**Revision Test 1- Radioactivity and Rates of Reaction**

1. An experiment was carried out to examine the effect of temperature on the reaction between Sodium Thiosulfate and HCl.

a) What product obscures the cross?

b) Give three precautions taken to ensure it was a fair test

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c) As the temperature increased the time taken for the X to disappear \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

d) Explain why temperature has an effect on rate of reaction

e) The following results were recorded. Fill in the values for the rate of reaction.

|  |  |  |
| --- | --- | --- |
| Time taken for x to disappear | Temperature (Deg Celsius) | Rate of reaction (1/Time) |
| 55 | 30 |  |
| 50 | 40 |  |
| 43 | 50 |  |
| 38 | 60 |  |
| 31 | 70 |  |
| 22 | 80 |  |
| 12 | 90 |  |

f) Draw the graph using Time taken vs temperature results.



g) Find the instantaneous rate of reaction at 65º Celsius?

h) What effect would adding a catalyst have on this reaction?

i) Explain why ionic compounds react faster than covalent compounds?



3. What are isotopes? (5)

Define (i) radioactivity, (ii) radioisotope. (8)

Carbon–14 decays by beta particle emission. Write a balanced equation to describe beta-decay of the carbon–14 nucleus. (6)

The world’s oldest shoe, found in a cave in Armenia, is pictured on the right. In June 2010, having been radiocarbon dated, it was reported to be 5500 years old. Explain why the carbon–12 to carbon–14 isotope ratio in the shoe leather changed over the 5500 years since the shoe was made. (6)