Work Sheet – 3/6

Q1. State Le Chatelier’s primciple.

Q2. Using following data, explain whether the reaction is exothermic of endothermic. K= 1.24 x10-3 at 250C and K = 2.34 x10-3 at 500C (Hints: On rising temperature equilibrium shifts in the direction where it is endothermic)

Q3. Explain the effect of catalyst on equilibrium of a reversible reaction.

Q4. What will be the effect of adding a noble gas to the following equilibrium: PCl5(g) $⇌$ PCl3(g) + Cl2(g) (i) at constant pressure (ii) at constant volume

Q5. Explain the effect of rising temperature, pressure and concentration of reactants on the following equilibrium: (i) N2(g) + 3H2(g) $⇌$ 2NH3(g) ;∆H = - 93.6 kJ (ii) PCl5(g) $⇌$ PCl3(g) + Cl2(g) ; ∆H = - 63.0 kJ

Q6. Explain favorable conditions to get more amount of SO3 according to the following equation: 2SO2(g) + O2(g) $⇌$ 2SO3(g) ;∆H = - 189 kJ

Q7. An equilibrium reaction is 2H2(g) + CO(g) $⇌$ CH3OH(g)  Explain the effect of (i) addition of H2 (ii) removal of CH3OH

Q8. What happens when FeCl3 solution is added to the equilibrium system: Fe3+(aq) + SCN-(aq) $⇌$ [Fe(CNS)]2+ (aq) . (Red Colour)

Q9. Define the following: (i) Active mass (ii) Equilibrium constant

Q10. In the reaction between H2 and CO2 to form CO and H2O in gas phase is exothermic. Predict the changes that take place when the system originally at equilibrium is stressed in the following ways: (i) CO2 is removed (ii) CO is removed (iii) Temperature is increased (iv) Pressure is increased (v) Volume of container is increased