

### Homework Set 3

(Distributed 9/14/16; Due on 9/21/16)

**Read** Chapter 4 in Zumdahl and complete the listed questions from the text: Chapter 4: 35, 38, 42, 51, 73, 75, 78, 94; as well as the following problems:

**A.** Identify each of the following as either an element or a compound:

(i) boron nitride BN                      (ii) baking powder, sodium carbonate

(iii) iodine,  $I_2$                       (iv) red phosphorus,  $P_4$

**B.** Write the symbol for the element:

(i) gadolinium    (ii) tungsten              (iii) arsenic              (iv) mercury    (v) tin

**C.** Complete the following table for neutral atoms:

Isotope Symbol	# protons	# neutrons	# electrons
${}^{239}_{92}U$	92		
	10	9	10
${}^{75}_{35}Br$			35
	9	10	9
${}^{30}_{15}P$		15	

**D.** Identify the ion indicated by the following information:

(i) 15 p, 18e                      (ii) 35 p, 36 e

(iii) 48 p, 46 e                      (iv) 56 p, 54e

(v) 13 p, 10 e

**E.** Write the formula for the ionic compound formed by each of the following ions:

(i)  $Mg^{2+} + S^{2-}$                       (ii)  $Rb^{+} + O^{2-}$

(iii)  $Ca^{2+} + P^{3-}$                       (iv)  $Al^{3+} + I^{-}$