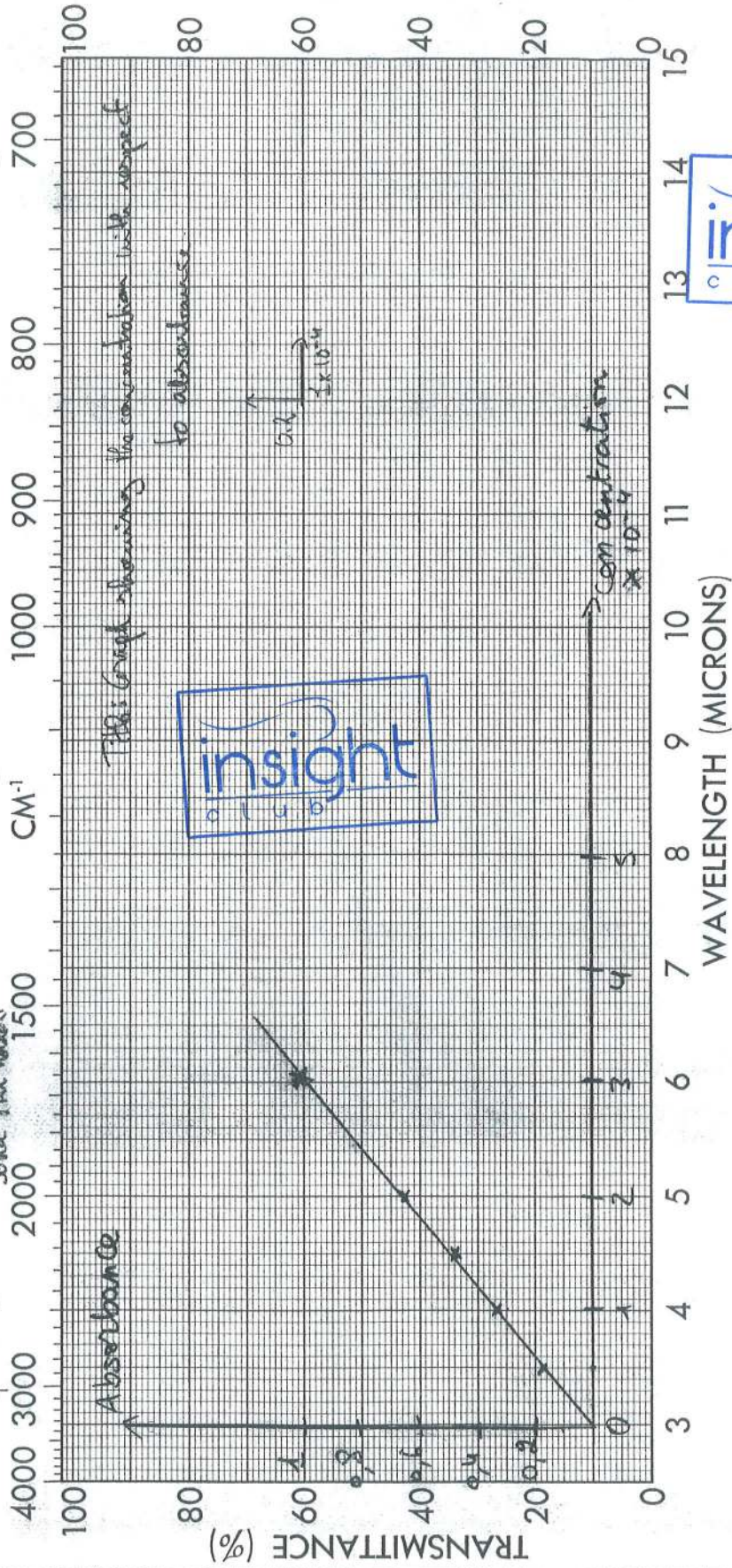


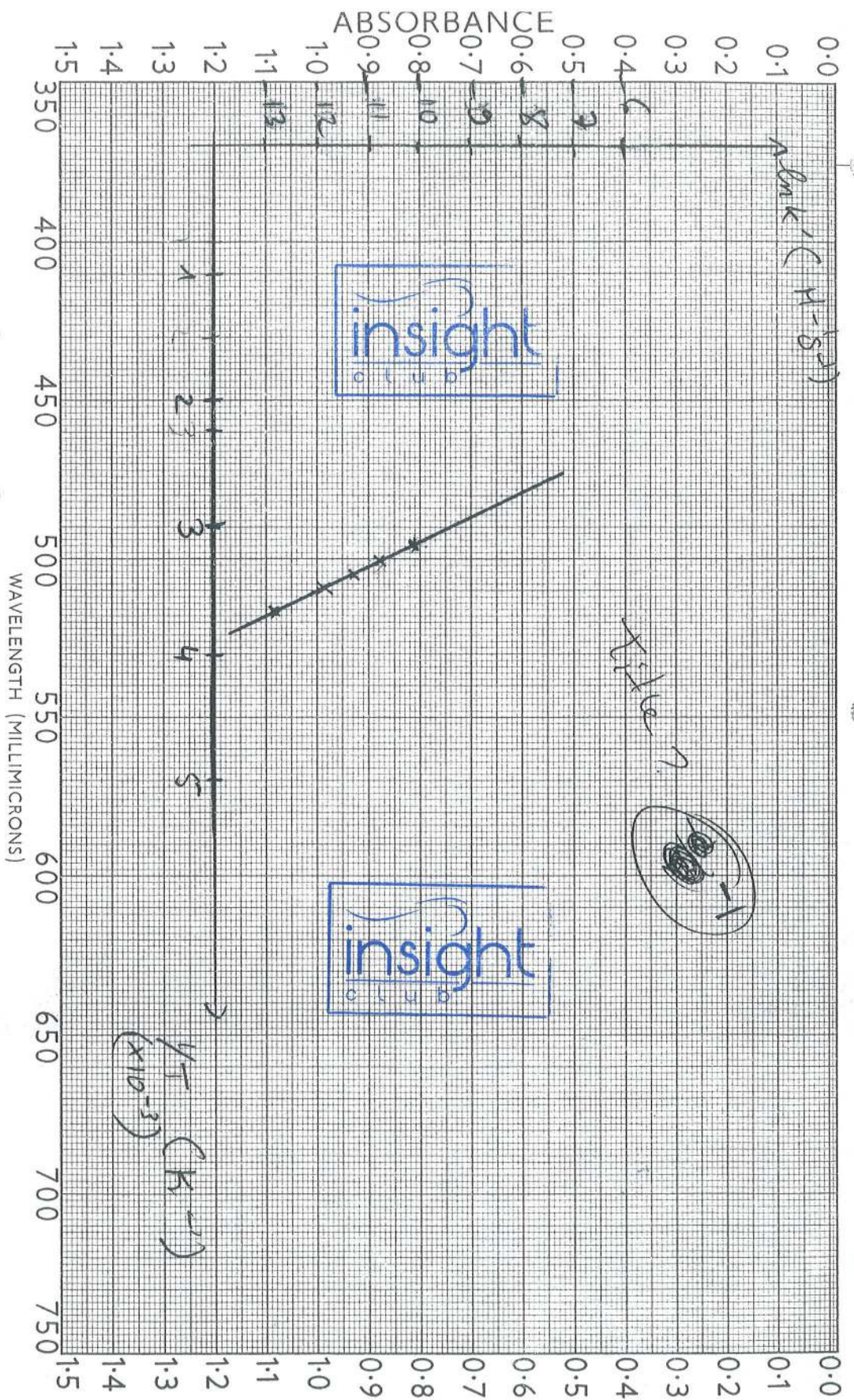
Names: New Charan
Soha Pali Road,



SPECTRUM NO. _____
 SAMPLE _____

SPECTRUM NO. _____	ORIGIN _____	LEGEND _____	REMARKS _____
SAMPLE _____	PURITY _____	1. _____	
	PHASE _____	2. _____	
	THICKNESS _____	DATE _____	
		OPERATOR _____	





SAMPLE _____		SCAN SPEED _____	
ORIGIN _____		SLIT _____	
SOLVENT _____		REMARKS _____	
CONC. _____		OPERATOR _____	
CELL PATH _____		DATE _____	
REFERENCE _____			

PART NO. 202-1512

PERKIN-ELMER LIMITED

Noun CHAABAN

Saba Alsi

13/15

Time: 10'

Chem 205
Drop Quiz 5

Friday, March 15, 2013
H. Deeb

Name: _____

1. What is the visual change that indicates when the reaction is complete in today's experiment?

It changes from yellow to colorless.



2. Thiosulfate ion is oxidized by iodine in aqueous solution according to the equation:



If 0.025 mole of $S_2O_3^{2-}$ is consumed in 0.50 L solution per minute:

a) Calculate the rate of removal of $S_2O_3^{2-}$ in M/s.

rate = $k [S_2O_3^{2-}]^x [I_2]^y$

~~rate = $k [S_2O_3^{2-}]^x [I_2]^y$~~

~~rate = $k [S_2O_3^{2-}]^x [I_2]^y$~~

$$c = \frac{n}{V} = \frac{0.025}{0.5}$$

$$= 0.05$$

0.05 per 1 min

0.05 → 60 s

0.05 → 1 s

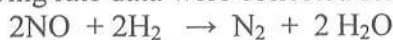
1 s → $8.3 \times 10^{-4} M$

b) What is the rate of removal of I_2 ?

$$-\frac{[I_2]}{\Delta t} = \text{rate}$$



3. The following rate data were collected for the reaction:



Experiment	[NO] ₀ (M)	[H ₂] ₀ (M)	Δ[N ₂]/Δt (M/h)
1	0.60	0.15	0.076
2	0.60	0.30	0.15
3	0.60	0.60	0.30
4	1.2	0.60	1.21

- Ⓐ [2H₂]
- Ⓑ [3H₂]
- Ⓒ 2[NO]

Determine the rate law.

$$\text{rate} = k [NO]^x [H_2]^y$$

$$\frac{\text{rate 2}}{\text{rate 1}} = \frac{[NO]^x [2H_2]^y}{[NO]^x [H_2]^y}$$

$$\frac{0.15}{0.076} = 2^y$$

$$1.97 = 2^y \Rightarrow y \approx 1$$

$$\frac{\text{rate 4}}{\text{rate 3}} = \frac{[2NO]^x [2H_2]^y}{[NO]^x [2H_2]^y}$$

$$4 = 2^x$$

$$x = 2$$