Question 3

Not yet answered

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⚑ Flag question

Which of the following is an example of a chemical change?

Select one:

○ A. Face blushing

○ B. Ice cream melting

○ C. Water evaporating

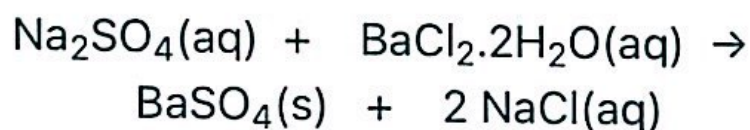○ D. Wood burning

○ E. salt dissolution

An aqueous solution of a 0.960 g mixture of solid salt Na_2SO_4 and $BaCl_2.2H_2O$ produces 1.203×10^{-3} moles of $BaSO_4$ as a precipitate. It is experimentally found that the supernatant solution contains SO_4^{2-} ions. .

$$Na_2SO_4(aq) + BaCl_2.2H_2O(aq) \rightarrow BaSO_4(s) + 2\,NaCl(aq)$$

The mass percent of $BaCl_2.2H_2O$ in the mixture is:

Select one:

○ a. 54.2%

○ b. 46.7 %

○ c. 69.4%

○ d. 39.8%

○ e. 30.6%

The net ionic equation for the reaction of aluminum sulfate($Al_2(SO4)_3$) and sodium hydroxide contains which of the following species?

Select one:

○ i. OH- (aq)

○ ii. 3Al3+(aq)

○ iii. 3OH- (aq)

○ iv. 2Al(OH)3 (solid)

○ v. 2Al3+ (aq)

SO2 reacts with H2S as follows:

$$H2S + SO2 \rightarrow S + H2O$$

When 7.50 g of H2S reacts with 12.75 g of SO2, which statement applies?

Select one:

○ I. 1.13 g of H2S remain

○ II. 10.6 g of sulfur are formed

○ III. 6.38 g of sulfur are formed.

○ IV. SO2 is the limiting reactant

○ V. 0.0216 moles of H2S remain

Three colorless solutions in three different test tubes with no labels placed in racks on the laboratory bench containing ammonium chloride NH4Cl, hydrochloric acid HCl, and sodium hydroxide NaOH labeled in random order (I), (II), and (III) according to the following table :

Reaction #	Reactants	Observation
1	(II) + (III)	Gas evolved
2	(III) + (I)	Heat evolved
3	(II) + (I)	No reaction

The solutions are :

Select one:

○ NONE OF THESE

○ (I)NaOH, (II) HCl, (III) NH4Cl

○ (I)NaOH, (II) NH4Cl, (III) HCl

○ (I)NH4Cl, (II) HCl, (III) NaOH

○ (I)HCl, (II) NH4Cl, (III) NaOH

In the titration of a monoprotic acid with a solution of sodium hydroxide of known

concentration, what quantities are equal at the equivalence point?

Select one:

○ 1. the volume of sodium hydroxide solution added and the volume of acid solution initially present

○ 2. the concentrations of hydroxide and hydronium ions

○ 3. the number of moles of hydroxide ion added and the number of moles of monoprotic acid initially present

○ 4. the number of moles of hydroxide ion added and the number of moles of hydronium ion initially present

○ 5. ALL ARE CORRECT

- If 35.21 mL of 0.1894 M KOH is required to neutralize 25.00 mL of an aqueous solution of arsenic acid (H3AsO4), what is the concentration of the arsenic acid solution?

$$H_3AsO_4 \text{ (aq)} + KOH \text{ (aq)} ® K_3AsO_4 \text{ (aq)} + 3 H_2O$$
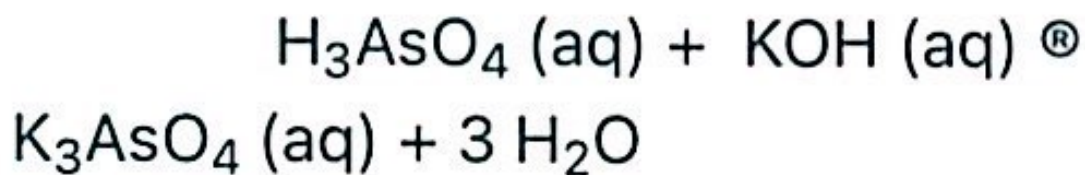
Select one:

○ 0.1345 M

○ 0.2668 M

○) 0.8003 M

○ 0.0778 M

○ 0.08892 M

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21- Which of the statements is not correct?

Select one:

○ a. At a given temperature, the maximum amount of a substance in grams can be dissolved in 100 g of a solvent is called solubility.

○ b. In titration, the point at which an indicator changes its color is called endpoint.

○ c. Pouring off a heterogeneous mixture to discard the supernatant is called filtration.

○ d. Heating a heterogeneous mixture below its boiling point is called digestion.

Which of the following solutions has the highest pH?

Select one:

○ a. 0.1 M HCl

○ b. 0.1 M NaCl
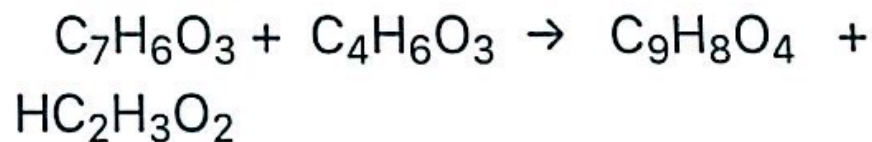
○ c. 0.1 M NaOH

○ d. 0.1 M C6H12O6

○ e. 0.1 M CH3CO2H

A 6.90g of salicylic acid $C_7H_6O_3$ react with 4.08g of acetic anhydride $C_4H_6O_3$ to produce aspirin $C_9H_8O_4$ according to the balance equation

$$C_7H_6O_3 + C_4H_6O_3 \rightarrow C_9H_8O_4 + HC_2H_3O_2$$

The mass of aspirin is equal to :

Select one:

○ I. 3.60 g

○ II. 7.2 g

○ III. 4.99 g

○ IV. 5.82 g

○ V. NONE OF THESE

. A gas sample containing 1.50 mol at 25°C exerts a pressure of 400. torr. Some gas is *added* to the same container and the temperature is increased to 50.°C. If the pressure increases to 800. torr, how many moles of gas were added to the container? Assume a constant-volume container.

D) 22.4 mol

Select one:

○ A. 1.74 mol

○ B. 3.00 mol

○ C. 1.50 mol

○ D. 1.27 mol

Which of the following substances is insoluble in water?

Select one:

○ A. Rb_2SO_4

○ B. $Ni(OH)_2$

○ C. Na3PO4

○ D. $MgCl_2$

○ E. $Pb(NO_3)_2$

What mass of solid KOH should be added to completely neutralize 25.00 mL of 0.200 *M* HCl?

Select one:

○ i. 0.182 g

○ ii. 0.281 g

○ iii. 0.0050 g

○ iv. 0.651 g

○ v. 0.561 g

13. The reaction of solutions of ammonium phosphate and barium nitrate gives a precipitate of barium phosphate. The equation that best represents this statement is

Select one:

○ a. NONE OF THESE

○ b. $2(NH_4)_3PO_4(s)$ + $3Ba(NO_3)_2(aq) \rightarrow Ba_3(PO_4)_2(aq)$ + $6NH_4NO_3(s)$.

○ c. $2(NH_4)_3PO_4(aq)$ + $3Ba(NO_3)_2(s) \rightarrow Ba_3(PO_4)_2(s)$ + $6NH_4NO_3(aq)$.

○ d. $2(NH_4)_3PO_4(aq)$ + $3Ba(NO_3)_2(aq) \rightarrow Ba_3(PO_4)_2(aq)$ + $6NH_4NO_3(aq)$.

○ e. $2(NH_4)_3PO_4(s)$ + $3Ba(NO_3)_2(aq) \rightarrow Ba_3(PO_4)_2(aq)$ + $6NH_4NO_3(s)$.

When methane burn in Bunsen burner with sufficient oxygen, will produce :

Select one:

○ 1. Hot, luminous blue flame and $CO_{2(g)} + H_2O_{(g)}$

○ 2. Hot, Non luminous yellow flame and $CO_{2(g)} + H_2O_{(g)}$

○ 3. Hot, Non luminous blue flame and $CO_{2(g)} + H_2O_{(g)}$

○ 4. luminous yellow flame and $CO_{2(g)} + H_2O_{(g)}$

Student A determines that 3.74 g sample of a solid displaces 3.20 mL of water in a graduated cylinder. Student B measure 3.10 g sample of the same metal. What volume of water should this sample displace?

Select one:

○ I. 3.20

○ II. NONE OF THESE

○ III. 2.65

○ IV. 3.86

○ V. 1.65

· A reaction mixture initially contains 22.55 g Fe2O3 and 14.78 g CO. Once the reaction has occurred as completely as possible, what mass (in g) of the excess reactant remains?

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· $Fe_2O_3(s) + 3\ CO(g) \rightarrow 2\ Fe(s) + 3\ CO_2(g)$

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Select one:

○ a. 2.91 g CO left

○ b. 9.21 g Fe_2O_3 left

○ c. 6.21 g Fe_2O_3 left

○ d. 4.91 g CO left

. Consider the precipitation reaction:

$Na_3PO_4(aq) + CuCl_2(aq) \rightarrow Cu_3(PO_4)_2(s) + NaCl(aq)$
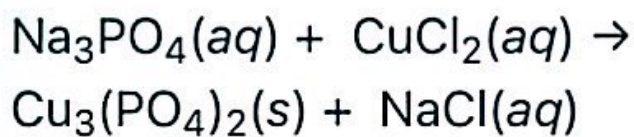
. What volume of 0.175 M Na3PO4 solution is necessary to completely react with 95.4 mL of 0.102 M CuCl2?

Select one:

- ○ i. 47.1 ml
- ○ ii. 27.1 ml
- ○ iii. 37.1 ml
- ○ iv. 57.1 ml
- ○ v. 63.1 ml

Which of the following molecules is/are polar? CCl_4, SF_4, CS_2, NF_3, SO_3, PF_5

Select one:

○ a. CS_2 and PF_5

○ b. CS2 and SF4 only

○ c. NF3 only

○ d. PF5 only

○ e. SF4 and NF3 only

The color of bromophenol blue indicator in acidic solution is :

Select one:

○ a. yellow

○ b. pink

○ c. NONE OF THESE

○ d. colorless

○ e. blue

If 0.246 g of a condensed vapor of an unknown volatile liquid was collected in a 150 mL flask at 60 C and a pressure of 740 torr. Assuming ideal behavior. T he molar mass of the volatile liquid

Select one:

○ 1. 58 g/mol

○ 2. 64 g/mol

○ 3. 85 g/mol

○ 4. 52 g/mol

○ 5. 46 g/mol

a)   In an experiment to determine its composition, an aspirin tablet was crushed and dissolved in water. It took 12.25 mL of 0.1466 M NaOH to neutralize the solution. Calculate the number of grains of aspirin in the tablet. (One grain = 0.0648 g.)

Select one:

○ A. 6.25 grains aspirin in one tablet

○ B. NONE OF THESE

○ C. 7.45 grains aspirin in one tablet

○ D. 5.60 grains aspirin in one tablet

○ E. 4.99 grains aspirin in one tablet

Question 25

Not yet answered

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⚑ Flag question

Calculate $[OH-]$ for solution with pH = 7.40 at 25C.

Select one:

○ $3.5 \times 10^{-7} M$

○ $1.25 \times 10^{-7} M$

○ $1.5 \times 10^{-7} M$

○ $1.75 \times 10^{-7} M$

○ $2.5 \times 10^{-7} M$

A solution contains Ag+ and Hg^{2+} ions. The addition of 0.100 L of 1.22 M NaI solution is just enough to precipitate all the ions as AgI and HgI_2. The total mass of the precipitate is 28.1 g. Find the mass of AgI in the precipitate.

Select one:

○ a. 12.7 g AgI

○ b. 10.6 g AgI

○ c. 11.8g AgI

○ d. 13.7 g AgI

A solution is prepared by adding 50.0 mL concentrated Hydrochloric acid and 20.0 mL concentrated nitric acid to 300 mL water. More water is added until the final volume is 1.00 L. Calculate the pH for this solution. [*Hint:* Concentrated HCl is 38% HCl (by mass) and has a density of

1.19 g/mL; concentrated HNO_3 is 70.% HNO_3 (by mass) and has a density of 1.42 g/mL.]

Select one:

○ 1. 3.39

○ 2. 1.52

○ 3. 2.65

○ 4. 2.15

○ 5. 1.85

What mass of solid aluminum hydroxide can be produced when 50.0 mL of 0.200 M $Al(NO_3)_3$ is added to 200.0 mL of 0.100 M KOH?

Select one:

  ○ A. 0.260 g

  ○ B. 0.250 g

  ○ C. 0.780 g

  ○ D. 0.520 g

  ○ E. 0.36 g