

- (1) Mass is used as a method of counting atoms. (1 Point)
True False
- (2) The numerical value of the mole is defined as being equal to the number of atoms in exactly 12 grams of pure carbon-12. (1 Point)
True False
- (3) Avogadro's Number is 6.022×10^{23} (1 Point)
True False
- (4) The lighter the atom, the less mass in one mole of that atom. (1 Point)
True False
- (5) One mole of argon has more atoms in it than one mole of neon. (1 Point)
True False
- (6) One mole of zinc contains 65.39 zinc atoms. (1 Point)
True False
- (7) One mole of I_2 has more atoms in it than one mole of Na. (1 Point)
True False
- (8) The correct formula for calculating mass percent of X in compound XY is: (1 Point)

$$\frac{\text{Mass of X in a sample of the compound}}{\text{Mass of Y in a sample of the compound}} = \text{Mass \% X}$$

- True False
- (9) An empirical formula gives the specific number of each type of atom in a molecule. (1 Point)
True False
- (10) An empirical formula gives the smallest whole number ratio of each type of atom in a molecule. (1 Point)
True False
- (11) How many atoms are in 5.80 moles of He? (2 Points)
A) 6.02×10^{23}
B) 1.03×10^{23}
C) 4.00
D) 3.49×10^{24}
E) none of the above
- (12) How many moles of Cu are in 1.48×10^{25} Cu atoms? (2 Points)
A) 0.0408
B) 24.6
C) 1.54×10^{25}
D) 6.022×10^{23}
E) none of the above

(13) One mole of boron has a mass of _____ g. (2 Points)

- A) 9.012
- B) 6.022×10^{23}
- C) 5
- D) 10.811
- E) none of the above

(14) What is mass of 0.560 moles of chlorine gas (Cl_2)? (2 Points)

- A) 19.9
- B) 63.3
- C) 127
- D) 39.7
- E) none of the above

(15) You have 10.0 g each of Na, C, Pb, Cu and Ne. Which contains the largest number of moles? (2 Points)

- A) Na
- B) C
- C) Pb
- D) Cu
- E) Ne

(16) How many moles of iron are contained in 1.75 kg of iron? (2 Points)

- A) 3.13×10^{-2}
- B) 3.13×10^{-4}
- C) 31.3
- D) 3.13×10^4
- E) none of the above

(17) How many atoms are in 15.6 grams of silicon? (2 Points)

- A) 2.64×10^{26}
- B) 3.34×10^{23}
- C) 0.555
- D) 438
- E) none of the above

(18) What is the mass of 3.09×10^{24} atoms of sulfur in grams? (2 Points)

- A) 9.64×10^{22}
- B) 9.91×10^{25}
- C) 165
- D) 0.160
- E) none of the above

(19) If 3.011×10^{23} molecules have a mass of 20.04 grams, what is the molar mass of this substance?

(2 Points)

- A) 40.08 g/mol
- B) 10.02 g/mol
- C) 20.04 g/mol
- D) 6.658×10^{-23} g/mol
- E) none of the above

(20) Calculate the molar mass of ammonium carbonate, $(\text{NH}_4)_2\text{CO}_3$. (2 Points)

- A) 78.05 g/mol
- B) 88.05 g/mol
- C) 96.09 g/mol
- D) 112.09 g/mol
- E) none of the above

(21) A 42.7 gram sample of potassium nitrate (KNO_3) contains how many grams of potassium? (2 Points)

- A) 39.1
- B) 16.5
- C) 21.4
- D) 8.54
- E) none of the above

(22) Bauxite is an ore that contains the element aluminum. If you obtained 108 grams of aluminum from an ore sample that initially weighed 204 grams, what is the mass percent of aluminum in this bauxite ore? (2 Points)

- A) 52.9
- B) 15.6
- C) 0.53
- D) 47.1
- E) none of the above

(23) What is the mass percent of chlorine in hydrochloric acid? (2 Points)

- A) 2.8
- B) 35.5
- C) 97.2
- D) 70.1
- E) none of the above