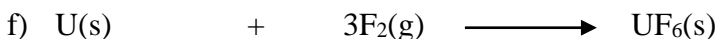
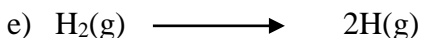
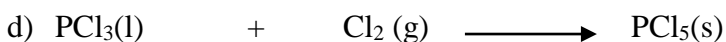
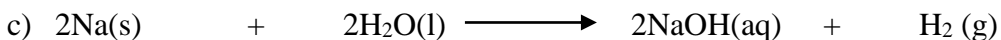
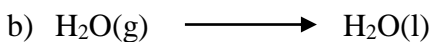


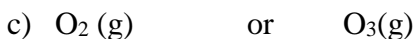
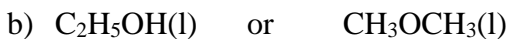
1. How does the entropy of the following system change in the following cases (increases or decreases and also write the ΔS with the appropriate sign)

- Solid lead melts
- A vapor converts to solid
- A liquid boils
- A solid is dissolved in water
- Water freezes to form ice
- Sugar crystallizes from a supersaturated solution

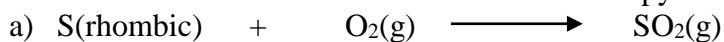
2. Predict whether the entropy change is positive or negative in the following reactions.



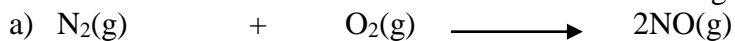
3. Which of the following has a larger standard entropy.



4. Use the data tables to calculate the standard entropy changes of the following reactions



5. Use the data tables to calculate the ΔG for the following reactions.



6. From the ΔH and ΔS , predict which of the following reactions would be spontaneous at 25°C .

a) Reaction A: $\Delta H = 10.5 \text{ KJ/mol}$; $\Delta S = 30 \text{ J/K}$

b) Reaction B: $\Delta H = 1.8 \text{ KJ/mol}$; $\Delta S = -113 \text{ J/K}$

7. Find the temperature at which both the following reactions will be spontaneous.

a) Reaction A: $\Delta H = -126 \text{ KJ/mol}$; $\Delta S = 84 \text{ J/K}$

b) Reaction B: $\Delta H = -11.7 \text{ KJ/mol}$; $\Delta S = -105 \text{ J/K}$