

Chemical Equilibrium

Sr	Questions	Answers Choice
1	Question Image	<p>A. Shift reaction toward forward direction</p> <p>B. Shift reaction backward</p> <p>C. Lower the value of K_c</p> <p>D. No change in reaction</p>
2	A large value of K_c means that at equilibrium :	<p>A. Less reactant and more products.</p> <p>B. Reactants and product in same amounts.</p> <p>C. More reactants and less products.</p> <p>D. None of above.</p>
3	Question Image	<p>A. $K_p > K_c$</p> <p>B. $K_c > K_p$</p> <p>C. $K_p = K_c$</p> <p>D. None of these</p>
4	Question Image	<p>A. High temperature</p> <p>B. Low temperature</p> <p>C. Low pressure</p> <p>D. High pressure</p>
5	A chemical reaction is in equilibrium when	<p>A. Formation of product is minimum</p> <p>B. Reactants are completely transformed into products</p> <p>C. Rates of forward and backward reactions are equal</p> <p>D. Equal amounts of reactants and products are present</p>
6	Under what condition of temperature and pressure the formation of atomic hydrogen from molecular hydrogen will be favoured	<p>A. High temperature and high pressure</p> <p>B. Low temperature and low pressure</p> <p>C. High temperature and low pressure</p> <p>D. :Low temperature and high pressure</p>
7	The pH of 10^{-3} mole dm^{-3} of an aqueous solution of H_2SO_4 is	<p>A. 3.0</p> <p>B. 2.7</p> <p>C. 2.0</p> <p>D. 1.5</p>
8	The best buffer is prepared when molar concentrations of the salt and acid are equal, then its pH and pK_a value are related	<p>A. $\text{pH} = pK_a$</p> <p>B. $\text{pH} < pK_a$</p> <p>C. $\text{pH} > pK_a$</p> <p>D. $\text{pH} \times pK_a = 14$</p>
9	Question Image	<p>A. Initial concentration of acetic acid</p> <p>B. Initial concentration of ethyl acetate</p> <p>C. Equilibrium concentration of acetic acid</p> <p>D. Equilibrium concentration of ethyl acetate</p>
10	Question Image	<p>A. The value of K_p falls with rise in temperature</p> <p>B. The value of K_p falls with increasing pressure</p> <p>C. Addition of V_2O_5 catalyst increase the concentration of SO_3</p> <p>D. The value of K_p is equal to K_c</p>
11	In a reversible chemical reaction having two reactants in equilibrium, if the concentration of the reactants are doubled then the equilibrium constant will	<p>A. Also be doubled</p> <p>B. Be halved</p> <p>C. Becomes one fourth</p> <p>D. Remains the same</p>
12	The active mass of 64 g of HI in a two litre flask would be	<p>A. 2</p> <p>B. 1</p> <p>C. 5</p> <p>D. 0.25</p>
13	The rate at which a substance reacts is directly proportional to its active mass and the rate of reaction is directly proportional to the product of the active masses of reacting substances, is called	<p>A. Law of conservation of energy</p> <p>B. Le-Chateliers principle</p> <p>C. Law of mass action</p> <p>D. None of these</p>
	$\text{N}_2\text{O}_4 \rightleftharpoons 2\text{NO}_2$	<p>A. By adding NH_3</p> <p>B. By removing</p>



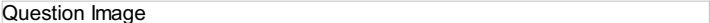



14	Which of the following change will favor the formation of more NH_3 at equilibrium in above reaction :	<p>background-image: initial; background-position: initial; background-size: initial; background-repeat: initial; background-attachment: initial; background-origin: initial; background-clip: initial;"> A. By increasing temperature. B. By increasing volume. C. By decreasing pressure. D. By increasing pressure. </p>
15	Question Image	<p>A. Pressure change B. Temperature change C. Concentration change D. Catalyst</p>
16	The ionization constant of an acid is expressed in term of the following constant	<p>A. K_w B. K_n C. K_a D. K_b</p>
17	The solubility of KClO_3 salt in water is decreased by adding	<p>A. NaClO_3 B. NaCl C. KClO_4 D. KCl</p>
18	I a chemical reaction equilibrium is said to have been established when :	<p>A. Rate of opposing reactions are equal. B. Rate constants of opposing reactions are equal. C. Opposing reactions stop. D. Concentration of reactants and products are equal</p>
19	Extent to $\text{H}_2 + \text{I}_2 \rightarrow 2\text{HI}$ can be increased by :	<p>A. Increasing temperature. B. Increasing product. C. Increasing pressure. D. Adding a catalyst.</p>
20	In an exothermic reaction, a 10° rise in temperature will	<p>A. Decrease the value of equilibrium constant B. Double the value of K_c C. Not produce any change in K_c D. Produce some increase in K_c</p>
21	K_b for NH_4OH is 1.81×10^{-5} , then K_a value of its conjugate base is	<p>A. 1.81×10^{-5} B. 1.81×10^{-9} C. 5.5×10^{-9} D. 5.5×10^{-10}</p>
22	1 mol of N_2O_4 was decomposed according to given equation in 1 dm ³ container. At equilibrium x mole of N_2O_4 have dissociated. What is the value of K_c :	<p>A. $\frac{2x^2}{(1-x)^2}$ B. $\frac{4x^2}{(1-x)}$ C. $\frac{4x}{(1-x)}$ D. $\frac{2x}{(1-x)}$</p>
23	Question Image	<p>A. Total pressure B. Amount of A_2 and B_2 C. Temperature D. Catalyst</p>
24	Question Image	<p>A. Low pressure B. High pressure C. High temperature D. High concentration of SO_2</p>
25	<p>$\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$</p> <p>The unit of K_c for tis reaction will be:</p>	<p>A. No unit B. $\text{mol}^{-2} \text{dm}^{-3}$ C. $\text{mol}^{-1} \text{dm}^{-3}$ D. $\text{mol}^{-1} \text{dm}^{-3}$</p>

26	Question Image	
27	For what value of K_c almost forward reaction is complete :	<p>A. $K_c = 10^{30}$</p> <p>B. $K_c = 10^{30}$</p> <p>C. $K_c = 0$</p> <p>D. $K_c = 1$</p>
28	Which of the following factors will favour the reverse reaction in a chemical equilibrium?	<p>A. Increase in concentration of one of the reactants</p> <p>B. Increase in concentration of one of the products</p> <p>C. Removal of one of the products regularly</p> <p>D. None of these</p>
29	Product of concentration of ions raised to the power equal to the co-efficient of ions in balanced equation for saturated solution of a salt is called	<p>A. Ionic product</p> <p>B. Equilibrium constant K_c</p> <p>C. K_{sp}</p> <p>D. Solubility product (K_{sp})</p>
30	Question Image	<p>A. HF is stable and does not decompose even at 2000°C</p> <p>B. HF is stable and slowly decomposes at 2000°C</p> <p>C. HF is strong acid</p> <p>D. HF produces equal moles of hydrogen and fluorine</p>
31	The correct relation b/w K_c and K_p is :	<p>A. $K_p = K_c [P/N]^{\Delta n}$</p> <p>B. $K_c = K_p (RT)^{\Delta n}$</p> <p>C. $K_p = K_c (RT)^{\Delta n}$</p> <p>D. $K_p = K_c (RT)^{\Delta n}$</p>
32	The relation between K_c and K_p is	
33	Question Image	<p>A. 0.12</p> <p>B. 0.50</p> <p>C. 0.25</p> <p>D. 4.00</p>
34	Question Image	<p>A. Reversible reaction</p> <p>B. Irreversible reaction</p> <p>C. Spontaneous reaction</p> <p>D. None of these</p>
35	Two moles of HI was heated in a sealed tube at 440°C till the equilibrium was reached. HI was found to be 22% decomposed. The equilibrium constant for dissociation is	<p>A. 0.282</p> <p>B. 0.0796</p> <p>C. 0.0199</p> <p>D. 1.99</p>
36	If the difference of pKa values of the two acids is 2, then	<p>A. Acid with smaller pKa is 10 times stronger acid</p> <p>B. Acid with greater pKa is 10 times stronger acid</p> <p>C. Acid with smaller pKa is 100 times stronger acid</p> <p>D. Acid with greater pKa is 100 times stronger acid</p>
37	Question Image	<p>A. At equilibrium there is no further change in the concentration of HI</p> <p>B. At equilibrium concentration of I_2 remains constant</p> <p>C. At equilibrium concentration of H_2 remains unaltered</p> <p>D. At equilibrium the rate of formation of HI is equal to the rate of decomposition of HI</p>
38	pH and pKa of the buffer are related by Henderson equation which is	
39	Question Image	<p>A. Equal volumes of N_2 and H_2 are reacting</p> <p>B. Equal masses of N_2 and H_2 are reacting</p> <p>C. The reaction has stopped</p> <p>D. The same amount of ammonia is formed as is decomposed into N_2 and H_2</p>
40	A reaction is reversible because :	<p>A. Products are stable.</p> <p>B. Reactants are reactive.</p> <p>C. Products are reactive.</p> <p>D. Reactants re stable.</p>

41	1.1 mol of A is mixed with 2.2 mol of B and the mixture is kept in on litre flask till the equilibrium is reached. At equilibrium, 0.2 mol of C is formed. If the equilibrium reaction is $A+2B \rightleftharpoons 2C+D$, the value of equilibrium constant is	<p>A. 0.002 B. 0.004 C. 0.001 D. 0.003</p>
42	When a weak acid is dissolved in water or a weak base dissolved in water, then in both cases the conjugate acid base pair is produced. The ionization constants K_a and K_b of a pair are related with each other as	<p>A. $K_a = K_b$ B. $K_a \cdot K_b = K_w$ C. $K_a \cdot K_b = K_w$ D. $K_a \cdot K_b = K_a$</p>
43	$N_2 + 3H_2 \rightleftharpoons 2NH_3$ <p>The unit of K_c for tis reaction will be:</p>	<p>A. $\text{mol}^2 \text{dm}^{-6}$ B. $\text{mol}^2 \text{dm}^{-3}$ C. $\text{mol}^3 \text{dm}^{-3}$ D. $\text{mol}^3 \text{dm}^{-1}$</p>
44	For which system does the equilibrium constant, K_c has units of (concentration) ?	<p>A. $N_2 + 3H_2 \rightleftharpoons 2NH_3$ B. $H_2 + L_2 \rightleftharpoons 2HL$ C. $2NO \rightleftharpoons N_2 + O_2$ D. $2HF \rightleftharpoons H_2 + F_2$</p>
45	The value of K_p is greater than K_c for a gaseous reaction when	<p>A. Number of molecules of products is greater than the reactants B. Number of molecules of reactants is greater than those of products C. Number of molecules of reactants and products equal D. Catalyst is added</p>
46	Law of mass action was given by :	<p>A. Guldberg and Waage. B. Berkeley and Hartly. C. Ramsay and Reyleigh. D. Berthelot.</p>
47	Units of K_w are	<p>A. $\text{mol}^3 \text{dm}^{-3}$ B. $\text{mol}^2 \text{dm}^{-3}$ C. $\text{mol}^2 \text{dm}^{-6}$ D. $\text{mol}^2 \text{dm}^{-3}$</p>
48	What happens when reaction is at equilibrium and more reactant is added :	<p>A. Forward reaction rate is increased. B. Forward reaction rate is decreased. C. Backward reaction rate is increased. D. Equilibrium remains unchanged.</p>
49	Question Image	<p>A. 1 B. 10 C. 5 D. 0.33</p>
50	Ammonium carbonate when heated to 200°C gives a mixture of NH_3 and CO_2 vapour with a density of 13.0. What is the degree of dissociation of ammonia carbonate?	<p>A. $\frac{3}{2}$ B. $\frac{1}{2}$ C. 2 D. 1</p>
51	Question Image	<p>A. Favour the formation of N_2O_4 B. Favour the decomposition of N_2O_4 C. ... D. ...</p>

		<p>C. Not alter the equilibrium</p> <p>D. Stop the reaction</p>
52	Question Image	<p>A. 0.5</p> <p>B. 4.0</p> <p>C. 2.5</p> <p>D. 0.25</p>
53	The concentration of reactants is increased by x, then equilibrium constant K becomes	<p>A. $\ln K/x$</p> <p>B. K/x</p> <p>C. $K + x$</p> <p>D. K</p>
54	On passing HCl gas through a saturated solution of commercial sodium chloride, pure crystals of NaCl are precipitated due to	<p>A. Increase in pH of the solution</p> <p>B. Decrease in pH of the solution</p> <p>C. Common ion effect</p> <p>D. Increase in ionization of NaCl</p>
55	Question Image	<p>A. Forward reaction is favoured</p> <p>B. Backward reaction is favoured</p> <p>C. No effect</p> <p>D. None of the above</p>
56	Question Image	<p>A. Decrease in temperature favour more dissolution of the salt</p> <p>B. Increase in temperature favour more dissolution of the salt</p> <p>C. Lowering pressure favour more dissolution of the salt</p> <p>D. Increasing pressure favour more dissolution of the salt</p>
57	Question Image	<p>A. Temperature is increased</p> <p>B. Pressure is increased</p> <p>C. HCl is added</p> <p>D. HCl is removed</p>
58	Hydrogen gas and iodine vapours combine to form HI at 425°C, the same composition of mixture is present if we start with decomposition of HI. It suggests	<p>A. A static equilibrium</p> <p>B. Law of mass action</p> <p>C. A dynamic equilibrium</p> <p>D. Irreversible reaction</p>
59	Question Image	<p>A. The value of K_p falls with a rise in temperature</p> <p>B. The value of K_p falls with increasing pressure</p> <p>C. Adding V_2O_5 catalyst increase the equilibrium yield of sulphur trioxide</p> <p>D. The value of K_p is equal to K_c</p>
60	An excess of aqueous silver nitrate is added to aqueous barium chloride and precipitate is removed by filtration. What are the main ion in filtrate?	<p>A. Ag^+ and NO_3^- only</p> <p>B. Ag^+ and Ba^{2+} and NO_3^-</p> <p>C. Ba^{2+} and NO_3^-</p> <p>D. Ba^{2+} and NO_3^- and Cl^-</p>
61	pH of the human blood which is essentially maintained constant due to carbonates, bicarbonates, phosphates etc., is	<p>A. 7.00</p> <p>B. 7.25</p> <p>C. 7.35</p> <p>D. 7.47</p>
62	For the above reaction the relationship b/w K_c and K_p will be :	<p>A. $K_p = K_c RT$</p> <p>B. $K_p = K_c (RT)^{-1}$</p> <p>C. $K_p = K_c (RT)^{-2}$</p> <p>D. $K_p = K_c$</p>
		<p>A. <p class="MsoNormal">2.0 x 10⁻¹⁰ mol dm⁻³</p>

63	The solubility product of AgCl is $2.0 \times 10^{-3} \text{ mol}^2 \text{ dm}^{-6}$, The maximum concentration of Ag ion in the solution is :	<p>3</p> <p>B. $1.41 \times 10^{-3} \text{ mol dm}^{-3}$</p> <p>C. $1.0 \times 10^{-3} \text{ mol dm}^{-3}$</p> <p>D. $4.0 \times 10^{-3} \text{ mol dm}^{-3}$</p>
64	pH of water is 7, if 0.01 M NaOH is added, then its pH is	<p>A. 12</p> <p>B. 14</p> <p>C. zero</p> <p>D. 10</p>
65	A buffer of a 0.09 molar acetic acid and 0.11 molar sodium acetate has pH = 4.83. If 0.01 mole NaOH in 1 dm ³ of the buffer solution is added, then pH of the buffer becomes	<p>A. 4.74</p> <p>B. 4.92</p> <p>C. 5.0</p> <p>D. 4.0</p>
66	$\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3 + \text{Heat}$ for above equation, the maximum product will be obtained at :	<p>A. Low temperature at high pressure.</p> <p>B. High temperature and low pressure.</p> <p>C. High temperature and high pressure.</p> <p>D. Low temperature at low pressure.</p>
67	The equilibrium constant in a reversible chemical reaction at a given temperature	<p>A. Depends on the initial concentration of the reactants</p> <p>B. Depends on the concentration of one of the products at equilibrium</p> <p>C. Does not depend on the initial concentration of reactants</p> <p>D. It is characteristic of the reaction</p>
68	Which of the following is an example of reversible reaction	
69	Question Image	<p>A. Increases</p> <p>B. Decreases</p> <p>C. Remains same</p> <p>D. Cannot be predicted</p>
70	Buffers having pH less than 7 are made	<p>A. Mixture of weak acid + salt of it with strong base</p> <p>B. Mixture of weak acid + salt of it with weak base</p> <p>C. Mixture of weak base + salt of it with strong acid</p> <p>D. Mixture of weak base + salt of it with weak base</p>
71	K_{sp} value for $\text{PbSO}_4 = 1.8 \times 10^{-8} \text{ mole}^2 \text{ dm}^{-6}$. The maximum concentration of Pb^{++} ions is	<p>A. $1.34 \times 10^{-4} \text{ mole dm}^{-3}$</p> <p>B. 1.8×10^{-4}</p> <p>C. $3.6 \times 10^{-16} \text{ mole dm}^{-3}$</p> <p>D. $1.0 \times 10^{-8} \text{ mole dm}^{-3}$</p>
72	0.1 M HCl has pH = 1.0, it is about 100 times stronger than acetic acid. Then pH of acetic acid will be	<p>A. 0.1</p> <p>B. 2.0</p> <p>C. 1.3</p> <p>D. 3.0</p>
73	Addition of solid NaHCO_3 in water causes ionization of NaCHO_3 its $K_a = 4.7 \times 10^{-1}$. Then this solution has character	<p>A. Acidic</p> <p>B. Very weakly basic</p> <p>C. Alkaline</p> <p>D. Neutral</p>
		A. To main high temperature

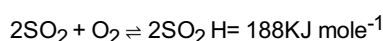
74	In a lime kiln, to get higher yield of CO ₂ , the measure that can be taken is	<p>A. To maintain high temperature</p> <p>B. To pump out CO₂</p> <p>C. To remove Cao</p> <p>D. To add more CaCO₃</p>
75	The solubility of PbF ₂ is 2.6 x 10 ⁻³ mole dm ⁻³ then its solubility product is	<p>A. 2.6 x 10⁻³</p> <p>B. 6.76 x 10⁻⁶</p> <p>C. 5.2 x 10⁻⁶</p> <p>D. 7.0 x 10⁻⁸</p>
76	In 1000 molecules of 0.001 M acetic acid the number of H ⁺ ions is 12.6, then its percentage of ionization is	<p>A. 1.33%</p> <p>B. 1.26%</p> <p>C. 12.6</p> <p>D. 1%</p>
77	Which of the following solution have zero pH	<p>A. 1 M HCl</p> <p>B. MH₂SO₄</p> <p>C. 0.1 M HNO₃</p> <p>D. 1 M CH₃COOH</p>
78	The rate of forward reaction is two times that of the reverse reaction at a given temperature and identical concentration, K equilibrium is	<p>A. 0.5</p> <p>B. 1.5</p> <p>C. 2.5</p> <p>D. 2.0</p>
79	When the rate of formation of reactants is equal to the rate of formation of products, this is known as	<p>A. Chemical reaction</p> <p>B. Chemical equilibrium</p> <p>C. Chemical kinetics</p> <p>D. None</p>
80	The optimum conditions of temperature and pressure to get maximum NH ₃ from N ₂ and H ₂ gases is	<p>A. 2000°C and 10 atmosphere</p> <p>B. 0°C and 1 atmosphere</p> <p>C. 400°C and 200-300 atmosphere</p> <p>D. 200°C and 100 atmosphere</p>
81		<p>A. Shift reaction toward forward direction</p> <p>B. Shift reaction backward</p> <p>C. Lower the value of K_c</p> <p>D. No change in reaction</p>
82	For which system does the equilibrium constant, K _c has units of concentration	
83	A solution having pH = 4 its OH ⁻ ion concentration in mole dm ⁻³ is	<p>A. 1.0 x 10⁻⁴</p> <p>B. 1.0 x 10⁻¹⁰</p> <p>C. 1.0 x 10⁻¹⁴</p> <p>D. 1 x 10⁰</p>
84		<p>A. 8</p> <p>B. 4</p> <p>C. 9</p> <p>D. 3</p>
85		<p>A. High temperature and low pressure</p> <p>B. Low temperature and high pressure</p> <p>C. Low temperature and low pressure</p> <p>D. High temperature and high pressure</p>
86	The state of equilibrium refers to	<p>A. State of rest</p> <p>B. Dynamic state</p> <p>C. Stationary state</p> <p>D. State of inertness</p>
87		<p>A. Le-chatlier's principle</p> <p>B. Only adding catalyst</p> <p>C. Decreasing pressure</p> <p>D. Decreasing temperature</p>
88	A chemical reaction A----->B is said to be in equilibrium when :	<p>A. Rate of transformation of A to B is equal to B to A.</p> <p>B. 50% reactant has been changed to B.</p> <p>C. Conversion of A to B is 50% complete</p> <p>D. Complete conversion of A to B has taken place.</p>
89		<p>A. [A] = [B]</p> <p>B. [A] < [B]</p> <p>C. [B] = [C]</p> <p>D. [A] > [B]</p>
90		<p>A. Moles per dm³</p> <p>B. Partial pressures</p> <p>C. Number of moles</p> <p>D. Mole fractions</p>
91	The rate of reaction :	<p>A. Remain same as reaction proceeds.</p> <p>B. May decrease or increase as reaction proceeds .</p> <p>C. Increase as reaction proceeds.</p> <p>D. Decreases as reaction proceeds.</p>
--	Acetic acid is 1.33% ionized. In 1000 molecules of 0.1 M acetic acid the	<p>A. 1.33</p> <p>B. 13.3</p>

92	number of H ⁺ ions is	<p>A. 1.33</p> <p>C. 1.33</p> <p>D. 1</p>
93	Question Image	<p>A. 32</p> <p>B. 64</p> <p>C. 16</p> <p>D. 4</p>
94	Question Image	<p>A. Forward</p> <p>B. Backward</p> <p>C. Already in equilibrium</p> <p>D. K_c is never less</p>
95	If K _c of a reaction product is very large, it indicates that equilibrium occurs :	<p>A. With the help of a catalyst.</p> <p>B. With no forward reaction.</p> <p>C. At a low product concentration.</p> <p>D. At a high product concentration.</p>
96	<p>Which statement about the following equilibrium is correct?</p> $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g}) \quad H = -188.3 \text{ KJ mol}^{-1}$	<p>A. T value of K_p falls with a rise in temperature.</p> <p>B. The value of K_p falls with increasing pressure.</p> <p>C. Adding V₂O₅ catalyst increase the equilibrium yield of sulfur trioxide.</p> <p>D. The value of K_p is equal to K_c.</p> <p>E. $K_p = K_c(RT)^{-2}$</p>
97	Question Image	<p>A. 450°C</p> <p>B. 250°C</p> <p>C. 850°C</p> <p>D. 1000°C</p>
98	Question Image	<p>A. K_c = K_p</p> <p>B. K_p = K_cRT</p> <p>C. $K_p = K_c(RT)^{-2}$</p> <p>D. $K_p = K_c(RT)^{-1}$</p>
99	When rate of forward reaction is equal to rate of backward reaction, then the equilibrium established is called	<p>A. Chemical equilibrium</p> <p>B. Static equilibrium</p> <p>C. Dynamic equilibrium</p> <p>D. None of these</p>
100	Which one of the following has no units of its K _c value	
101	Question Image	<p>A. High temperature and low pressure</p> <p>B. Low temperature and low pressure</p> <p>C. Low temperature and high pressure</p> <p>D. High temperature and high pressure</p>
102	At certain temperature, 50% of HI is dissociated into H ₂ and I ₂ the equilibrium constant is	<p>A. 1.0</p> <p>B. 3.0</p> <p>C. 0.5</p> <p>D. 0.25</p>
103	The rate of a chemical reaction is directly proportional to product of molar concentration of reaction substance it is called :	<p>A. Law of conservation of energy.</p> <p>B. Law of mass action.</p> <p>C. Rate law.</p> <p>D. Active mass rule.</p>
104	The ionic product of H ⁺ ions and OH ⁻ in water is called ionization constant of water K _w . The value of K _w at 25°C is	<p>A. 0.11×10^{-14}</p> <p>B. 0.30×10^{-14}</p> <p>C. 1.0×10^{-14}</p> <p>D. 3×10^{-14}</p>
105	Le-chatelier's principle is applied on the reversible reaction in order to	<p>A. Determine the rate of reaction</p> <p>B. Predict the direction of reaction</p> <p>C. Determine the extent of reaction</p> <p>D. Find best conditions for favorable shifting the position of equilibrium</p>
106	Question Image	<p>A. 0.073</p> <p>B. 0.147</p> <p>C. 0.05</p> <p>D. 0.026</p>
107	<p>N₂O₄ ⇌ 2NO₂</p> <p>For the above reaction, which of the Following expression of K_c correct :</p>	<p>A. $K_c = \frac{[\text{N}_2\text{O}_4]}{[\text{NO}_2]^2}$</p> <p>B. $K_c = \frac{[\text{N}_2\text{O}_4]}{[\text{NO}_2]^2}$</p> <p>C. $K_c = \frac{[\text{N}_2\text{O}_4]}{[\text{NO}_2]^2}$</p> <p>D. $K_c = \frac{[\text{N}_2\text{O}_4]}{[\text{NO}_2]^2}$</p>

		<p><o:p></o:p></p></p> <p>D. $K_c = \frac{N_2O_4}{N_2O^2}$</p> <p><o:p></o:p></p></p>
108	Question Image	<p>A. 4 mole per dm³</p> <p>B. 2 mole per dm³</p> <p>C. 0.33 mole per dm³</p> <p>D. 0.67 mole per dm³</p>
109	In which of the following cases, the reaction goes farthest to completion	<p>A. $K = 10^3$</p> <p>B. $K = 10^{-2}$</p> <p>C. $K = 10$</p> <p>D. $K = 10^0$</p>
110	Law of mass action states that rate of chemical reaction is directly proportional to the product of active masses of the reactants. The term active mass means	<p>A. Mass in grams converted to products</p> <p>B. Number of moles</p> <p>C. Number of moles per dm³ of reactants</p> <p>D. Total pressures of the reactants</p>
111	<p>$2SO_2 + O_2 \rightleftharpoons 2SO_3$ 188KJ mole⁻¹</p> <p>Which statement about following equilibrium is correct :</p>	<p>A. K falls with rise in temperature.</p> <p>B. K is equal to c.</p> <p>C. K falls with the increase pressure.</p> <p>D. Adding V_2O_5 increases the equilibrium yield of Sulphur trioxide.</p>
112	pH of the buffer CH ₃ COOH + CH ₃ COONa is 3.76. If the mixture contains 1 molar acetic acid and 0.1 molar sodium acetate, then pK _a of this buffer is	<p>A. 3.76</p> <p>B. 4.76</p> <p>C. 5.76</p> <p>D. 6.76</p>
113	K _a value of HF acid is 6.7 x 10 ⁻¹⁵ the acid is a	<p>A. Weak acid</p> <p>B. Moderately strong acid</p> <p>C. Strong acid</p> <p>D. Very weak acid</p>
114	A solution has pH = 0, its H ⁺ ion concentration is	<p>A. 1 x 10⁻¹⁴</p> <p>B. 1 x 10⁻¹⁴</p> <p>C. 1 x 10⁻¹</p> <p>D. 1</p>

115	Almost forward reaction is complete when value of K_c :	A. Neither larger nor very small. B. Very small. C. Very large. D. Negligible.
116	Question Image	A. 0.60 B. 1.67 C. 0.66 D. 2.6
117	The substance which increases rate of reaction but remains unchanged at the end of reaction is called :	A. Catalyst. B. Indicator. C. Promoter. D. Activator.
118	Question Image	
119	Chemical equilibrium involving reactants and products in more than one phase is called	A. Static B. Dynamic C. Homogeneous D. Heterogeneous
120	Which of the following favours the reverse reaction in chemical equilibrium?	A. Increasing the concentration of the reactant B. Removal of the least one of the products at regular intervals C. Increasing the concentration of one or more of the products D. None of these
121	K_b value of NH_4OH is 1.81×10^{-5} and its conjugate acid has $K_a = 5.7 \times 10^{-10}$. pK_b of the base is 4.74, pK_a of its conjugate acid is	A. -4.74 B. 4.74 C. 10 D. 9.26
122	The pH of $10^{-3} \text{ mole dm}^{-3}$ of an aqueous solution of H_2SO_4 is	A. 3.0 B. 2.7 C. 2.0 D. 1.5
123	When H_2 and I_2 are mixed and equilibrium is attained, then	A. Amount of HI formed is equal to the amount of H_2 dissociated B. HI dissociation stops C. The reaction stops completely D. None of these
124	According to Le-Chatelier's principal, adding heat to a solid and liquid in equilibrium will cause the	A. Amount of solid to decrease B. Amount of liquid to decrease C. Temperature to rise D. Temperature to fall
125	Which one of the following is a buffer	A. $\text{HCl} + \text{NaCl}$ solution B. $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONH}_4$ solution C. $\text{H}_2\text{SO}_4 + \text{CaSO}_4$ solution D. $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONa}$
126	For which system does the equilibrium constant, K_c has units of	
127	Question Image	A. Reaction occurs at STP B. Reaction is exothermic C. Reaction is endothermic D. Number of moles of production and reactant are same
128	pK_b value of NH_4OH is 4.74. If the concentration of NH_4OH is 1 molar containing 0.1 molar NH_4Cl , then pH of this buffer will be	A. 3.74 B. 10.26 C. 4.74 D. 9.26
129	The solubility product of AgCl is $2.0 \times 10^{-10} \text{ mol}^2 \text{dm}^{-6}$. The maximum concentration of Ag^+ ions in the solution is	A. $2.0 \times 10^{-10} \text{ mol dm}^{-3}$ B. $1.41 \times 10^{-5} \text{ mol dm}^{-3}$ C. $1.0 \times 10^{-10} \text{ mol dm}^{-3}$ D. $4.0 \times 10^{-20} \text{ mol dm}^{-3}$
130	The rate of which the reaction proceeds is directly proportional to the product of the active masses of the reactants is according to	A. Law of mass action B. Le Chateliers principle C. Equilibrium law D. Law of constant proportion
131	Question Image	A. 0.02 B. 0.2 C. 50 D. 25
132	1 mole of N_2 and 2 moles of H_2 are allowed to react in a 1 dm^3 vessel. At equilibrium 0.8 mole of NH_3 is formed. The concentration of H_2 in the vessel is	A. 0.6 mole B. 0.8 mole

	equilibrium 0.6 mole of H ₂ is formed. The concentration of H ₂ in the vessel is	C. 0.2 mole D. 0.4 mole
133	In exothermic reversible reaction increase in temperature shift the equilibrium to :	A. Remains unchanged. B. Product side. C. Reactant side. D. None of above.
134	Question Image	A. Increase in concentration of I B. Decrease in concentration of I ₂ C. Increase in temperature D. Increase in total pressure
135	A gas bulb is filled with NO ₂ gas and immersed in an ice bath at 0°C which becomes colourless after sometimes. This colourless gas will be	A. NO ₂ B. N ₂ O C. N ₂ O ₄ D. N ₂ O ₅
136	H ₂ + I ₂ ⇌ 2HI In the above equilibrium system, if the concentration of reactants at 25°C is increased, the value K _C will :	A. Remains Constant B. Increases C. Decreases D. Depends upon nature of reactants
137	In a reversible reaction, two substances are in equilibrium. If the concentration of each one is reduced to half, the equilibrium constant will be	A. Reduced to half of its original value B. Doubled C. Same D. Reduced to one fourth its original value
138	Which one of the following is not a buffer	A. H ₂ CO ₃ + NaHCO ₃ solution B. H ₃ PO ₄ + NaH ₂ PO ₄ solution C. HI + NaI solution D. NH ₄ OH + NH ₄ Cl solution
139	If pH of buffer of 1 mole dm ⁻³ of HCOOH + 0.1 mole dm ⁻³ HCOONa having pK _a = 3.78 is	A. 1.78 B. 2.78 C. 3.78 D. 4.78
140	Whenever a weak base is dissolved in water, it gives its conjugate acid. Similarly a weak acid in water produces its conjugate base. This conjugate acid-base pair concept is stated by	A. Law of mass action B. Le-Chatelier's principle C. Common ion effect D. Lowery Bronsted concept
141	Which of the following is a characteristic of a reversible reaction?	A. It never proceeds to completion B. It can be influenced by a catalyst C. It proceeds only in the forward direction D. Number of moles of reactants and products are equal
142	Reactions that proceed on both sides and never go to completion are called	A. Irreversible reactions B. Reversible reactions C. Opposing reactions D. Spontaneous reactions
143	pH of 0.1 molar HCl solution is	A. 1 B. zero C. 13 D. 14
144	In the particular reaction for the value K _C = 1 × 10 ⁻²⁵ which statement is correct :	A. Almost forward reaction is completed. B. Amount of reactant is negligible as compared to product. C. Amount of product is negligible as compared to reactant. D. Amount of product is equal to amount of reactant.
145	Strength of an acid can be determined by	A. P _{ka} B. P _{kp} C. P _{oH} D. P _{kw}
146	Question Image	A. The value of K_p falls with rise in temperature. B. The value of K_p is equal to K_c .



Which statement about following equilibrium is correct :

		<p>style="font-size: 11.0pt; line-height: 107%; font-family: 'Calibri', sans-serif; mso-ascii-theme-font: minor-latin; mso-fareast-font-family: Calibri; mso-fareast-theme-font: minor-latin; mso-hansi-theme-font: minor-latin; mso-bidi-font-family: 'Times New Roman'; mso-bidi-theme-font: minor-bidi; mso-ansi-language: EN-US; mso-fareast-language: EN-US; mso-bidi-language: AR-SA">K_c</p> <p>C. The value of K_c falls with the increase pressure.</p> <p>D. Adding V_{O_2} catalyst increase the equilibrium yield of Sulphur trioxide.</p>
148	A buffer solution of 0.1 molar HCOOH and 0.1 molar HCCONa has pH = 3.78. To is 0.01 molar HCl is added, then pH of the buffer solution becomes	<p>A. 2.78</p> <p>B. 4.78</p> <p>C. 3.78</p> <p>D. 3.70</p>
149	The solubility product of $Ca(OH)_2$ is 6.5×10^{-6} . The concentration of OH^- ions is	<p>A. 1.175×10^{-2}</p> <p>B. 2.35×10^{-2}</p> <p>C. 3.25×10^{-3}</p> <p>D. 3.25×10^{-4}</p>
150	An aqueous solution is neutral when its	<p>A. pH = 14</p> <p>B. pH = zero</p> <p>C. pH = 7</p> <p>D. $K_w = 10^{-7}$</p>
151	pH of 1 molar NaOH is	<p>A. 7</p> <p>B. zero</p> <p>C. 14</p> <p>D. 10</p>
152	The solubility product of AgCl is $2.0 \times 10^{-10} \text{ mole}^2 \text{ dm}^{-6}$. The maximum concentration of Ag^+ ions in the solution is	<p>A. $2.0 \times 10^{-10} \text{ mole dm}^{-3}$</p> <p>B. $1.41 \times 10^{-5} \text{ mole dm}^{-3}$</p> <p>C. 1.0×10^{-10}</p> <p>D. $4.0 \times 10^{-20} \text{ mole dm}^{-3}$</p>
153	The pH of $10^{-3} \text{ mole dm}^{-3}$ of an aqueous solution of H_2SO_4 is :	<p>A. 3.0</p> <p>B. 2.7</p> <p>C. 1.0</p> <p>D. 1.5</p>
154	Question Image	<p>A. Complete conversion of A to B has taken place</p> <p>B. Conversion of A to B is only 50% complete</p> <p>C. Only 10% conversion of A to B has taken place</p> <p>D. The rate of transformation of A to B is just equal to rate of transformation of B to A in the system</p>
155	A solution of NaOH has pH = 13, then concentration of NaOH is	<p>A. 10^{-13} M</p> <p>B. 10^{13} M</p> <p>C. 10^{-1} M</p> <p>D. 10^{+1} M</p>
156	Question Image	<p>A. Introduction of an inert gas at constant volume</p> <p>B. Introduction of $PCl_3(g)$ at constant</p> <p>C. Introduction of $PCl_5(g)$ at constant volume</p> <p>D. Introduction of Cl_2 at constant volume</p>
157	An excess of aqueous silver nitrate is added to aqueous barium chloride and precipitate is removed by filtration. What are the main ions in the filtrate	
158	Base buffer solution can be prepared by mixing	<p>A. Weak acid and its salt</p> <p>B. Strong acid and its salt with weak base</p> <p>C. Weak base and its salt with strong acid</p> <p>D. Strong base and its salt with weak acid</p>
159	Question Image	<p>A. Moles dm^{-6}</p> <p>B. No units</p> <p>C. Mole dm^{-3}</p> <p>D. $\text{Mole}^{-1} \text{ dm}^{-3}$</p>