

**G.H.S**

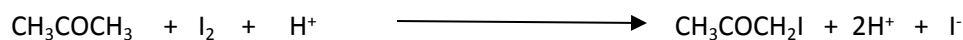
**PRACTICAL CHEMISTRY (P525/3)**

**S.6 OCT. 2012**

**TIME: 1½ HOURS**

**INSTRUCTIONS: ANSWER ALL QUESTIONS IN THE SPACES PROVIDED.**

You are required to determine the order of reaction with respect to iodine in the acid catalysed iodination of propanone. Iodine reacts with propanone according to the equation:



You are to use a large excess of both propanone and acid while varying the concentration of iodine.

You are provided with the following solutions:

FA1, which is 1M aqueous propanone

FA2, which is 1M Sulphuric acid

FA3, which is 0.1M Iodine

FA4, which is 0.5M Sodiumhydrogencarbonate

FA5, which is 0.01M Sodiumthiosulphate.

**PROCEDURE:**

Mix 25cm<sup>3</sup> of FA1 with 25cm<sup>3</sup> of FA2 in a conical flask. Quickly add 50cm<sup>3</sup> of FA3 using another measuring cylinder and immediately start the stop clock. Shake well and leave the mixture to stand for a short time. Withdraw 10cm<sup>3</sup> of the mixture and quench the reaction by running the mixture into 10cm<sup>3</sup> of FA4 in a conical flask. Note the time as soon as the mixture is released into FA4. Immediately titrate the iodine present at that time with FA5 using starch solution as indicator near the endpoint.

Withdraw further 10cm<sup>3</sup> portions of the mixture and treat them similarly, noting the time as soon as the mixture has been run into FA4.

Record your results in the table below:

Expt.	Time/S	Burette readings (cm <sup>3</sup> )		Volume used (cm <sup>3</sup> )
		Final reading	Initial reading	
1				
2				
3				
4				
5				
6				
7				

**Questions:**

- a) Plot a graph of volume used against time.
  
- b) Deduce the order of reaction with respect to iodine
  
- c) What does the order of reaction imply about the influence of Iodine on the rate of reaction?