

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

1.	For the reaction : $2N_2O_5$ \longrightarrow $4NO_2+O_2$, the rate of reaction in terms of O_2 is d [O_2]/dt.	In terms of
	N_2O_5 , it will be:		lacksquare

(A)
$$\frac{-d[N_2O_5]}{dt}$$
 (B) $\frac{+d[N_2O_5]}{dt}$ (C) $-\frac{1}{2}\frac{d[N_2O_5]}{dt}$ (D) $-2\frac{d[N_2O_5]}{dt}$

- 2. and keeping [B] constant if [A] is doubled; the rate becomes four times. The order of reaction is:
- (B) (C) **(D)** (A) 3
- (A) very slow **(B)** slow (C) (D) fast Moderate in speed
- 4. reactant four times, then order of reaction is:

(C)

1/2

(D)

-1/2

- **5**. the rate of formation of B by a factor of:
- (A) 1/4 **(B)** (C) 1/2 (D)
- 6. In the following reaction, how is the rate of appearance of the underlined product related to the rate of disappearance of the underlined reactant?

$$\mathrm{BrO}_{3}^{-}(\mathrm{aq}) + 5\underline{\mathbf{Br}}^{-}(\mathrm{aq}) + 6\mathrm{H}^{+} \longrightarrow 3\underline{\mathbf{Br}_{2}}(\ell) + 3\mathrm{H}_{2}\mathrm{O}(\ell)$$

(A)
$$\frac{d[Br_2]}{dt} = -\frac{d[Br^-]}{dt}$$
 (B) $\frac{d[Br_2]}{dt} = \frac{3}{5} \frac{d[Br^-]}{dt}$

(C)
$$\frac{d[Br_2]}{dt} = \frac{-3}{5} \frac{d[Br^-]}{dt}$$
 (D) $\frac{d[Br_2]}{dt} = \frac{-5}{3} \frac{d[Br^-]}{dt}$

7. Unit of rate constant for zero order reaction is:

The reaction $H^+ + OH^- \longrightarrow H_2O$ is :

(B)

3.

(A)

(A)

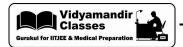
 $\mathrm{mole}^{-1}\mathrm{Ls}^{-1}$ $mole L^{-1}s^{-1}$ **(B)** (A)

- s^{-1} $mole^{-2}L^2s^{-1}$ (D) (C) 8.
- For a reaction $2NO(g)+Cl_2(g)\longrightarrow 2NOCl(g)$, when concentration of Cl_2 is doubled, the rate becomes four times. What is the order of reaction with respect to Cl₂?

For the reaction: $N_2 + 3H_2 \rightarrow 2NH_3$; if $\frac{\Delta[NH_3]}{\Delta t} = 2 \times 10^{-4} \, \text{mol L}^{-1} \text{s}^{-1}$, the value of $-\frac{\Delta[H_2]}{\Delta t}$ would be: 9.

(B) $3 \times 10^{-4} \,\mathrm{mol} \,\,\mathrm{L}^{-1} \mathrm{s}^{-1}$ (A) $1 \times 10^{-4} \, mol \, L^{-1} s^{-1}$

 $4 \times 10^{-4} \, mol \, L^{-1} s^{-1}$ **(D)** $6 \times 10^{-4} \,\mathrm{mol} \,\,\mathrm{L}^{-1} \mathrm{s}^{-1}$ (C)



10.	The	rate constant	for the	reaction,	$2N_2O_5$ —	\rightarrow 4NO ₂ + O ₂	$_{2} \text{ is } 3.0 \times 10^{-}$	$^{5}\mathrm{sec}^{-1}$.	If the	rate	is
	2.40>	$< 10^{-5} \text{mol L}^{-1} \text{ se}$	c^{-1} , then	the concent	ration of N ₂ O ₅	s (in mol L ⁻¹)) is :				
	(A)	1.4	(B)	1.2	(C)	0.04	(D)	0.8			
11.	The re	ole of catalyst ir	a chemic	al reaction	is to change :					\odot	
	(A)	Heat of react	ion		(B)	Products	of reaction				
	(C)	Activation er	ergy		(D)	Equilibriu	ım constant				
12.	Decon	Decomposition of NH ₃ on the surface of tungsten is a reaction of:									
	(A)	zero order			(B)	first order	•				
	(C)	second order			(D)	fractional	order.				
13.	The ionic reactions are usually very fast because :										
	(A)	The energy of interaction between charged ions is greater than that between neutral molecules									
	(B)	it does not involve bond breaking									
	(C)	the number of collisions between ions per unit volume per second are very large									
	(D)	these reactions are highly exothermic									
14.	Which	Which of the following explains the fact that the reactions of high molecularity are rare?									
	(A)	The more the number of colliding particles, the more is their weight and difficult it becomes to									
		cross the bar	rier								
	(B)	The activation energy for many-body collisions becomes very large									
	(C)	Many-body collisions have low probability									

- **15.** On increasing the temperature by 10K, the rate of reaction becomes double. Which of the following is the most appropriate reason?
 - **(A)** With increase of temperature, velocities increase and hence the number of collisions are appreciably increased
 - **(B)** The activation energy decreases with increase of temperature

Many body collisions are not energetically favoured

- **(C)** The bonds between the atoms of the reacting molecules become weak at higher temperatures
- **(D)** The higher the temperature, large is the fraction of colliding particles which can cross the energy barrier

(D)