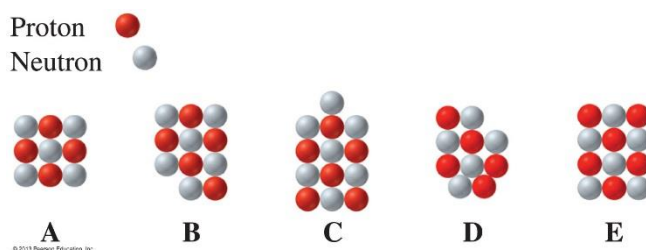


**TEST 2 REVIEW**

1. Complete the missing information in the table below:

Atomic Symbol	Number of Protons	Number of Neutrons	Number of Electrons
$^{80}\text{Br}^-$			
$^{51}\text{V}$			
	48	64	
$\text{Ba}^{2+}$		82	

2. Diagrams below represent various nuclei. For each nucleus A-E, write the atomic symbol and indicate which are isotopes:



3. What is the empirical formula for an oxide of bromine that contains 71.4% bromine?
4. Calculate the percent composition (by mass) of the elements in  $\text{Cd}_3(\text{AsO}_4)_2$ .

5. Calculate the following quantities:
- Number of molecules in 23.5 moles of oxygen.
  - Number of moles in  $3.42 \times 10^{25}$  molecules of  $\text{H}_2\text{SO}_4$ .
  - Number of molecules in 12.5 grams of  $\text{NH}_3$ .
  - Number of grams in  $8.26 \times 10^{22}$  molecules of  $\text{N}_2\text{H}_4$ .
  - Number of carbon atoms in 0.655 moles of  $\text{C}_6\text{H}_{14}$ .
  - Grams of sodium in 85.6 g of  $\text{Na}_2\text{SO}_4$ .

6. A 3.000-g sample of a gaseous compound was found to contain 2.560 g of carbon and 0.440 g of hydrogen.
- What is the empirical formula for this compound?
  
  
  
  
  
  
  
  
  
  
  - If the molar mass of the compound was found to be 42.08 g/mol, what is the molecular formula for this compound?
7. An iron ore sample contains 65.0% hematite ( $\text{Fe}_2\text{O}_3$ ) and 35.0% magnetite ( $\text{Fe}_3\text{O}_4$ ). What mass of iron (in grams) does 1.00 kg sample of this ore contain?
8. A sample of 0.600 mole of a metal M reacts completely with excess fluorine to form 46.8 g of  $\text{MF}_2$ .
- How many grams of M are present in this sample of  $\text{MF}_2$ ?  
(Hint: How many moles of fluorine are present in this compound?)
  
  
  
  
  
  
  
  
  
  
  - What element is represented by the symbol M?

9. Name the following compounds:

a)  $\text{SrCl}_2$  \_\_\_\_\_

b)  $\text{CF}_4$  \_\_\_\_\_

c)  $(\text{NH}_4)_2\text{CO}_3$  \_\_\_\_\_

d)  $\text{H}_3\text{PO}_4$  \_\_\_\_\_

e)  $\text{SnO}_2$  \_\_\_\_\_

f)  $\text{CuNO}_2$  \_\_\_\_\_

10. Write formula for each of the following compounds:

a) calcium sulfate \_\_\_\_\_

b) nickel (II) chloride \_\_\_\_\_

c) ammonium chlorate \_\_\_\_\_

d) phosphorus triiodide \_\_\_\_\_

e) hydrosulfuric acid \_\_\_\_\_

f) sodium nitride \_\_\_\_\_

**Answers:**

1. No answers provided
2.  $A = {}^9_4\text{Be}$     $B = {}^{11}_5\text{B}$     $C = {}^{13}_6\text{C}$     $D = {}^{10}_5\text{B}$     $E = {}^{12}_6\text{C}$   
B and D are isotopes; C and E are isotopes
3.  $\text{BrO}_2$
4. 54.8% Cd; 24.4% As; 20.8% O
5. a)  $1.41 \times 10^{25}$  molecules  
b) 56.8 mol  
c)  $4.42 \times 10^{23}$  molecules  
d) 4.40 g  
e)  $2.37 \times 10^{24}$  atoms  
f) 27.7 g
6. a)  $\text{CH}_2$   
b)  $\text{C}_3\text{H}_6$
7. 708 g Fe
8. a) 22.8 g F  
b) calcium
9. No answers provided
10. No answers provided