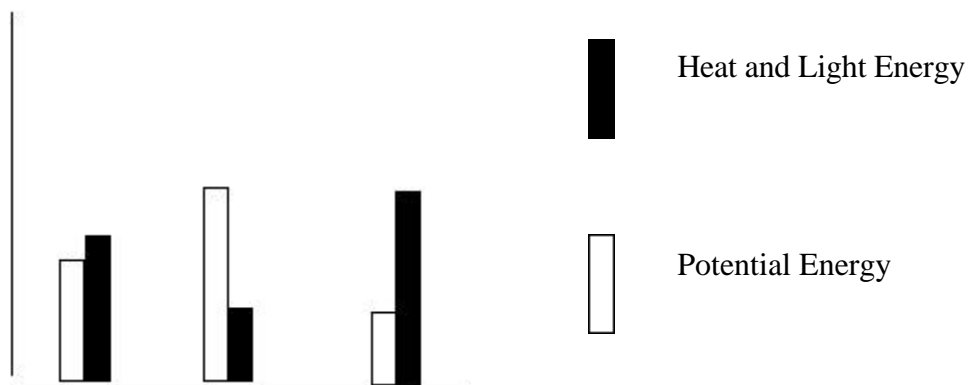


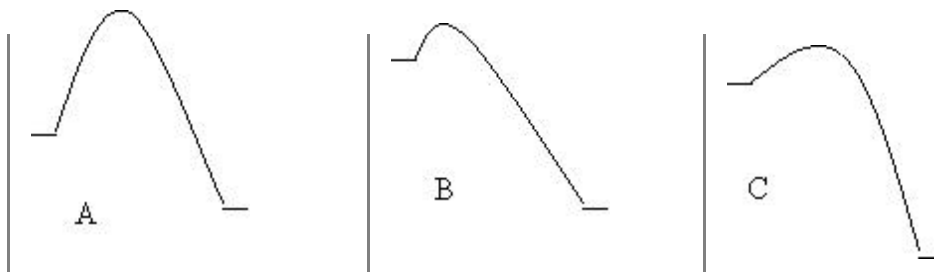
Potential Energy and Chemical Reactions

1) Put the following groups of molecules over the appropriate bar in the following potential energy diagram.

- a. $2 \text{H}_2, \text{O}_2$
- b. $4 \text{H}, 2 \text{O}$
- c. $2 \text{H}_2\text{O}$



2) Use the potential energy diagrams to rank the following reactions from greatest to least according to the energy released by each reaction.



- 3) Draw a potential energy diagram for the combustion of methane gas and oxygen into carbon dioxide and water.

- 4) Draw a potential energy diagram for the synthesis of glue from milk and vinegar. Note: this reaction requires the milk to be constantly heated.

- 5) HCl reacts with CaCO_3 to form CaCl_2 and H_2O and CO_2 . Almost no heat energy is absorbed or released by this reaction. That being said, draw a potential energy diagram for the reaction.

- 6) Which kind of chemical bond has the most chemical potential energy a strong covalent bond or a weak covalent bond? Explain.