Date Planned : __ / __ / __	**Daily Tutorial Sheet-13**	**Expected Duration : 90 Min**
Actual Date of Attempt : __ / __ / __	**Level-3**	**Exact Duration :________**

147. For the reaction in alkaline aqueous solution,

$$3BrO^- \longrightarrow BrO_3^- + 2Br^-$$

the value of the second order (in BrO^-) rate constant at 350 K in the rate law for $-\frac{\Delta[BrO^-]}{\Delta t}$ was found to be $0.056\,L\ mol^{-1}s^{-1}$. Then :

(A) rate constant is $0.019\,L\,mol^{-1}\,s^{-1}$ when rate law is $+\frac{\Delta[BrO_3^-]}{\Delta t}$

(B) rate constant is $0.037\,L\,mol^{-1}\,s^{-1}$ when rate law is $+\frac{\Delta[Br^-]}{\Delta t}$

(C) rate of the reaction is $0.056\ mol\ L^{-1}\,s^{-1}$ when rate law is $[BrO^-] = 1\,M$

(D) All of the above are correct statements

148. Acid hydrolysis of ester is first order reaction and rate constant is given by :

$$k = \frac{2.303}{t}\log\frac{V_\infty - V_0}{V_\infty - V_t}$$

where, V_0, V_t and V_∞ are the volume of standard NaOH required to neutralise acid present at a given time, if ester is 50% neutralised then :

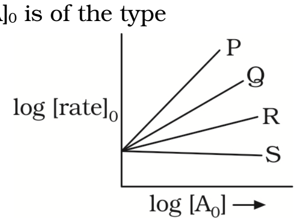
(A) $V_\infty = V_t$ **(B)** $V_\infty = (V_t - V_0)$

(C) $V_\infty = 2V_t - V_0$ **(D)** $V_\infty = 2V_t + V_0$

149. For nth order reaction,

$$\left(\frac{dx}{dt}\right) = Rate = k[A]_0^n$$

Graph between log (rate) against $[A]_0$ is of the type



Lines P, Q, R, S are for the order :

	P	Q	R	S		P	Q	R	S
(A)	0	1	2	3	**(B)**	3	2	1	0
(C)	1	2	3	0	**(D)**	0	3	2	1

150. The vapour pressure of water is lowered from 760 mmHg to 741 mm Hg when 0.04 mole of $Ca(NO_3)_2$ is added to 4 moles H_2O. Thus van't Haff factor is :

(A) 3.00 **(B)** 2.56

(C) 1.50 **(D)** 1.28

151. $\underset{(g)}{A} \longrightarrow \underset{(g)}{B} + \underset{(g)}{C}$

$$\frac{-d[A]}{dt} = k[A]$$

At the start pressure is 100 mm and after 10 min. pressure is 120 mm. Hence, rate constant (min^{-1}) is

(A) $\frac{2.303}{10}\log\frac{120}{100}$ **(B)** $\frac{2.303}{10}\log\frac{100}{20}$

(C) $\frac{2.303}{10}\log\frac{100}{80}$ **(D)** $\frac{2.303}{10}\log\frac{100}{120}$

152. The initial rate of hydrolysis of methyl acetate (1 M) by a weak acid (HA, 1 M) is 1/1000th of that of a strong acid (HX, 1 M) at 25°C. The $K_a(HA)$ is :

(A) 1×10^{-4} **(B)** 1×10^{-5}

(C) 1×10^{-6} **(D)** 1×10^{-3}