1 Point)
True False
- (2) An atom is the smallest identifiable unit of a compound. (1 Point)
True False
- (3) You can continually divide matter into smaller and smaller pieces without ever coming to an end. (1 Point)
True False
- (4) The gold foil experiment proved that large regions of the atoms consisted of empty space. (1 Point)
True False
- (5) Protons and electrons each have a mass of 1 amu. (1 Point)
True False
- (6) A positive charge attracts negative charges and repels other positive charges. (1 Point)
True False
- (7) If two atoms each contain different numbers of protons, the atoms must be from different elements. (1 Point)
True False
- (8) In the modern periodic table, elements are listed in order of increasing atomic number rather than increasing relative mass. (1 Point)
True False
- (9) Metals are located on the left side of the periodic table. (1 Point)
True False
- (10) A cation forms when an atom gains an electron. (1 Point)
True False
- (11) The atomic mass of individual atoms of an element may vary. (1 Point)
True False
- (12) Which statement below accurately describes the contributions of Dalton? (2 Points)
A) ancient Greek philosopher who proposed that matter was continuous
B) created the modern periodic table
C) proposed the modern Atomic Theory
D) discovered the existence of electrons
E) none of the above
- (13) Which statement below accurately describes the contributions of Thomson? (2 Points)
A) ancient Greek philosopher who proposed that matter was continuous
B) created the modern periodic table
C) proposed the modern Atomic Theory
D) discovered the existence of electrons
E) none of the above

- (14) Which statement reflects the results of Rutherford's gold foil experiments? (2 Points)
- A) Almost all of the alpha particles were deflected back in the direction from which they came.
 - B) Almost all of the alpha particles sputtered gold atoms off of the surface of the foil.
 - C) Almost all of the alpha particles were deflected while passing through the foil.
 - D) Almost all of the alpha particles passed directly through the foil.
 - E) none of the above
- (15) An atom containing 7 protons, 8 neutrons, and 7 electrons (2 Points)
- A) is charge-neutral.
 - B) is an ion.
 - C) is an oxygen atom.
 - D) cannot exist.
 - E) none of the above
- (16) Which of the following elements has an atomic number of 4? (2 Points)
- A) H
 - B) C
 - C) He
 - D) Be
 - E) none of the above
- (17) Which of the following elements has only 12 protons? (2 Points)
- A) C
 - B) Zn
 - C) Mg
 - D) O
 - E) none of the above
- (18) What is the atomic symbol for silver? (2 Points)
- A) S
 - B) Ag
 - C) Au
 - D) Si
 - E) none of the above
- (19) What is the atomic symbol for tin? (2 Points)
- A) Sn
 - B) Ti
 - C) Tn
 - D) Si
 - E) none of the above

(20) Xe is a member of which family? (2 Points)

- A) noble gases
- B) halogens
- C) alkaline earth metals
- D) alkali metals
- E) none of the above

(21) Identify the element that is a nonmetal, a gas, and has an elemental symbol that starts with the letter "A." (2 Points)

- A) Ac
- B) Ar
- C) Au
- D) Al
- E) none of the above

(22) Ions are formed when atoms (2 Points)

- A) gain or lose protons.
- B) gain or lose electrons.
- C) gain or lose neutrons.
- D) Each of these results in ion formation.
- E) None of these results in ion formation.

(23) What is the correct formula for a potassium ion with 18 electrons? (2 Points)

- A) P^+
- B) K^+
- C) K^-
- D) P^-
- E) none of the above

(24) How many electrons are in Br^- ? (2 Points)

- A) 4
- B) 7
- C) 34
- D) 36
- E) none of the above

(25) How many electrons would be in a -2 charged anion of sulfur? (2 Points)

- A) 2
- B) 16
- C) 18
- D) 36
- E) none of the above

(26) How many protons and neutrons are in Cl-37? (2 Points)

- A) 20 protons, 17 neutrons
- B) 17 protons, 37 neutrons
- C) 17 protons, 20 neutrons
- D) 37 protons, 17 neutrons
- E) none of the above

(27) A specific isotope of an element is known to have 15 protons and 16 neutrons. Which symbol would properly represent this isotope? (2 Points)

- A) $^{15}_{31}\text{Ga}$
- B) $^{31}_{15}\text{P}$
- C) $^{16}_{15}\text{X}$
- D) $^{31}_{16}\text{S}$
- E) none of the above