

1. Which of these would be *best* to measure 12.6 mL of liquid ethanol?

- A 25 mL beaker  
 B 25 mL volumetric flask #1  
 C 25 mL Erlenmeyer flask  
 D 25 mL graduated cylinder

2. A compound has a mass of  $2.6632 \times 10^2$  g/mol. The number of significant figures in this mass is –

- F 2  
 G 4 #4  
 H 5  
 J 7

3. The correct formula for dinitrogen pentoxide is –

- A  $N_2O_5$  #6  
 B  $N_5O$   
 C  $NO_5$   
 D  $N_2O$

4. If substance X is a liquid, substance Y is a gas, and substance Z is a solid, and all are at the same temperature and pressure, then the order of increasing strength of their intermolecular forces would be –

- A  $X < Y < Z$  weak  $\rightarrow$  stronger #13  
 B  $Y < X < Z$  gas, liquid, solid  
 C  $Z < Y < X$   
 D  $Y < Z < X$   $y < x < z$

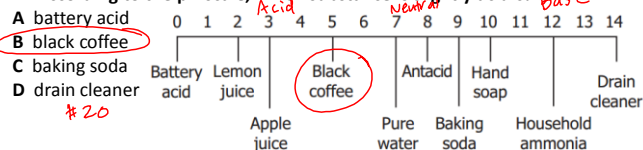
5. If a sample has a mass of  $1.25 \times 10^2$  g and a volume of 51 mL, what is its density?

- F 0.0025 g/mL  
 G 0.0125 g/mL  
 H 2.5 g/mL  $\frac{1.25 \times 10^2 \text{ g}}{51 \text{ mL}}$  #14  
 J 250 g/mL

6. The product in a balanced reaction is  $4 Al_2O_3$ . Which of the following shows the number of aluminum and oxygen atoms in  $4 Al_2O_3$ ?

- A 8 atoms of aluminum and 3 atoms of oxygen  
 B 6 atoms of aluminum and 3 atoms of oxygen #19  
 C 8 atoms of aluminum and 12 atoms of oxygen  
 D 6 atoms of aluminum and 7 atoms of oxygen

7. According to the pH scale, which substance is slightly acidic? *Base*



8. Which substance will release the greatest amount of heat when 1.00 mol is frozen?

- A Argon  
 B Benzene #25  
 C Mercury  
 D Water

Molar Heat of Fusion and Melting Point for Selected Substances

Substance	Melting Point ( $^{\circ}C$ )	$\Delta H_{fus}$ (kJ/mol)
Argon	-190	1.18
Benzene	5.5	9.87
Mercury	-39	2.29
Water	0	6.01

9. Which of the following equations is balanced? #35

- A  $Na + 2 Cl \rightarrow 2 NaCl_2$   
 B  $2 Na + Cl_2 \rightarrow NaCl_2$   
 C  $Na + Cl_2 \rightarrow 2 NaCl$   
 D  $2 Na + Cl_2 \rightarrow 2 NaCl$

10. The picture shows a small section of elements from the periodic table. Which element has one more proton than element X?

- F 1  
 G 2 Small Periodic Table Section  
 H 3 #38  
 J 4
- 

#### Material Safety Data Sheet

##### Product Identification

Chemical Q

##### Hazard Identification

Baker SAF-T DATA™ Ratings

Health: 2 – Moderate

Flammability: 3 – Severe

Reactivity: 1 – Slight

Contact: 1 – Slight

Hazard ratings are 0 to 4 (0 = no hazard, 4 = extreme hazard).

**Lab Protective Equipment:** Goggles and shield, lab coat and apron, vent hood, proper gloves, class B extinguisher

**Accidental Spill Instructions:** Ventilate area containing the spill. Absorb the chemical with inert material (vermiculite, sand) and place in proper chemical waste container. Do not place or pour down the drains.

11. A bottle of chemical Q spills on the floor. According to the MSDS, what is the proper response to this accident? #30

- F Letting the chemical evaporate by blowing fans on the spill.  
 G Diluting the chemical with water, absorbing the liquid with inert material, and disposing of it in the trash.  
 H Wiping up the chemical using paper towels and disposing of them in the trash.  
 J Absorbing the chemical with inert material and disposing of it in a chemical waste container.