1) A weak monobasic acid is 1% dissociated in an aq. Solution. ρH of the solution =3.its morality is

1)1M 2) 0.1M 3) 0.01M 4) 0.001M

$[H^+] = \propto C$, C=$\frac{10^{-3}}{0.01}$ = 0.01

2) Which of the following gives an acidic solution in water

1)NH_4cl 2)NH_4No3 3)$(NH_4)_2SO_4$ 4)all the above

3) Number of H^+ ions present in 1 mole of water at 25℃

1) 10^{-7} 2) 10^{7} 3) 6.022×10^{23} 4) 6.022×10^{16}

$[H^+] = 10^{-7} \times 6.022 \times 10^{23} = 6.022 \times 10^{16}$

4) $[H^+]$ of a solution increases by 10 times, then its ρH

1)Increases by I unit

2)Decreases by I unit

3)Increases by 0.1 unit

4)Decreases by 0.1 unit

5)Equal volumes of 2 solutions of ρH=3 and $\rho H = 5$ are mixed. ρH of the resulting solution is

1) 4 2) 4.5 3) 5 6) 3.3

$[H^+] = \frac{10^{-3}+10^{-5}}{2} = 10^{-4} \times 5.5$ ρH=3.3

6) ρk_a of two acids of equal molarity are 4 and 5. The strengths of the acids are in the ratio

1)4:5 2)10:1 3) 10:3.2 4)1:10

$$\frac{[H^+]_1}{[H^+]_2} = \sqrt{\frac{ka_1}{ka_2}} = \sqrt{\frac{10^{-4}}{10^{-5}}} = \frac{10^{-2}}{10^{-3}\sqrt{10}} = \frac{10}{3.2}$$

7)Which of the following solutions change its ρH easily when few drops of dil.Hcl is added

1) Sodium phosphate + phosphoric acid
2) Sodium carbonate + carbonic acid
3) Sodium chloride + hydrochloric acid
4) Sodium citrate + citric acid

8) In an aqueous solution [x^-]=[Hx] k_b of x^-=10^{12}. What is the ρH of the buffer solutions

1) 12 2) 2 3) 13 4) 1

ρH= ρk_a +log$\frac{[x^-]}{[Hx]}$=-log$10^{-2} + log1 = 2$

9) The degree of dissociation of acetic acid is affected by

1) Dilution
2) Adding Hcl
3) Adding NaoH
4) All the above

10) To a saturated solution of Agcl little Hcl is added. Then
   1) Solubility of Agcl decreases
   2) Solubility of Agcl increases
   3) K_s of Agcl increases
   4) Solubility of Agcl does not change

11) Solubility of Agcl is maximum in
   1) 0.1M Hcl
   2)0.1M Nacl
   3)Water
   4)0.1M NH_4OH
   Due to the complex formation $[Ag(NH_3)_{)2}]cl$

12) K_s of a sparingly soluble salt AB is $1+10^{-10}$.

In a solution $[A^+]$ is 10^{-4} M. AB will precipate when $[B^-]$ is

1)$10^{-3}M$ 2)$10^{-4}M$ 3)$10^{-5}M$ 4)all the above.

13) To a solution containing equal concentration of cl^-,Br^-,I^-. Dilute $AgNo_3$ solution is added. Which is precipitated first.

1)Agcl 2)AgBr 3)AgI 4)all are precipitated together.

Solubility of AgI is the least

14) K_a for a weak acid is 10^{-5}. ρk_b for its conjugate base is

1)10^{-9} 2)5 3)9 4)7

ρk_a=5, ρk_b= 14-5 = 9

15) In a solution containing mixture of NH_4cl and NH_4OH, the ratio $[NH_4cl]:[NH_4OH]$ decreases by 10 times, than the ρH

1)Increases by 1 unit 2) Increases by 10 unit

3)Decreases by 1 unit 4) Decreases by 10 unit.

16) ρH of a sodium hydroxide solution is 10.

Then mass of NaoH/dm^3 is

1)$2\times 10^{-3}g$ 2)$4\times 10^{-3}g$ 3)$10^{-10}g$

4)$4\times 10^{-9}g$

$\rho oH = 4$ [NaoH]=10^{-4} mass/dm^3 =$10^{-4}\times 40 = 4\times 10^{-3}g$

17) ρH of 0.5 N H_2SO_4 is

1)0 2)0.3010 3) 1 4) 0.5

$[H^+]$=0.5 ρH= -log 5×10^{-1}

=1-0.6990 = 0.3010

18) Difference between 0.1 N NaoH and 0.1 NH_4OH is

1)One is a conductor of electricity and other is not

2)One is corrosion and other is not

3)One contains undissociated molecules and other does not

4)One reacts with Hcl and other does not

19)When more and more water is added to the solution of a weak electrolyte, the value of the degree of dissociation approaches to..

1)0 2) 1 3)100 4)∞

20) In the electrolysis of the fused Nacl, the product obtained at the cathode is

1)0_2 2)cl_2 3)H_2 4) none of the above

21) The solubility of a salt AB_2 IS 1.0×10^{-5} mol dm^{-3} .the value of solubility product is

1)4×10^{-15} 2)10^{-10} 3)10^{-15} 4)4×10^{-10}

$K_s=4(1.0\times 10^{-5})^3$

22) ECE of a divalent metal is 2×10^{-4}. Atomic mass of the metal is

1)19.3 2)38.6 3)77.2 4)9.65

Eq. mass = $2\times 10^{-4} \times 96500$

AT. Mass = $(2\times 10^{-4} \times 96500) \times 2 = 38.6$

23) ρH of a NaoH solution is 10. 10 dm^3 of this solution contains.

1)0.1g NaoH

2)4g of NaoH

3)0.4g of NaoH

4)0.04g NaoH

$$\rho oH = 4\ [OH^-] = 10^{-4}$$

Mass/10 dm^3=$10^{-4} \times 40 \times 10$

=4$\times\ 10^{-2}$

24) Common salt is added to a saturated solution of soap. Soap is precipitated. This is because of

1)Common ion effect

2) Peptisation

3) Coagulation

4) None of these.

25) A buffer solution containing equal volumes 0.02M NH_4OH and 0.2M NH_4cl has a $\rho H=x$ ρk_b of $NH_4OH=5$, the value of x is

1) 4 2) 6 3) 8 4) 10

$\rho oH = 5 + \log\frac{0.2}{0.02} = 6$

$\therefore \rho H = 14 - 6 = 8$

ANSWERS

(1) 2
(2) 4
(3) 4
(4) 2
(5) 4
(6) 3
(7) 3
(8) 2
(9) 4
(10) 1
(11) 4
(12) 4
(13) 3
(14) 3
(15) 1
(16) 2
(17) 2
(18) 3
(19) 4
(20) 4
(21) 1
(22) 2
(23) 4
(24) 1
(25) 3