EXPERIMENT/SUBJECT		DATE	
	LAB PARTNER	LOCKER/DESK NO.	COURSE & SECTION NO.

Observations

PART A

TIME	OBSERVATION
(INITIAL) 0 MIN	HCl and acetone are clear and colourless. Br_2 is clear and orange.
(0–1) 1 MIN	Immediately turns light yellow (still clear).
(1–2) 2 MIN	Still bright yellow and colourless, slightly paler.
(2–3) 3 MIN	Still bright yellow and colourless. Continued to become paler, still clear.
(3–4) 4 MIN	Increased transparency of solution very slightly. Still golden yellow, but paler.
(4–5) 5 MIN	Final colour is very light, translucent, golden yellow.

↳ PART B

Absorbance : 395 nm ↳ Units (A)

Time	Trial 1	Trial 2	Trial 3	Trial 4
45 s	0.542	1.280 1.275	1.198	1.160
60 s	0.538	1.259	1.187	1.145
90 s	0.525	1.240	1.156	1.116
120 s	0.507	1.225	1.118	1.084
150 s	0.489	1.209	1.082	1.053
180 s	0.470		1.040	1.021

Calculations and Discussion

1. Initial Concentrations of solutions

Trial #	$[BrO_2]$ M	[Acetone] M	[HCl] M	Rate m/s
1	4×10^{-3}	0.8	0.2	~~1.99×10^{-4}~~
2	8×10^{-3}	0.8	0.2	
3	8×10^{-3}	0.8	0.4	-1.11×10^{-3}
4	8×10^{-3}	1.6	0.2	-1.11×10^{-3}

Rate 2 : -5.24×10^{-4}

Rate 4 : -5.83×10^{-4}

2. Refer to graphs on following page.

3. The rate of reaction can be obtained by a graph of change in absorbance over time. This is because concentration change over time is the definition of the rate of a reaction, and in this case, absorbance is proportional to concentration.

4. Slope calculations

↳ FOR SAMPLE SEE TRIAL 3 + 4 ↳

↳ TRIAL ONE

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{0.505 - 0.525}{150 - 84}$$

$$= -3.03 \times 10^{-4} \text{ A/s}$$

OR M/s

↳ TRIAL TWO

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{1.218 - 1.26}{180 - 168}$$

$$= \frac{1.24 - 1.26}{84 - 78}$$

$$= -2.5 \times 10^{-3} \text{ M/s}$$

SIGNATURE	DATE	WITNESS/TA	DATE

NOTE: INSERT DIVIDER UNDER COPY SHEET BEFORE WRITING