

Chapter 01 Quiz Chang General Chemistry

1. A bathroom-type scale is calibrated (marked off) in tenths of a kilogram from 1 to 200 kg and you can estimate to the nearest two-hundredths of a kilogram. How many significant figures should you use to express the mass of someone whose mass is between 11 and 99 kg? (2 points)

Your response:

b. 4 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 5
- b. 4
- c. 3
- d. 2
- e. 1

2. The number 1.050×10^9 has how many significant figures? (2 points)

Your response:

c. 4 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 2
- b. 3
- c. 4
- d. 9
- e. 13

-
3. Lead melts at 601.0°C . What temperature is this in $^{\circ}\text{F}$? (2 points)

Your response:

e. $1,114^{\circ}\text{F}$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 302°F
- b. 365°F
- c. $1,050^{\circ}\text{F}$
- d. $1,082^{\circ}\text{F}$
- e. $1,114^{\circ}\text{F}$

-
4. The diameter of an atom is approximately $1 \times 10^{-8} \text{ cm}$. What is this diameter when expressed in nanometers? (2 points)

Your response:

e. $1 \times 10^{-1} \text{ nm}$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. $1 \times 10^{-19} \text{ nm}$
- b. $1 \times 10^{-15} \text{ nm}$
- c. $1 \times 10^1 \text{ nm}$
- d. $1 \times 10^{-10} \text{ nm}$
- e. $1 \times 10^{-1} \text{ nm}$

-
5. Bromine is a red liquid at 25°C. Its density is 3.12 g/cm³. What is the volume of 28.1 g of liquid bromine? (2 points)

Your response:

c. 9.01 cm³ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 87.7 cm³
- b. 0.111 cm³
- c. 9.01 cm³
- d. 28.1 cm³
- e. None of the above.

-
6. A piece of metal with a mass of 125 g is placed into a graduated cylinder that contains 25.00 mL of water, raising the water level to 56.00 mL. What is the density of the metal? (2 points)

Your response:

b. 4.03 g/cm³ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 5.00 g/cm³
- b. 4.03 g/cm³
- c. 2.23 g/cm³
- d. 1.51 g/cm³
- e. 0.25 g/cm³

-
7. All of the following are properties of sodium. Which one is a physical property of sodium? (2 points)

Your response:

b. It is a solid at 25°C and changes to a liquid when heated to 98°C. (You answered correctly!)

2 points awarded.

The correct answer is:

- a. Its surface turns black when first exposed to air.
- b. It is a solid at 25°C and changes to a liquid when heated to 98°C.**
- c. When placed in water it sizzles and a gas is formed.
- d. When placed in contact with chlorine it forms a compound that melts at 801°C.

-
8. Which one of the following represents a chemical change? (2 points)

Your response:

b. bleach turns hair yellow (You answered correctly!)

2 points awarded.

The correct answer is:

- a. boiling water to form steam
- b. bleach turns hair yellow**
- c. melting butter
- d. mixing powdered zinc and sulfur at room temperature
- e. cutting a bar of sodium metal into pieces with a knife

9. Choose the response that includes all the items listed below that are pure substances.

1. orange 2. steam 3. wine 4. carbon dioxide 5. vegetable soup

(2 points)

Your response:

b. 2, 4 (You answered correctly!)

2 points awarded. The correct answer is:

- a. 1, 3, 5
- b. 2, 4**
- c. 1, 3, 4
- d. 4 only
- e. all of them are pure

10. After carrying out the following operations, how many significant figures are appropriate to show in the result?

$$\frac{13.7 + 0.027}{8.221}$$

(2 points)

Your response:

c. 3 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 1
- b. 2
- c. 3**
- d. 4
- e. 5

20 points out of 20 awarded. (100%)

Click [here](#)

Chapter 02 Quiz Chang General Chemistry

Description

Please select the best choice for each question.

This assessment is worth 20 points.

Note: Correct answers appear in **Blue**. Incorrect answers and skipped questions appear in **Red** after 'Your response'.

1. The name of N_2O_5 according to the Stock system is dinitrogen pentoxide. (2 points)

Your response:

True

0 points awarded.

The correct answer is:

True

False

-
2. The elements in a column of the periodic table are known as (2 points)

Your response:

d. a group. (You answered correctly!)

2 points awarded.

The correct answer is:

- a. metalloids.
- b. a period.
- c. noble gases.
- d. a group.**
- e. nonmetals.

-
3. Rutherford's experiment with alpha particle scattering by gold foil established that (2 points)

Your response:

e. protons are 1840 times heavier than electrons.

0 points awarded.

The correct answer is:

- a. protons are not evenly distributed throughout an atom.
- b. electrons have a negative charge.
- c. electrons have a positive charge.
- d. atoms are made of protons, neutrons, and electrons.
- e. protons are 1840 times heavier than electrons.

-
4. How many neutrons are there in an atom of lead whose mass number is 208? (2 points)

Your response:

b. 126 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 82
- b. 126
- c. 208
- d. 290
- e. none of them

5. An oxide ion, O^{2-} , has: (2 points)

Your response:

a. 8 protons and 10 electrons (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 8 protons and 10 electrons
 - b. 10 protons and 8 electrons
 - c. 8 protons and 9 electrons
 - d. 8 protons and 7 electrons
 - e. 10 protons and 7 electrons
-

6. What is the formula for the ionic compound formed by calcium ions and nitrate ions? (2 points)

Your response:

b. $Ca(NO_3)_2$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. Ca_3N_2
- b. $Ca(NO_3)_2$
- c. Ca_2NO_3
- d. Ca_2NO_2
- e. $CaNO_3$

-
7. What is the formula for the binary compound formed by potassium and nitrogen? (2 points)

Your response:

d. K_3N (You answered correctly!)

2 points awarded.

The correct answer is:

- a. KN
- b. K_2N
- c. NK_2
- d. K_3N
- e. NK_3

-
8. The formula for calcium phosphate is (2 points)

Your response:

b. $Ca_3(PO_4)_2$. (You answered correctly!)

2 points awarded.

The correct answer is:

- a. $CaPO_4$.
- b. $Ca_3(PO_4)_2$.
- c. $Ca_2(PO_4)_3$.
- d. Ca_3P_2 .
- e. $Ca_3(PO_3)_2$.

9. The Stock system name for Mn_2O_7 is (2 points)

Your response:

c. manganese(VII) oxide. (You answered correctly!)

2 points awarded.

The correct answer is:

- a. dimanganese heptaoxide.
 - b. magnesium oxide.
 - c. manganese(VII) oxide.
 - d. manganese(II) oxide.
 - e. manganese(III) oxide.
-

10. Consistent with vanadium being a transition metal, the name for VSO_4 should be (2 points)

Your response:

d. vanadium (II) sulfate. (You answered correctly!)

2 points awarded.

The correct answer is:

- a. vanadium sulfide.
 - b. vanadium (I) sulfite.
 - c. vanadium (I) sulfate.
 - d. vanadium (II) sulfate.
 - e. vanadium sulfur tetraoxide.
-

16 points out of 20 awarded. (80%)

Click [here](#) for assessment statistics.

Chapter 03 Quiz Chang General Chemistry

Description

Please select the best choice for each question.

This assessment is worth 20 points.

Note: Correct answers appear in **Blue**. Incorrect answers and skipped questions appear in **Red** after 'Your response'.

1. If 0.274 moles of a substance weighs 62.5 g, what is the molar mass of the substance, in units of g/mol? (2 points)

Your response:

a. 2.28×10^2 g/mol (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 2.28×10^2 g/mol
- b. 1.71×10^1 g/mol
- c. 4.38×10^{-3} g/mol
- d. 2.17×10^2 g/mol
- e. none of these

-
2. Which one of the following does not represent 1.00 mol of the indicated substance? (2 points)

Your response:

b. 26.0 g Fe (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 6.02×10^{23} C atoms
- b. 26.0 g Fe
- c. 12.01 g C
- d. 65.38 g Zn
- e. 6.02×10^{23} Fe atoms

3. How many atoms are in 5.54 g of F₂? (2 points)

Your response:

e. 1.76×10^{23} atoms (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 6.02×10^{23} C atoms
- b. 0.146 atoms
- c. 0.292 atoms
- d. 8.78×10^{22} atoms
- e. 1.76×10^{23} atoms

4. Calculate the number of moles of phosphorus in 12.0 g of phosphorus. (2 points)

Your response:

a. 0.387 mol (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 0.387 mol
- b. 0.80 mol
- c. 2.58 mol
- d. 12.0 mol
- e. 6.02×10^{23} mol

5. What is the mass of 0.0250 mol of P_2O_5 ? (2 points)

Your response:

e. 3.55 g (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 35.5 g
- b. 5676 g
- c. 0.0250 g
- d. 1.51×10^{22} g
- e. 3.55 g

6. How many grams of sodium are there in 10 g of sodium sulfate, Na_2SO_4 ? (2 points)

Your response:

c. 3.2 g (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 0.16 g
- b. 0.32 g
- c. 3.2 g
- d. 1.6 g
- e. 142 g

-
7. The percent composition by mass of a compound is 76.0% C, 12.8% H, and 11.2% O. The molar mass of this compound is 284.5 g/mol. What is the molecular formula of the compound? (2 points)

Your response:

e. $C_{18}H_{36}O_2$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. $C_{10}H_6O$
- b. $C_9H_{18}O$
- c. $C_{16}H_{28}O_4$
- d. $C_{20}H_{12}O_2$
- e. $C_{18}H_{36}O_2$

-
8. What is the coefficient of H_2O when the following equation is properly balanced with smallest set of whole numbers?



Your response:

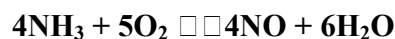
d. 12 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 3
- b. 4
- c. 6
- d. 12
- e. 24

9. Ammonia reacts with diatomic oxygen to form nitric oxide and water vapor:



When 40.0 g NH_3 and 50.0 g O_2 are allowed to react, which is the limiting reagent? (2 points)

Your response:

b. O_2 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. NH_3
- b. O_2
- c. Neither reagent is limiting.

10. What is the theoretical yield of vanadium, in moles, that can be produced by the reaction of 2.0 mole of V_2O_5 with 6.0 mole of calcium based on the following chemical reaction?



Your response:

d. 2.4 mol (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 1.0 mol
 - b. 1.6 mol
 - c. 2.0 mol
 - d. 2.4 mol
 - e. 4.0 mol
-

20 points out of 20 awarded. (100%)

Click [here](#) for assessment statistics.

Chapter 04 Quiz Chang General Chemistry

Description

Please select the best choice for each question.

This assessment is worth 20 points.

Note: Correct answers appear in **Blue**. Incorrect answers and skipped questions appear in **Red** after 'Your response'.

1. Identify the major ionic species present in an aqueous solution of Na_2CO_3 . (2 points)

Your response:

e. Na^+ , CO_3^{2-} (You answered correctly!)

2 points awarded.

The correct answer is:

- a. Na_2^+ , CO_3^{2-}
 - b. Na_2^+ , C^{2-} , O_3
 - c. Na^+ , C^{4+} , O_3^{2-}
 - d. Na^+ , C^+ , O^{2-}
 - e. Na^+ , CO_3^{2-}
-

2. Based on the solubility rules, which of the following will occur when a solution containing about 0.1 g of $\text{Pb}(\text{NO}_3)_2(\text{aq})$ is mixed with a solution containing 0.1 g of $\text{KI}(\text{aq})$ /100 mL? (2 points)

Your response:

d. PbI_2 will precipitate; K^+ and NO_3^- are spectator ions. (You answered correctly!)

2 points awarded.

The correct answer is:

- a. KNO_3 will precipitate; Pb^{2+} and I^- are spectator ions.
- b. No precipitate will form.
- c. $\text{Pb}(\text{NO}_3)_2$ will precipitate; K^+ and I^- are spectator ions.
- d. PbI_2 will precipitate; K^+ and NO_3^- are spectator ions.**
- e. Pb^{2+} and I^- are spectator ions, and PbI_2 will precipitate.

-
3. Which of the following is the correct net ionic equation for the reaction that occurs when solutions of $\text{Pb}(\text{NO}_3)_2$ and NH_4Cl are mixed? (2 points)

Your response:

b. $\text{Pb}^{2+} + 2\text{Cl}^- \rightarrow \text{PbCl}_2(\text{s})$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. $\text{Pb}(\text{NO}_3)_2(\text{aq}) + 2\text{NH}_4\text{Cl}(\text{aq}) \rightarrow 2\text{NH}_4\text{NO}_3(\text{aq}) + \text{PbCl}_2(\text{s})$
- b. $\text{Pb}^{2+} + 2\text{Cl}^- \rightarrow \text{PbCl}_2(\text{s})$**
- c. $\text{Pb}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq}) + 2\text{NH}_4^+(\text{aq}) + 2\text{Cl}^-(\text{aq}) \rightarrow 2\text{NH}_4^+(\text{aq}) + 2\text{NO}_3^-(\text{aq}) + \text{PbCl}_2(\text{s})$
- d. $\text{NH}_4^+(\text{aq}) + \text{NO}_3^-(\text{aq}) \rightarrow 2\text{NH}_4\text{NO}_3(\text{s})$
- e. No reaction occurs when the solutions are mixed.

-
4. What is the chemical formula of the salt produced by neutralization of hydrobromic acid with $\text{Mg}(\text{OH})_2$? (2 points)

Your response:

e. MgBr_2 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. MgBr
 - b. Mg_2Br_3
 - c. Mg_3Br_2
 - d. Mg_2Br
 - e. **MgBr_2**
-

5. The oxidation number of N in NaNO_3 is (2 points)

Your response:

b. +5 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. +6
 - b. **+5**
 - c. +3
 - d. -3
 - e. None of the above.
-

6. The oxidation number of Cr in $\text{Cr}_2\text{O}_7^{2-}$ is (2 points)

Your response:

d. +6 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. -12
- b. -7
- c. -2
- d. +6
- e. +7

7. In the following chemical reaction the oxidizing agent is



Your response:

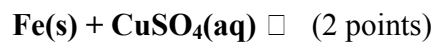
e. O_2

0 points awarded.

The correct answer is:

- a. H_2O_2
 - b. MnO_4^-
 - c. H^+
 - d. Mn^{2+}
 - e. O_2
-

8. Predict the products of the following single replacement reaction.



Your response:

c. $\text{Cu(s)} + \text{FeSO}_4\text{(aq)}$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. $\text{CuS(s)} + \text{Fe}_2\text{SO}_4\text{(aq)}$
- b. $\text{Fe(s)} + \text{Cu(s)} + \text{SO}_4\text{(aq)}$
- c. $\text{Cu(s)} + \text{FeSO}_4\text{(aq)}$
- d. $\text{FeCuSO}_4\text{(aq)}$
- e. $\text{FeO(s)} + \text{CuSO}_3\text{(aq)}$

9. Complete and balance the following redox equation. When properly balanced with whole number coefficients, the coefficient of S is



Your response:

c. 3 (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 1
- b. 2
- c. 3
- d. 5
- e. 6

10. Which of the following represents an acid-base neutralization reaction? (2 points)

Your response:

c. $\text{LiOH(aq)} + \text{HNO}_3\text{(aq)} \rightarrow \text{LiNO}_3\text{(aq)} + \text{H}_2\text{O(l)}$ (You answered correctly!)

2 points awarded.

The correct answer is:

- a. $2\text{Al(s)} + 3\text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{Al}_2\text{(SO}_4)_3\text{(aq)} + 3\text{H}_2\text{(g)}$
- b. $\text{SO}_2\text{(g)} + \text{H}_2\text{O(l)} \rightarrow \text{H}_2\text{SO}_3\text{(g)}$
- c. $\text{LiOH(aq)} + \text{HNO}_3\text{(aq)} \rightarrow \text{LiNO}_3\text{(aq)} + \text{H}_2\text{O(l)}$
- d. $2\text{KBr(aq)} + \text{Cl}_2\text{(g)} \rightarrow 2\text{KCl(aq)} + \text{Br}_2\text{(l)}$
- e. $\text{CaBr}_2\text{(aq)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{CaSO}_4\text{(s)} + 2\text{HBr(g)}$

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Chapter 05 Chang Quiz General Chemistry

Description

Please select the best choice for each question

This assessment is worth 20 points.

Note: Correct answers appear in **Blue**. Incorrect answers and skipped questions appear in **Red** after 'Your response'.

1. How many molecules of N₂ gas can be present in a 2.5 L flask at 50°C and 650 mmHg? (2 points)

Your response:

b. 4.9×10^{22} molecules (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 2.1×10^{-23} molecules
- b. 4.9×10^{22} molecules**
- c. 3.1×10^{23} molecules
- d. 3.6×10^{25} molecules
- e. 0.081 molecules

-
2. Calculate the volume occupied by 35.2 g of methane gas (CH₄) at 25°C and 1.0 atm.
R = 0.0821 L atm/Kmol. (2 points)

Your response:

e. 53.7 L (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 0.0186 L
- b. 4.5 L
- c. 11.2 L
- d. 49.2 L
- e. 53.7 L**

-
3. If the pressure of a gas sample is quadrupled and the absolute temperature is doubled, by what factor does the volume of the sample change? (2 points)

Your response:

b. 2

0 points awarded.

The correct answer is:

- a. 8
- b. 2
- c. 1/2**
- d. 1/4
- e. 1/8

-
4. A sample of a gas occupies 1.40×10^3 mL at 25°C and 760 mmHg. What volume will it occupy at the same temperature and 380 mmHg? (2 points)

Your response:

a. 2,800 mL (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 2,800 mL**
 - b. 2,100 mL
 - c. 1,400 mL
 - d. 1,050 mL
 - e. 700 mL
-

5. A sample of nitrogen gas has a volume of 32.4 L at 20°C. The gas is heated to 220°C at constant pressure. What is the final volume of nitrogen? (2 points)

Your response:

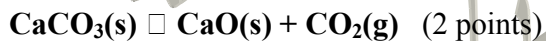
d. 54.5 L (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 2.94 L
- b. 19.3 L
- c. 31.4 L
- d. 54.5 L
- e. 356 L

-
6. What volume of CO₂ gas at 645 torr and 800 K could be produced by the reaction of 45 g of CaCO₃ according to the equation?



Your response:

d. 34.8 L (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 0.449 L
 - b. 22.4 L
 - c. 25.0 L
 - d. 34.8 L
 - e. 45.7 mL
-

7. At what temperature will a fixed amount of gas with a volume of 175 L at 15°C and 760 mmHg occupy a volume of 198 L at a pressure of 640 mm Hg? (2 points)

Your response:

d. 1°C (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 274°C
- b. 214°C
- c. 114°C
- d. 1°C
- e. -59°C

-
8. What is the molar mass of Freon-11 gas if its density is 6.13 g/L at STP? (2 points)

Your response:

d. 137 g/mol (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 0.274 g/mol
 - b. 3.64 g/mol
 - c. 78.2 g/mol
 - d. 137 g/mol
 - e. 365 g/mol
-

9. A sample of N_2 gas occupies 2.40 L at 20°C . If the gas is in a container that can contract or expand at constant pressure, at what temperature will the N_2 occupy 4.80 L? (2 points)

Your response:

d. 313°C (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 10°C
 - b. 40°C
 - c. 146°C
 - d. 313°C
 - e. 685°C
-

10. Calculate the density of $\text{CO}_2(\text{g})$ at 100°C and 10.0 atm pressure. (2 points)

Your response:

e. 14.4 g/L (You answered correctly!)

2 points awarded.

The correct answer is:

- a. 1.44 g/L
 - b. 134 g/L
 - c. 44.0 g/L
 - d. 53.6 g/L
 - e. 14.4 g/L
-

18 points out of 20 awarded. (90%)

Click [here](#) for assessment statistics.