**I.P.S.Sr.Sec.School**

**Max Time : 1 hr** **Class : 11th Chemistry Max Marks : 30**

**Unit Test**

1. Answer the following Multiple Choice Question (s) : [1.5 x 10 = 15]
2. If pressure is increased on the equilibrium N2 + O2 2 NO , the equilibrium will

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| --- | --- |
| a) shift in the forward direction | b) shift in the backward direction |
| c) remain undisturbed | d) may shift in the forward or backward direction |

1. For the reaction ; PCl3 (g) + Cl2 (g) PCl5 (g) the value of KC at 250˚C is 26. The value of KP at this temperature will be

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0.61 | b) 0.57 | c) 0.83 | d) 0.46 |

1. In a reversible reaction, two substances are in equilibrium. If the concentration of each one is doubled, the equilibrium constant will be

|  |  |
| --- | --- |
| a) Reduced to half its original value | b) Reduced to ¼ th of its original value |
| c) Doubled | d) Constant |

1. The reaction , SO2 + Cl2 SO2Cl2 is exothermic and reversible. A mixture of SO2 (g) , Cl2 (g) and SO2Cl2 (g) is at equilibrium in a closed container. Now a certain quantity of extra SO2 is introduce into the container, the volume remaining the same. Which of the following is/are true ?

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| --- | --- |
| a) The pressure inside the container will not change | b) The temperature will not change |
| c) The temperature will increase | d) The temperature will decrease |

1. In a reaction, A + 2 B 2 C , 2 mole of ‘A’ , 3 mol of ‘B’ and 2 mole of ‘C’ are placed in a 2 litre flask and the equilibrium concentration of ‘C’ is 0.5 mol/L. The equilibrium constant (K) for the reaction is

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| --- | --- | --- | --- |
| a) 0.073 | b) 0.147 | c) 0.05 | d) 0.026 |

1. NH4COONH2 (s) 2 NH3 (g) + CO2 (g) , If equilibrium pressure is 3 atm for the above reaction, KP for the reaction is

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| --- | --- | --- | --- |
| a) 4 | b) 27 | c) 4/27 | d) 1/27 |

1. For the reaction , H2 (g) + CO2 (g) CO (g) + H2O (g) , If the initial pressure of [H2] = [CO2] and x moles/Litre of hydrogen is consumed at equilibrium , the correct expression of Kp is

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| a) | b) | c) | d) |

1. N2O4 is 10 % dissociated at a total pressure P1 and 20 % dissociated at a total pressure P2. Then ratio P1/P2 is

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| --- | --- | --- | --- |
| a) 1/2 | b) 2/1 | c) 1/4 | d) 4/1 |

1. When hydrogen molecules decompose into its atoms, which condition give maximum yield of hydrogen atoms?

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| --- | --- |
| a) high temperature and low pressure | b) low temperature and high pressure |
| c) high temperature and high pressure | d) low temperature and low pressure |

1. For the reaction : H2 + I2 2 HI , K = 47.6 . If the initial number of moles of each reactant and product is 1 mole, then at equilibrium

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| --- | --- | --- | --- |
| a) [I2] = [H2] , [I2] > [HI] | b) [I2] < [H2] , [I2] = [HI] | c) [I2] = [H2] , [I2] < [HI] | d) [I2] > [H2] , [I2] = [HI] |

1. Find the oxidation number of the following : a) PbSO4 (b) H2SO4 [ 2 ]
2. At 450 K , KP = 2 x 1010/bar for the given reaction at equilibrium [ 2 ]

2 SO­2 (g) + O2 (g) 2 SO3 (g) , What is KC at this temperature ?

1. A sample of pure PCl5 was introduced into a evacuated vessel at 473 K. After equilibrium was reached , the concentration of PCl5 was found to be 0.5 x 10 – 1 mol/L. If KC is 8.3 x 10 – 3 what are the concentrations of PCl3 and Cl2 at equilibrium ? [ 3 ]
2. Balance the following reactions in acidic medium. [ 2 x 2 = 4 ]

a) (aq) + SO2 (g) → Mn2+ (aq) + (aq) b) (aq) + SO2 (g) → Cr3+ (aq) + (aq)

1. Balance the following reaction in Basic medium : [ 2 x 2 = 4 ]
2. P4 (s) + OH – (aq) → PH3 (g) + H2 (aq) b) N2H4 (l) + (aq) → NO (g) + Cl – (g)