**Combined science HT homework Name ………………………………..**

**Q1.** Some pieces of calcium carbonate were added to dilute hydrochloric acid in a conical flask and the volume of carbon dioxide produced was measured. Complete the diagram in Figure 5 to show the apparatus to collect the gas produced and measure its volume.

**(2)**



**(Total for question = 2 marks)**

 **Q2. T**he calcium carbonate powder produced 90 cm3 of carbon dioxide in five minutes.

Calculate the average rate of reaction in cm3s–1.

**(3)**

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

average rate of reaction = ........................................................... cm3s–1

**Q3.** During any reaction, reactants are used up and the rate of reaction decreases.

Explain, in terms of particles, why the rate of reaction decreases.

**(2)**

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

**(Total for question = 2 marks)**

 **Q4.** Explain, in terms of particles, why the rate of reaction increased when the
temperature was increased.

**(3)**

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

**(Total for question = 3 marks)**

 **Q5.** Two gases, **X** and **Y**, react to give a gaseous product **Z**.

The reaction is carried out under two different sets of conditions in experiments 1 and 2 as shown in Figure 9.



**Figure 9**

Explain why it is not possible to predict what the rate of Experiment 2 will be compared with Experiment 1.

**(3)**

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

 .............................................................................................................................................

**(Total for question = 3 marks)**