

Date Planned : / /	Daily Tutorial Sheet-1	Expected Duration : 90 Min		
Actual Date of Attempt : / /	Level-1	Exact Duration :		

1.	weak monobasic acid is 1% ionized in 0.1 M solution at 25°C. The percentage of ionization in its 0.09
	solution is:

- (A)

- (C)
- (D)

2. Three reactions involving  $H_2PO_4^-$  are given below :



- $H_3PO_4 + H_2O \longrightarrow H_3O^+ + H_2PO_4^-$
- $H_2PO_4^- + H_2O \longrightarrow HPO_4^{2-} + H_3O^+$ II.
- $H_2PO_4^- + OH^- \longrightarrow H_3PO_4 + O^{2-}$ III.

In which of the above does  $H_2PO_4^-$  act as an acid?

- (A)
- **(B)** I and II
- III only
- **(D)** I only
- 3. At a certain temperature, the dissociation constant of formic acid and acetic acid are  $1.8 \times 10^{-4}$  and  $1.8 \times 10^{-5}$  respectively. The concentration of acetic acid solution in which the hydrogen ion has the same concentration as in 0.001 M formic acid solution is equal to:
  - (A) 0.01 M
- (B) 0.001 M
- (C) 0.1 M
- (D) 0.0001 M
- 4. For a concentrated solution of a weak electrolyte  $A_x B_y$  of concentration 'C', the degree of dissociation

 $'\alpha'$  is given as:



 $\alpha = \sqrt{K_{eq}/C(x+y)}$ (A)

- **(B)**  $\alpha = \sqrt{K_{eq} / C(xy)}$
- $\alpha = (K_{eq} / C^{x + y 1} x^{x} y^{y})^{1/(x + y)}$ (C)
- $\alpha = (K_{eq} / Cxy)$ (D)
- The ionisation of acetic acid in  $H_2SO_4$ , compared to in water, is : 5.
  - (A) Weak
- **(B)** Strong
- (C) Medium
- 100 % (D)

- 6. CH<sub>3</sub>COOH is weaker acid than H<sub>2</sub>SO<sub>4</sub>. It is due to :
  - (A) More ionisation

**(B)** Less ionisation

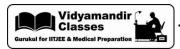
(C) Covalent bond

- (D) Electrovalent bond
- 7. Which of the following base is weakest?
  - NH<sub>4</sub>OH;  $K_b = 1.6 \times 10^{-6}$ (A)
- $C_6H_5NH_2$ ;  $K_b = 3.8 \times 10^{-10}$ **(B)**
- $C_2H_5NH_2$ ;  $K_b = 5.6 \times 10^{-4}$ (C)
- $C_9H_7N; K_b = 6.3 \times 10^{-10}$ **(D)**
- An acid HA ionizes as, HA  $\rightleftharpoons$  H<sup>+</sup> + A<sup>-</sup> 8.



The pH of 1.0 M solution is 5. Its dissociation constant would be: 5

- $1\!\times\!10^{-10}$ (A)
- (B)
- $5 \times 10^{-8}$ (C)
- $1 \times 10^{-5}$ **(D)**



9.	The pF	The pH of $10^{-10}$ M NaOH solution is nearest to :								
	(A)	-4	(B)	-10	(C)	4	(D)	7		
10.	The pH of a neutral water sample is 6.5. Then the temperature of water:									
	(A)	is 25°C			<b>(B)</b>	is more than 2	5°C			
	(C) is less than 25°C (D)				can be more or less than 25°C					
11.	1. $10^{-6}$ M NaOH is diluted 100 times. The pH of the diluted base is:									
	(A) between 7 and 8				(B)	between 5 and 6				
	(C) between 6 and 7			(D)	between 10 and 11					
<b>12</b> .	50 mL of $H_2O$ is added to $50\text{mL}$ of $1\times10^{-3}\text{M}$ barium hydroxide solution. What is the pH of the resulting solution?									
	(A)	3.0	(B)	3.3	(C)	11.0	(D)	11.7		
13.	Morph	Morphine $(C_{17}H_{19}NO_3)$ , which is used medically to relieve pain is a base. What is its conjugate acid?						acid?		
	(A)	$C_{17}H_{18}NO_3^+$	(B)	$\mathrm{C}_{17}\mathrm{H}_{18}\mathrm{NO}_3$	(C)	$C_{17}H_{20}NO_3^-$	(D)	$C_{17}H_{20}NO_3^+$		
14.	The approximate pH of 0.005 M sulphuric acid.									
	(A)	0.005	<b>(B)</b>	2	(C)	1	<b>(D)</b>	0.01		
15.	HA is a weak acid. The pH of 0.1 M HA solution is 2. What is the degree of dissociation (α) of HA?								A ?	
	(A)	0.5	(B)	0.2	(C)	0.1	(D)	0.301	$\odot$	