Date Planned : __ / __ / __	Daily Tutorial Sheet-10	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-2	Exact Duration :_____

116. In the given reaction, $2X(g) + Y(g) \rightleftharpoons 2Z(g) + 80\,kcal$,

Which combination of pressure and temperature will give the highest yield of Z at equilibrium?

(A) 1000 atm and 200°C **(B)** 500 atm and 500°C

(C) 1000 atm and 100°C **(D)** 500 atm and 100°C

117. When pressure is applied to the equilibrium system ice and water. Which of the following phenomenon will happen ?

(A) More ice will be formed **(B)** Water will evaporate

(C) More water will be formed **(D)** Equilibrium will not be formed

118. 3 moles of A and 4 moles of B are mixed together and allowed to come into equilibrium according to the following reaction.

$$3A(g) + 4B(g) \rightleftharpoons 2C(g) + 3D(g)$$

When equilibrium is reached, there is 1 mole of C. The equilibrium extent of the reaction is :

(A) 1/4 **(B)** 1/3

(C) 1/2 **(D)** 1

***119** In which of the following reactions, the system will shift towards forward reaction by adding inert gas at constant pressure ?

(A) $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$ **(B)** $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

(C) $COCl_2(g) \rightleftharpoons CO(g) + Cl_2(g)$ **(D)** $CO(g) + 2H_2(g) \rightleftharpoons CH_3OH(g)$

***120** Which of the following factors will increases the solubility of NH_3 gas in H_2O ?

(A) On decreasing temperature **(B)** On increasing temperature

(C) on decreasing pressure **(D)** Solubility can not be increased

121. An aqueous solution of hydrogen sulphide shows the equilibrium : $H_2S \rightleftharpoons H^+ + HS^-$

If dilute hydrochloric acid is added to an aqueous solution of H_2S, without any change in temperature, the :

(A) The equilibrium constant change

(B) The concentration HS^- will increase

(C) The concentration of un-dissociated hydrogen sulphide will decrease

(D) The concentration of HS^- will decrease

122. The degree of dissociation of I_2 molecule at 1000°C and under 1.0 atmospheric pressure is 40% by volume. If the dissociation is reduced to 20% at the same temperature, the total equilibrium pressure on the gas will be :

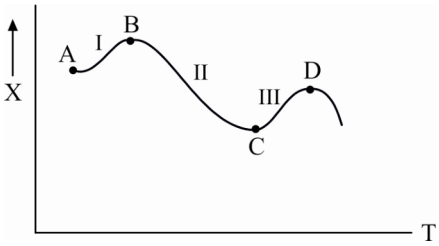
(A) 1.57 atm **(B)** 2.57 atm

(C) 3.57 atm **(D)** 4.57 atm

123. For the following reaction through stages I, II and III

$$A \xrightarrow{I} B \xrightarrow{II} C \xrightarrow{III} D$$

quantity of the product formed (x) varies with temperature (T) as given. Select correct statement:



(A) Stages I and III are endothermic but II is exothermic

(B) Stages I and III are exothermic but II is endothermic

(C) Stages II and III are exothermic but I is endothermic

(D) Stage I is exothermic but stages II and III are endothermic

124. $Au(s) \rightleftharpoons Au(\ell)$

Above equilibrium is favoured at

(A) High pressure low temperature **(B)** High pressure high temperature

(C) Low pressure, high temperature **(D)** Low pressure, low temperature

***125.** Match the following :

Condition for the reaction to be favoured in forward direction.

Column I		Column II	
(A)	$CO_2(g) + H_2O(\ell) \longrightarrow H_2CO_3(aq)$; $\Delta H = -10\,kJ/mol$	**(P)**	Low temperature
(B)	$CO(g) + 2H_2(g) \longrightarrow CH_3OH(g)$; $\Delta H = -91\,kJ/mol$	**(Q)**	High temperature
(C)	$N_2O_4(g) \rightleftharpoons 2NO_2(g)$; $\Delta H = 57.2\,kJ/mol$	**(R)**	Low pressure
(D)	$N_2(g) + O_2(g) \longrightarrow 2NO(g)$; $\Delta H = 90\ kJ/mol$	**(S)**	High pressure