

(ii) It is used to predict the extent of reaction, means how much reactants are converted into products.

**Q.29 Which physical factor effects the value of  $K_c$ ?**

**Ans.** Temperature highly effect the numeric value of  $K_c$ . Temperature change will effect both equilibrium position and equilibrium constant.

**Q.30 Write the names of two chemicals in which nitrogen is used?**

**Ans.** (i) Urea (ii) Nitric Acid

**Q.31 What is the proportion of oxygen and nitrogen in our atmosphere?**

**Ans.** In our atmosphere, the total proportion of  $O_2$  and  $N_2$  is 99%.

Nitrogen = 78%      Oxygen = 21%

## Multiple Choice Questions

**1. The reaction in which the products do not recombine to form reactants are called;**

- (a) Irreversible reactions
- (b) Reversible reactions
- (c) Decomposition      (d) Addition

**2. The reaction in which the products can recombine to form reactants are called;**

- (a) Irreversible reactions
- (b) Reversible reactions
- (c) Decomposition      (d) Addition

**3. The colour of iodine is;**

- (a) purple      (b) Black
- (c) red      (d) Pink

**4. The colour of hydrogen iodide is;**

- (a) colourless      (b) black
- (c) red      (d) pink

**5. When the rate of the forward reaction takes place at the rate of reverse reaction the composition of the**

**reaction mixture remains constant it is called;**

- (a) Chemical equilibrium
- (b) Dynamic equilibrium
- (c) Static equilibrium
- (d) all

**6. When the reaction ceases to proceed, it is called;**

- (a) Chemical equilibrium state
- (b) static equilibrium
- (c) Dynamic equilibrium
- (d) all

**7. Guldberg and waage put forward law of mass action in;**

- (a) 1860      (b) 1869
- (c) 1870      (d) 1879

**8. The % age of nitrogen and oxygen in our atmosphere is;**

- (a) 80      (b) 90
- (c) 95      (d) 99

**9. Which gas is used to prepare ammonia?**

- (a)  $N_2$  (b)  $O_2$   
(c)  $Cl_2$  (d) S

**10. Which gas is used to manufacture king of chemicals sulphuric acid?**

- (a)  $N_2$  (b)  $O_2$   
(c)  $Cl_2$  (d) S

**11. Equilibrium constant has no unit when number of moles of reactants and products are;**

- (a) same (b) different  
(c) both a & b (d) none

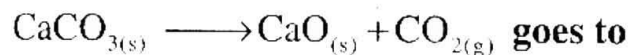
**12. For reactions having large  $K_c$  value, the reaction proceeds to;**

- (a) completion  
(b) equilibrium state  
(c) back ward (d) None

**13. The characteristics of reversible reactions are the following except;**

- (a) products never recombine to form reactants  
(b) they never complete  
(c) they proceed in both ways  
(d) they have a double arrow between reactants and products

**14. In the lime kiln, the reaction**



**goes to completion because;**

- (a) of high temperature  
(b) CaO is more stable than  $CaCO_3$   
(c)  $CO_2$  escapes continuously  
(d) CaO is not dissociated

**15. For the reaction,**



**the expression for the equilibrium constant is:**

- (a)  $\frac{[2A][B]}{[3C]}$  (b)  $\frac{[A]^2[B]}{[C]^3}$

- (c)  $\frac{[3C]}{[2A][B]}$  (d)  $\frac{[C]^3}{[A]^2[B]}$

**16. When a system is at equilibrium states?**

- (a) the concentration of reactants and products becomes equal  
(b) the opposing reactions (forward and reverse) stop  
(c) the rate of the reverse reaction becomes very low  
(d) the rates of the forward and reverse reactions becomes equal.

**17. Which one of the following statements is not correct about active mass?**

- (a) rate of reaction is directly proportional to active mass.  
(b) active mass is taken in molar concentration  
(c) active mass is represented by square brackets  
(d) active mass means total mass of substances

**18. When the magnitude of  $K_c$  is very large it indicates;**

- (a) reaction mixture consists of almost all products  
(b) reaction mixture has almost all reactants  
(c) reaction has not gone to completion  
(d) reaction mixture has negligible products

**19. When the magnitude of  $K_c$  is very small it indicates;**

- (a) equilibrium will never establish

(b) all reactants will be converted to products

(c) reaction will go to completion

(d) the amount of products is negligible

**20. Reactions which have comparable amounts of reactants and products at equilibrium state have;**

(a) very small  $K_c$  value

(b) very large  $K_c$  value

(c) moderate  $K_c$  value

(d) none of these

**21. At dynamic equilibrium;**

(a) the reaction stops to proceed

(b) the amounts of reactants and products are equal

(c) the speed of the forward is reverse reactions are equal

(d) the reaction can no longer be reversed

**22. In an irreversible reaction dynamic equilibrium;**

(a) never establishes

(b) establishes before the completion of reaction

(c) establishes after the completion of reaction

(d) establishes readily

**23. A reverse reaction is one that;**

(a) which proceeds from left to right

(b) In which reactants react to form products

(c) which slows down gradually

(d) which speeds up gradually

**24. Nitrogen and hydrogen were reacted together to make ammonia**



**What will be present in the equilibrium mixture?**

(a)  $\text{NH}_3$  only

(b)  $\text{N}_2$ ,  $\text{H}_2$  and  $\text{NH}_3$

(c)  $\text{N}_2$  and  $\text{H}_2$  only

(d)  $\text{H}_2$  only

**25. For a reaction between  $\text{PCl}_3$  and  $\text{Cl}_2$  to form  $\text{PCl}_5$ , the units of  $K_c$  are;**

(a)  $\text{mol dm}^{-3}$  (b)  $\text{mol}^{-1} \text{ dm}^{-3}$

(c)  $\text{mol}^{-1} \text{ dm}^3$  (d)  $\text{mol dm}^3$

**26. The two major components of Atmosphere are**

(a) carbon and nitrogen

(b) Nitrogen and oxygen

(c) oxygen and chlorine

(d) None of these

**27. Which type of reactions do not go to completion?**

(a) Irreversible reaction

(b) Reversible reactions

(c) Addition reactions

(d) Decomposition reactions

**28. Which type of reactions speed up gradually?**

(a) Irreversible reactions

(b) Reversible reactions

(c) Forward reactions

(d) Decomposition reactions

**29. Which type of reactions take place in both directions?**

(a) addition reactions

(b) reversible reactions

(c) irreversible reactions

(d) decomposition reactions

**30. In a chemical reaction, the substance that combine are called;**

(a) reactant

(b) products

(c) mass

(d) material

**31. When a reaction ceases to proceed further, it is called;**

(a) chemical states

(b) static state

(c) physical state

(d) dynamic equilibrium state

**32. Dynamic means, reaction is:**

(a) in forward direction

(b) stop

(c) in reverse direction

(d) still continuing

**33. The forward reaction takes place:**

(a) right to left

(b) left to right

(c) only to right

(d) only to left

**34. The units of molar concentration:**

(a)  $\text{mol.dm}^{-2}$

(b)  $\text{mol. dm}^{-1}$

(c)  $\text{mol. dm}$

(d)  $\text{mol.dm}^{-3}$

**35. Equilibrium constant value " $K_c$ " is equal to;**

(a)  $K_f/K_r$

(b)  $K_r/K_f$

(c)  $K_c/Q_c$

(d)  $Q_c/K_r$

**36. Which chemical is called king of chemicals?**

(a)  $\text{KNO}_3$

(b)  $\text{H}_2\text{SO}_4$

(c)  $\text{HCl}$

(d)  $\text{NHO}_3$

### Answer Keys

1.	a	2.	b	3.	a	4.	a	5.	b
6.	b	7.	b	8.	d	9.	a	10.	b
11.	a	12.	a	13.	a	14.	c	15.	d
16.	d	17.	d	18.	a	19.	d	20.	c
21.	c	22.	a	23.	d	24.	b	25.	a
26.	b	27.	b	28.	b	29.	b	30.	a
31.	b	32.	d	33.	b	34.	d	35.	a
36.	b								