

## Questions with Answer Keys

MathonGo

## Q1: 16 March (Shift 1) - Numerical

Two salts  $A_2X$  and  $MX$  have the same value of solubility product of  $4.0 \times 10^{-12}$ . The ratio of their molar solubilities i.e.  $\frac{S(A_2X)}{S(MX)} = \underline{\hspace{2cm}}$ .  
(Round off to the Nearest Integer).

## Q2: 16 March (Shift 2) - Numerical

Sulphurous acid ( $H_2SO_3$ ) has  $K_{a1} = 1.7 \times 10^{-2}$  and  $K_{a2} = 6.4 \times 10^{-8}$ . The pH of 0.588M  $H_2SO_3$  is      (Round off to the Nearest Integer)

## Q3: 17 March (Shift 1) - Numerical

0.01 moles of a weak acid  $HA$  ( $K_a = 2.0 \times 10^{-6}$ ) is dissolved in 1.0 L of 0.1M  $HCl$  solution. The degree of dissociation of  $HA$  is           $\times 10^{-5}$ .  
(Round off to the Nearest Integer).

[Neglect volume change on adding  $HA$ . Assume degree of dissociation  $\ll 1$ ]

## Q4: 18 March (Shift 1) - Numerical

In order to prepare a buffer solution of pH 5.74 sodium acetate is added to acetic acid. If the concentration of acetic acid in the buffer is 1.0 M, the concentration of sodium acetate in the buffer is      M. (Round off to the Nearest Integer).

[Given:  $pK_a$  (acetic acid) = 4.74]

## Q5: 18 March (Shift 2) - Numerical

The solubility of  $CdSO_4$  in water is  $8.0 \times 10^{-4} \text{ mol L}^{-1}$ . Its solubility in 0.01M  $H_2SO_4$  solution is         .  
(Round off to the Nearest integer) (Assume that solubility is much less than 0.01M)

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# Answer Key

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**Q1 (50)**

**Q2 (1)**

**Q3 (2)**

**Q4 (10)**

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**Q5 (64)**

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