

### EXPERIMENT 3

### CHEMICAL KINETICS

Name : \_\_\_\_\_ Group : \_\_\_\_\_

Matric no. : \_\_\_\_\_ Date of exp. : \_\_\_\_\_

Lecturer : \_\_\_\_\_

#### Data Analysis and Calculation

**Table 1** : Temperature of water bath

Time, t (minute)	Temperature (°C)
0	
15	
30	
45	
60	
75	
90	
Average	

**Table 2** : Values of t,  $V_t$ ,  $(V_\infty - V_t)$  and  $\ln(V_\infty - V_t)$ .

Time, t (minute)	Reading of burette (ml)		Vol.of NaOH, $V_t$ (ml)	$V_\infty - V_t$ (ml)	$\ln(V_\infty - V_t)$
	Initial	Final			
0					
10					
20					
30					
45					
60					
80					
$\infty_1$					
$\infty_2$					

Note :  $V_\infty = (V_{\infty_1} + V_{\infty_2}) / 2$

Plot graph of  $\ln(V_{\infty} - V_t)$  against  $t$ .

**Questions:-**

1. Average temperature of water bath during experiment = \_\_\_\_\_ °C.

2. Unit of rate constant = \_\_\_\_\_

3. Discuss concerning the precision of rate constant obtained.

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4. Value of the half-life ( $t_{1/2}$ ) of this reaction = \_\_\_\_\_

5. Discuss on how the rate of this reaction depends on the acid concentration.

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6. Suggest the rate determining step for this reaction.

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