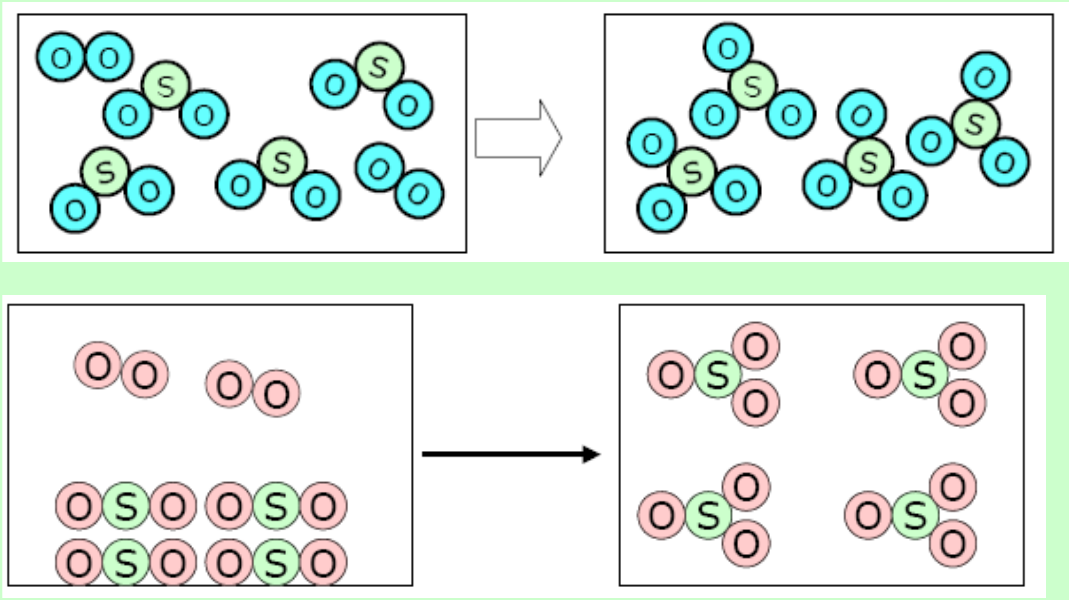
MOCK EXAM

1 **Classify the matter in these samples and determine the type of transformation (physical, chemical)**



1 POINT
ESTIMATED TIME: 5 min

2 **Determine all the missing information in this table:**

2 POINTS
ESTIMATED TIME: 10 min

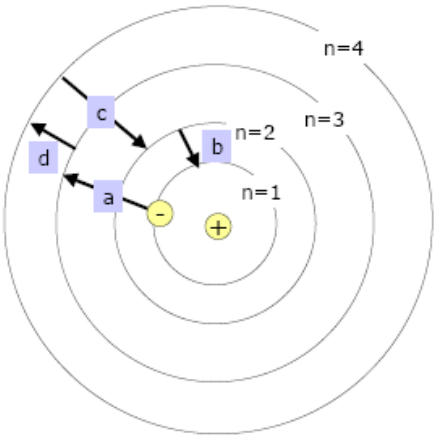
$^{---}_{---}X^{---}$ notation	N	A	number of...			electron configuration	
			p^+	n^0	e^-	orbital diagram	Lewis
$^{23}_{11}Na$						1s 2s 2p 3s 3p	
$^{35}_{17}Cl$						1s 2s 2p 3s 3p	
$^{23}_{11}Na^+$						1s 2s 2p 3s 3p	
$^{37}_{17}Cl^-$						1s 2s 2p 3s 3p	

3	**Copper has two naturally occurring isotopes, ^{63}Cu (isotopic mass 62.9396 amu) and ^{65}Cu (isotopic mass of 64.9278 amu). If copper has an atomic mass of 63.546 amu, what is the percent abundance of each copper isotope?**

1 POINT
ESTIMATED TIME: 10 min

4	**An electron undergoes the process that appears in the picture.** **a) draw the energy diagram including the electronic levels and the origin (energy=0)** **b) determine in which of those depicted jumps the electron gains energy or releases it** **c) draw an spectrum with the photons involved in those jumps** **d) indicate the first ionization energy in the energy diagram**

2 POINTS
ESTIMATED TIME: 10 min



5	**The number of protons of three elements are: "A"=20; "B"=12 and "C"=9** • **draw the electron configuration of each neutral atom (orbital diagram)** • **the ions each element tend to form (Lewis notation)** • **compare the atomic size of those atoms and order them in increasing order (explain the reasons)** • **compare the electronegativity of those atoms and order them in increasing order (explain the reasons)**

4 POINTS
ESTIMATED TIME: 15 min