153. Variation of $\log_{10} K$ with $\dfrac{1}{T}$ is shown by the following graph
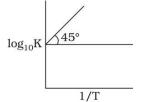
in which straight line is at 45°C. Hence $\Delta H°$ is : ▶

(A) -4.606 kJ / mol

(B) -19.147 kJ / mol

(C) 8.314 kJ / mol

(D) 10 kJ / mol

Column I and Column II contains four entries each. Entries of Column-I are to be matched with some entries of Column-II. One or more than one entries of Column-I may have the matching with the same entries of Column-II.

154. Match the following :

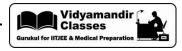|	Column I (Reaction)		Column II (If α is negligible w.r.t. 1)
(A)	$2X(g) \rightleftharpoons Y(g) + Z(g)$	(P)	$\alpha = 2 \times \sqrt{K_c}$
(B)	$X(g) \rightleftharpoons Y(g) + Z(g)$	(Q)	$\alpha = 3 \times \sqrt{K_c}$
(C)	$3X(g) \rightleftharpoons Y(g) + Z(g)$	(R)	$\alpha = \left(2K_c\right)^{1/3}$
(D)	$2X(g) \rightleftharpoons Y(g) + 2Z(g)$	(S)	$\alpha = \sqrt{K_c}$

155. Match the following :

	Column I		Column II
(A)	$\dfrac{K_{10+T°C}}{K_{T°C}} = 2$	(P)	Endothermic
(B)	$\dfrac{K_{10+T°C}}{K_{T°C}} = \dfrac{1}{2}$	(Q)	Not affected by pressure
(C)	$A(g) + B(g) \rightleftharpoons C(g)$	(R)	Exothermic
(D)	$X(s) + Y(g) \rightleftharpoons Z(g)$	(S)	Affected by volume

156. Match the following :

	Column I		Column II
(A)	Pressure increased in $2NO(g) \rightleftharpoons N_2(g) + O_2(g)$	(P)	Equilibrium shifted in forward direction
(B)	Pressure increased in $CH_4(g) + H_2O(g) \rightleftharpoons CO(g) + 3H_2(g)$	(Q)	Equilibrium shifted in backward direction
(C)	Temp. increased and pressure increased $3O_2(g) \rightleftharpoons 2O_3(g)$; $\Delta H = 285$ kJ	(R)	Equilibrium remains unaffected
(D)	Pressure decrease and moles of N_2 increase $N_2(g) + 2O_2(g) \rightleftharpoons 2NO_2(g)$; $\Delta H = 66.4$ kJ	(S)	Theoretically we cannot predict

157. A reaction at equilibrium involving 2 mol each of PCl_5, PCl_3, Cl_2 is maintained at 250^oC and total pressure of 3 atm. Calculate the value of K_p. ▶

158. If β_1, β_2 and β_3 are stepwise formation constants of MCl, MCl_2, MCl_3 and K is the overall formation constant of MCl_3, then (charges omitted) ▶

(A) $K = \beta_1 + \beta_2 + \beta_3$

(B) $\dfrac{1}{K} = \dfrac{1}{\beta_1} + \dfrac{1}{\beta_2} + \dfrac{1}{\beta_3}$

(C) $\log K = \log\beta_1 + \log\beta_2 + \log\beta_3$

(D) $Pk = \log\beta_1 + \log\beta_2 + \log\beta_3 (Pk = -\log K)$