

1. Categorize each of the following as an element, compound, or mixture. (16 pts - 2 ea.)

a) nickel (Ni) b) potassium dichromate ($K_2Cr_2O_7$) c) cranberry juice d) argon gas (Ar)

e) viagra ($C_{22}H_{30}N_6O_4S$) f) carbon dioxide (CO_2) g) nitrogen gas (N_2) h) a Honda civic

2. Below are chemical symbols for several atoms. Answer questions a) through c) for these atoms. Note that the mass number of each atom is provided.

1. ^{12}C 2. ^{155}Gd 3. ^{58}Ni 4. ^{80}Br 5. ^{127}I 6. ^{152}Gd 7. ^{32}S 8. ^{154}Gd 9. ^{40}Ca

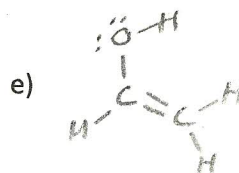
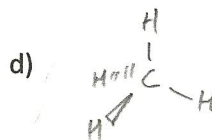
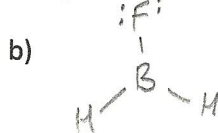
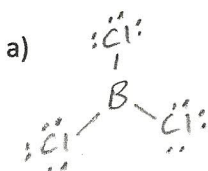
a) Which elements are non-metals? Just write the numbers corresponding to your answers. (4 pts)

b) Which elements are metals? Just write the numbers corresponding to your answers. (4 pts)

c) Which atoms shown are isotopes of each other? Just write the numbers corresponding to your answers. (4 pts)

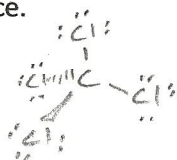
3. Below are three-dimensional structures of various molecules; some are polar, and some are nonpolar.

Which ones are polar? (10 pts)



4. For each molecule drawn below, its polarity is given. Identify the attractions that would form between two molecules of that substance. (12 pts - 3 ea.)

a) CCl_4 – nonpolar



b) NH_3 – polar



c) CO – polar



d) C_2H_2 – nonpolar

