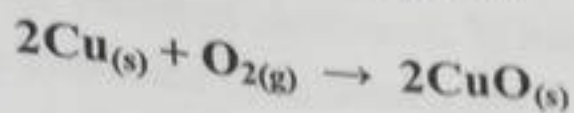


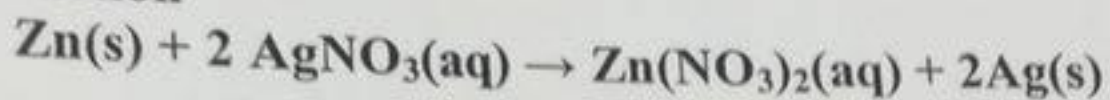


17) in the following reaction what is the reduced agent:



- a) CuO
- b) Cu
- c) O<sub>2</sub>
- d) there is no reduced agent

18) Is the following reaction



- a) oxidation –reduction
- b) only oxidation
- c) only reduction
- d) precipitation

19) If you have 50.00 mL of a 0.0400 M KMnO<sub>4</sub> solution. What is the resulting molarity (M) of the solution if you dilute the solution to become 1L.

- a. 0.002 M
- b. 0.1 M
- c. 0.000001M
- d. None of the above

20) Which of the following substances must be covalent?

- a) F<sub>2</sub>
- b) Na<sub>2</sub>O
- c.) NaF
- d) CaCl<sub>2</sub>

21) In the following reaction



Which is the oxidizing agent?

- a) Sn<sup>2+</sup>
- b) Ni
- c) Sn
- d) Ni<sup>2+</sup>

22) Covalent bonds are formed when:

- a. valence electrons are equally shared between atoms.
- b. valence electrons are shared between atoms.



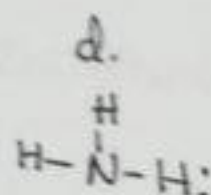
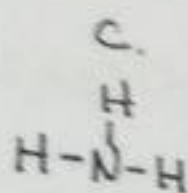
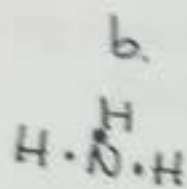
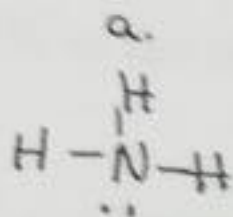
- 6) Suppose the reaction  $\text{Ca}_3(\text{PO}_4)_2 + 3\text{H}_2\text{SO}_4 \rightarrow 3\text{CaSO}_4 + 2\text{H}_3\text{PO}_4$  is carried out starting with 103 g of  $\text{Ca}_3(\text{PO}_4)_2$  and 75.0 g of  $\text{H}_2\text{SO}_4$ . How much phosphoric acid will be produced?
- 74.9 g
  - 50.0 g
  - 112 g
  - 32.5 g
- 7) The empirical formula of styrene is  $\text{CH}$ ; its molar mass is 104.1. What is the molecular formula of styrene?
- $\text{C}_2\text{H}_4$
  - $\text{C}_8\text{H}_8$
  - $\text{C}_{10}\text{H}_{12}$
  - $\text{C}_6\text{H}_6$
- 8) What mass of calcium chloride,  $\text{CaCl}_2$ , is needed to prepare 2.850 L of a 1.56 M solution?
- 25.9 g
  - 60.8 g
  - 111 g
  - 493 g
- 9) In which of the following does nitrogen have an oxidation state of +4?
- $\text{HNO}_3$
  - $\text{NO}_2$
  - $\text{N}_2\text{O}$
  - $\text{NH}_4\text{Cl}$
- 10) Which of the following is *not* a strong base?
- $\text{Ca}(\text{OH})_2$
  - $\text{KOH}$
  - $\text{NH}_3$
  - $\text{LiOH}$
- 11) We have defined molarity as
- moles / volume of solution (ml)
  - moles / volume of solution (L)
  - mass of solute / volume of solution (ml)
  - moles / volume of solvent (L)



12) When I dissolved 0.5 moles of NaCl in 500 mL of water, the molarity of the obtained solution is

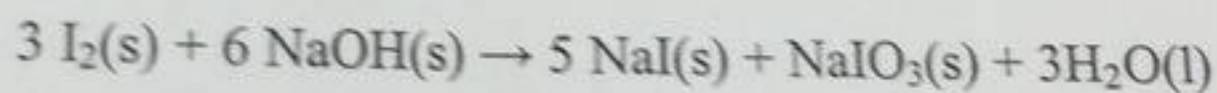
- a) 0.5 M.
- b) 1 M
- c)  $1 \times 10^{-3}$  M
- d) 1 mol/mL

13) What are the Lewis structures for ammonia ( $\text{NH}_3$ )?



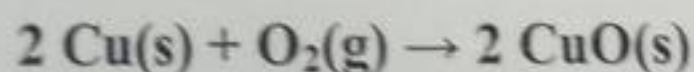
- a) a
- b) b
- c) c
- d) d

14) If 8.00 g of NaI are produced from a mixture of 10.0 g  $\text{I}_2$  and 10.0 g NaOH, what is the percent yield?



- a) 81.3 %
- b) 19.5 %
- c) 25.6 %
- d) 40.6 %

15) In the following reaction, how many moles of  $\text{O}_2$  are required to produce 0.86 g of CuO?



- a)  $5.4 \times 10^{-3}$
- b)  $1.1 \times 10^{-2}$
- c)  $4.3 \times 10^{-1}$
- d)  $1.9 \times 10^2$

16) What is the oxidation number of chromium, Cr, in the dichromate ion,  $\text{Cr}_2\text{O}_7^{2-}$ ?

- a) +6
- b) +5
- c) +4
- d) +3



**Choose the most correct answer:**

- 1) What is the balanced equation for:  $\underline{\hspace{1cm}} \text{SnO}_2 + \underline{\hspace{1cm}} \text{H}_2 \rightarrow \underline{\hspace{1cm}} \text{Sn} + \underline{\hspace{1cm}} \text{H}_2\text{O}$ ?
- $2 \text{SnO}_2 + 2 \text{H}_2 \rightarrow 2 \text{Sn} + \text{H}_2\text{O}$
  - $\text{SnO}_2 + 2 \text{H}_2 \rightarrow \text{Sn} + 2 \text{H}_2\text{O}$
  - $\text{SnO}_2 + \text{H}_2 \rightarrow \text{Sn} + 2 \text{H}_2\text{O}$
  - $2 \text{SnO}_2 + \text{H}_2 \rightarrow 2\text{Sn} + \text{H}_2\text{O}$
- 2) What is the percent composition of Ethylene?  $\text{C}_2\text{H}_2$ ?
- 92.3% Carbon and 7.7% Hydrogen
  - 82% Carbon and 18% Hydrogen
  - 82.7% Carbon and 17.3 % Hydrogen
  - 90% Carbon and 14 % Hydrogen
- 3) What is the empirical formula for a compound that contains 1.67 mole Carbon and 5.01 Moles of Hydrogen
- CH
  - CH<sub>2</sub>
  - C<sub>2</sub>H<sub>3</sub>
  - CH<sub>3</sub>
- 4) What is the empirical formula for a compound that contains 37.69% Na and 62.31% Fluorine?
- NaF<sub>3</sub>
  - Na<sub>2</sub>F
  - NaF
  - NaF<sub>2</sub>
- 5) The limiting reactant in a reaction
- is the reactant which is consumed completely
  - is the product for which you have the fewest number of moles.
  - is the reactant which is in excess
  - none of these