9. Draw Lewis structures for the following: (4 marks)

A) HCO_3^-

$h = 1 + 4 + 3(6) + 1 = 24$
$n = 2 + 4(8) = 34$
$S = 10$
$b = 5$
$nbe = 14$
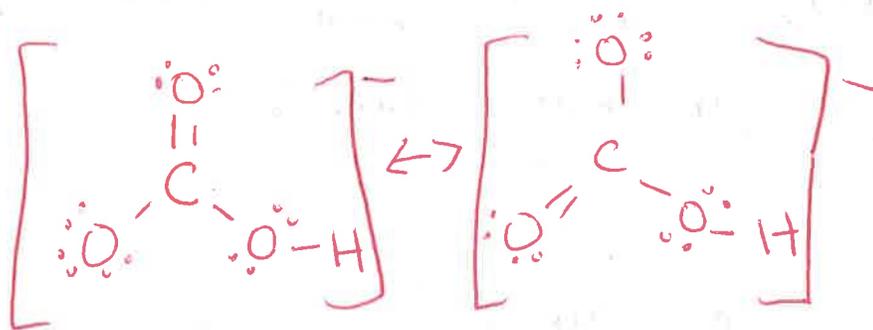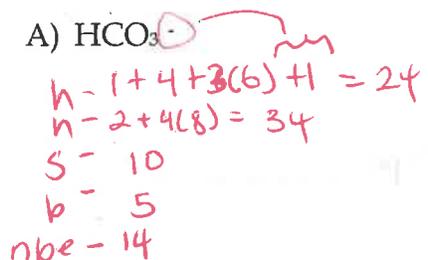
B) $CH_3CH_2CH_2NH_2$
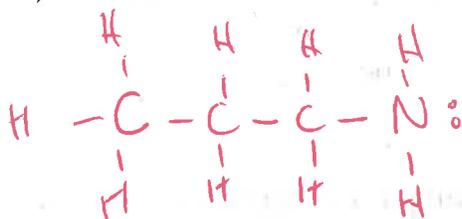
10. Give the formula, complete, and net ionic equation when aqueous solutions of $AgNO_3$ and $(NH_4)_2S$ are mixed together. Make sure you balance the equations and give the state for each substance. (6 marks)

Formula: $2AgNO_3 (aq) + (NH_4)_2 S (aq) \rightarrow Ag_2S (s) + 2NH_4NO_3 (aq)$

Complete ionic:
$2Ag^+ (aq) + 2NO_3^- (aq) + 2NH_4^+ (aq) + S^{2-} (aq) \rightarrow Ag_2S (s) + 2NH_4^+ (aq) + 2NO_3^- (aq)$
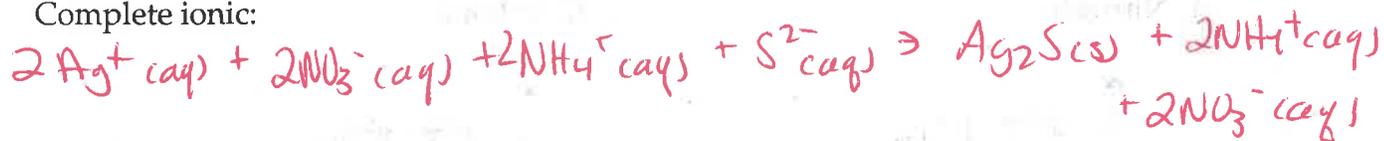
Net ionic:
$2Ag^+ (aq) + S^{2-} (aq) \rightarrow Ag_2S (s)$
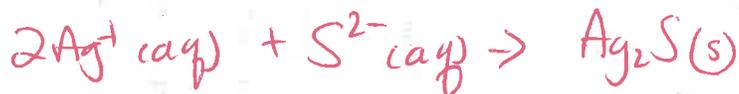
B) Give the correct chemical name for each of the following: (1 mark each)

    i. $CaCl_2$ _Calcium chloride_

    ii. NO_2 _nitrogen dioxide_

    iii. $Pb(CO_3)_2 \cdot 6H_2O$ _lead(IV) carbonate hexahydrate_

4.. Find the percent composition of $BaSO_4$. (3 marks)

$$MM = 137.3 + 32.1 + 4(16)$$
$$= 233.4$$

$$Ba = \frac{137.3}{233.4} \times 100 = 58.8\%$$

$$S = \frac{32.1}{233.4} \times 100 = 13.8\%$$

$$O = \frac{64.0}{233.4} \times 100 = 27.4\%$$

(total should ALWAYS equal 100%)

5. A compound is analyzed and found to contain 3.66 % hydrogen, 37.8 % phosphorus and 58.4 % oxygen. What is the empirical formula of the compound? (4 marks)

① ÷ by MM   ② ÷ by lowest # moles   ③ lowest mole ratio

H $3.66g \div 1.0g$ $\frac{3.66 \text{ mol}}{1.219}$ 3

P $37.8g \div 31.0g$ $\frac{1.219 \text{ mol}}{1.219}$ 1

O $58.4g \div 16.0g$ $\frac{3.65 \text{ mol}}{1.219}$ 3

$\boxed{H_3PO_3}$

recall if not a whole # you need to multiply out