Yakeen NEET 2.0 2026

Physical Chemistry By Amit Mahajan Sir

DPP: 3

Chemical Equilibrium

Q1 In equilibrium
$CH_3COOH + H_2O \rightleftharpoons CH_3COO^- + H^+$
The equilibrium constant may change when;
(A) CH_3COO^- are added.
(B) CH_3COOH is added.
(C) Catalyst is added.
(D) Mixture is heated.

Q2 In the reaction,
$A_2(g) + 4B_2(g) \rightleftharpoons 2AB_4(g), \Delta H < 0$ the formation of AB_4 will be favoured at
(A) Low temperature, high pressure
(B) High temperature, low pressure
(C) Low temperature, low pressure
(D) High temperature, high pressure

Q3 $N_2 + O_2 \rightleftharpoons 2NO, -Q$ cals
In the above reaction which is the essential condition for the higher production of NO
(A) High temperature
(B) High pressure
(C) Low temperature
(D) Low pressure

Q4 Which of the following reactions proceed at low pressure?
(A) $N_2 + 3H_2 \rightleftharpoons 2NH_3$
(B) $H_2 + I_2 \rightleftharpoons 2HI$
(C) $PCl_5 \rightleftharpoons PCl_3 + Cl_2$
(D) $N_2 + O_2 \rightleftharpoons 2NO$

Q5 The reaction $A + B \rightleftharpoons C + D +$ heat has reached equilibrium. The reaction may be made to proceed forward by
(A) Adding more C
(B) Adding more D
(C) Decreasing the temperature
(D) Increasing the temperature

Q6 According to Le-chatelier principle, if heat is given to solid-liquid system, then
(A) Quantity of solid will reduce
(B) Quantity of liquid will reduce
(C) Increase in temperature
(D) Decrease in temperature

Q7 Following the gaseous reaction is undergoing in a vessel,
$C_2H_4 + H_2 \rightleftharpoons C_2H_6; \Delta H = -32.7\ Kcal$
Which will increase the equilibrium concentration of C_2H_6
(A) Increase in temperature
(B) By reducing the temperature
(C) By removing some hydrogen
(D) By adding some C_2H_6

Q8 The effect of increasing the pressure on the equilibrium $2A + 3B \rightleftharpoons 3A + 2B$ is
(A) Forward reaction is favored
(B) Backward reaction is favored
(C) No effect
(D) None of the above

Q9 In which of the following system, doubling the volume of the container causes a shift to the right
(A) $H_2(g) + Cl_2(g) \rightleftharpoons 2HCl(g)$
(B) $2CO(g) + O_2(g) \rightleftharpoons 2CO_2(g)$

(C) $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$
(D) $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$

Q10 The equilibrium $SO_2Cl_2(g) \rightleftharpoons SO_2(g) + Cl_2(g)$ is attained at $25^\circ C$ in a closed container and an inert gas helium is introduced at constant volume which of the following statement is correct
(A) More chlorine is formed
(B) Concentration of SO_2 is reduced
(C) The concentration of all remains unaffected
(D) More SO_2Cl_2 is formed

Q11 $H_2(g) + I_2(g) \rightleftharpoons 2HI(g) \Delta H = +q$ cal, then formation of HI
(A) Is favoured by lowering the temperature
(B) Is favoured by increasing the pressure
(C) Is unaffected by change in pressure
(D) Is unaffected by the change in temperature

Q12 The formation of nitric oxide by the contact process $N_2 + O_2 \rightleftharpoons 2NO, \Delta H = 43,200$ kcal is favoured by
(A) Low temperature and low pressure
(B) Low temperature and high pressure
(C) High temperature and high pressure
(D) High temperature and excess reactants concentration

Q13 The yield of product in the reaction, $A_2(g) + 2B(g) \rightleftharpoons C(g) + Q$ kJ would be high at
(A) High temperature and high pressure
(B) High temperature and low pressure
(C) Low temperature and high pressure
(D) Low temperature and low pressure

Q14 Some inert gas is added at constant volume to the following reaction at equilibrium, $NH_4HS(s) \leftrightharpoons NH_3(g) + H_2S(g)$
Predict the effect of adding the inert gas:
(A) The equilibrium shifts in the forward direction
(B) The equilibrium shifts in the backward direction
(C) The equilibrium remains unaffected
(D) The value of K_p is increased

Q15 Le-Chatelier principle is not applicable to
(A) $H_2(g) + I_2(g) \leftrightharpoons 2HI(g)$
(B) $Fe(s) + S(s) \leftrightharpoons FeS(s)$
(C) $N_2(g) + 3H_2(g) \leftrightharpoons 2NH_3(g)$
(D) $N_2(g) + O_2(g) \leftrightharpoons 2NO(g)$

Answer Key

Q1	(D)
Q2	(A)
Q3	(A)
Q4	(C)
Q5	(C)
Q6	(A)
Q7	(B)
Q8	(C)
Q9	(D)
Q10	(C)
Q11	(C)
Q12	(D)
Q13	(C)
Q14	(C)
Q15	(B)