EQUILIBRIUM

1. 120 g of urea is dissolved in 5 litres. The active mass of urea is
   (a) 0.08 (b) 0.4 (c) 120/5 (d) 5/120

2. For the equilibrium $A + B \rightleftarrows C + D$, equilibrium constant may be equal to
   (a) $\frac{[C][A]}{[D][B]}$ (b) $\frac{[A][B]}{[C][D]}$ (c) $\frac{[C]+[D]}{[A]+[B]}$ (d) all wrong

3. For which of the following reactions, K_P may be equal to 0.5 atm?
   (a) $2HI \rightleftarrows H_2 + I_2$ (b) $PC1_5 \rightleftarrows PCl_3 + C1_2$
   (c) $N_2 + 3H_2 \rightleftarrows 2NH_3$ (d) $2N0_2 \rightleftarrows N_20_4$

4 Which of the following is correct?
(a) K_P will always have some unit (b) K_c will always have some unit
(c.) K_x will never have any unit (d) When $\Delta n = 0$, $K_P = K_c = K_x$ then all the three K_S have the same unit

5. K_p/K_c for the reaction $CO + \frac{1}{2}0_2 \rightleftarrows C02$ is
   (a) RT (b) $1/\sqrt{RT}$ (c) $\sqrt{RT}$ (d) 1

6. The vapour density of undecomposed N_20_4 is 46. When heated, the vapour density decreases to 24.5 due to its dissociation to NO_2 percentage dissociation of N_20_4 at the final temperature is
   (a) 87 (b) 60 (c) 40 (d) 70

7. For the reaction C (s) + $C0_2$ (g) $\rightleftharpoons$2CO (g), the partial pressures of $C0_2$ and CO are respectively 4 and 8 atm. K_P for the reaction is
   (a) 16 (b) 2 (c) 0.5 (d) 4

8. Kc for A + B $\leftrightharpoons$ C + D is 10 at 25^0C. If a 2-litre vessel contains 1, 2, 3 and 4 moles of A, B, C and D respectively, at 25^0C, the reaction shall
   (a) Proceed from left to right (b) Proceed from right to left
   (c) Be at equilibrium (d) Not occur

9. If pressure is applied to the equilibrium system of solid $\leftrightharpoons$ liquid, the melting point of the solid
   (a) Will not change (b) May increase or decrease depending upon its nature
   (c) Will always increase (d) Will always decrease

10. If pressure is applied to the following equilibrium of liquid $\leftrightharpoons$ vapour, the boiling point of the liquid
   (a) Will decrease (b) Will increase
   (c) May increase or decrease (d) Will not change

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