

CHEMISTRY

21. The active mass of 64 gm of HI in a two litre flask would be
 (1) 2 (2) 1
 (3) 5 (4) 0.25
22. 4 moles of A are mixed with 4 mol of B. At equilibrium for the reaction $A + B \rightleftharpoons C + D$, 2 mol of C and D are formed. The equilibrium constant for the reaction will be
 (1) $\frac{1}{4}$ (2) $\frac{1}{2}$
 (3) 1 (4) 4
23. The equilibrium constant in a reversible reaction at a given temperature
 (1) Depends on the initial concentration of the reactants
 (2) Depends on the concentration of the products at equilibrium
 (3) Does not depend on the initial concentrations
 (4) It is not characteristic of the reaction
24. Partial pressures of A, B, C and D on the basis of gaseous system $A + 2B \rightleftharpoons C + 3D$ are A = 0.20; B = 0.10; C = 0.30 and D = 0.50 atm. The numerical value of equilibrium constant is
 (1) 11.25 (2) 18.75
 (3) 5 (4) 3.75
25. For the reaction $A + 2B \rightleftharpoons C$, the expression for equilibrium constant is
 (1) $\frac{[A][B]^2}{[C]}$ (2) $\frac{[A][B]}{[C]}$
 (3) $\frac{[C]}{[A][B]^2}$ (4) $\frac{[C]}{2[B][A]}$
26. 4.5 moles each of hydrogen and iodine heated in a sealed ten litre vessel. At equilibrium, 3 mol of HI were found. The equilibrium constant for
 $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ is
 (1) 1 (2) 10
 (3) 5 (4) 0.33
27. At 3000 K the equilibrium pressures of CO_2 , CO and O_2 are 0.6, 0.4 and 0.2 atmospheres respectively. K_p for the reaction,
 $2CO_2 \rightleftharpoons 2CO + O_2$ is
 (1) 0.089 (2) 0.0533
 (3) 0.133 (4) 0.177
28. The rate constant for forward and backward reactions of hydrolysis of ester are 1.1×10^{-2} and 1.5×10^{-3} per minute respectively. Equilibrium constant for the reaction is
 $CH_3COOC_2H_5 + H_2O \rightleftharpoons CH_3COOH + C_2H_5OH$
 (1) 4.33 (2) 5.33
 (3) 6.33 (4) 7.33
29. At a certain temp. $2HI \rightleftharpoons H_2 + I_2$ Only 50% HI is dissociated at equilibrium. The equilibrium constant is
 (1) 0.25 (2) 1.0
 (3) 3.0 (4) 0.50
30. 56 g of nitrogen and 8 g hydrogen gas are heated in a closed vessel. At equilibrium 34 g of ammonia are present. The equilibrium number of moles of nitrogen, hydrogen and ammonia are respectively
 (1) 1,2,2 (2) 2,2,1
 (3) 1,1,2 (4) 2,1,2