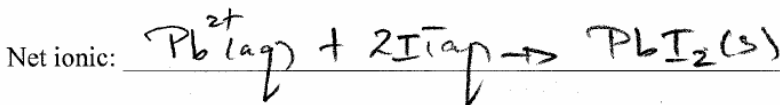
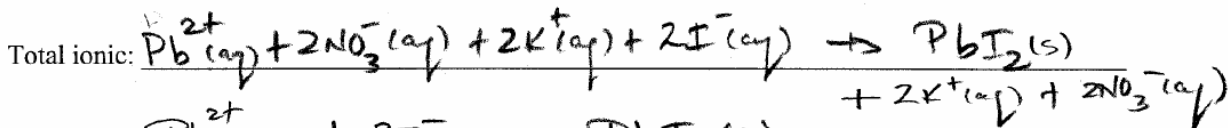
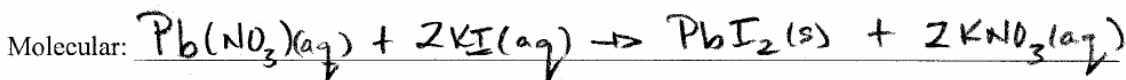
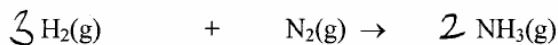


1. (2 points) Nomenclature

(a)  $\text{NH}_4\text{NO}_2$  Ammonium nitrite (b) iron (II) sulfate  $\text{FeSO}_4$ 

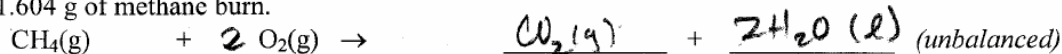
2. (3 points) Solutions of lead (II) nitrate and potassium iodide are mixed producing a yellow precipitate of the lead compound. Write the balanced molecular equation, the total ionic equation and the net ionic equation for the reaction. (include all, (s), (l), (g) or (aq) where needed)

3. (1 point) A reaction or physical process that releases energy is said to be: Exothermic4. (3 points) Ammonia is formed from the reaction below (unbalanced). If 5.0 grams of hydrogen and 5.0 grams of nitrogen react, how many grams ammonia will form? which limits

$$5.0\text{g H}_2 \times \frac{1\text{mol H}_2}{2.02\text{g}} \times \frac{1\text{mol N}_2}{3\text{mol H}_2} \times \frac{28.01\text{g mol N}_2}{1\text{mol N}_2} = \underline{23.1\text{g N}_2 \text{ NEEDED}}$$

Not enough  $\text{N}_2$   $\therefore$   $\text{N}_2$  limits $\text{N}_2$  limits

answer: \_\_\_\_\_

5. (3 points) The heat of combustion for methane is  $-890\text{ kJ/mol}$ . Calculate the amount of heat released when 1.604 g of methane burn.

$$1.604\text{g CH}_4 \times \frac{1\text{mol CH}_4}{16.04\text{g}} \times \frac{890\text{kJ}}{1\text{mol CH}_4} = \underline{89.0\text{kJ}}$$

answer: 89.0 kJ