PROBLEMS OF PHYSICAL CHEMISTRY

2018-2019

LESSON 2

3.- Calculate the variations of U, H, S, A and G when 2 moles of hydrogen sulfide are:
   a) heated from 373 K to 473 K, at 1 atm
   b) compressed from 1 atm to 10 atm at 298 K
   Data: $\overline{C}_P = (36.86 + 0.0079\ T)$ J K-1 mol-1

   $R = 0.082\ \text{l·atm·K}^{-1}\text{·mol}^{-1} = 1.987\ \text{cal·K}^{-1}\text{·mol}^{-1} = 8.314\ \text{J·K}^{-1}\text{·mol}^{-1}$

   $\overline{S}$ (1 atm, 373 K) = 3. 51 J·K^{-1}·mol^{-1}

   Consider ideal behaviour for hydrogen sulfide

4.- Indicate which of the following pairs of substances presents higher chemical potential, or if it is the same:
   a) $H_2O_{(l)}$ at 25 ° C and 1 atm against $H_2O_{(g)}$ at 25 ° C and 1 atm
   b) $H_2O_{(s)}$ at 0 ° C and 1 atm against $H_2O_{(g)}$ at 0 ° C and 1 atm
   c) $H_2O_{(s)}$ at -5 ° C and 1 atm against $H_2O_{(l,supercooled)}$ at -5 ° C and 1 atm