

**Marks**  
**5**

- The following data were obtained for the iodide-catalysed decomposition of hydrogen peroxide,  $\text{H}_2\text{O}_2$ .

Experiment	$[\text{I}^-](\text{M})$	$[\text{H}_2\text{O}_2](\text{M})$	Initial rate( $\text{M s}^{-1}$ )
1	0.375	0	0
2	0.375	0.235	0.000324
3	0.375	0.470	0.000657
4	0.375	0.705	0.001024
5	0.375	0.940	0.001487
6	0	0.948	0
7	0.050	0.948	0.00045
8	0.100	0.948	0.00095
9	0.150	0.948	0.00140
10	0.200	0.948	0.00193

Determine the rate law from these data.

Use the data from Experiment 10 to calculate the rate constant for this reaction.

$k =$

Iodide ion is used as a catalyst in this reaction. What is the role of a catalyst in a chemical reaction?