Name _____ Date _____

End of Chapter 17 test

This test and its sample answers have been written by the authors. IB may award marks differently.

1 A conical flask is placed on a white tile with a black cross on it. Solutions of sodium thiosulfate and HCl are added, and it takes 35 s for the cross to disappear. What is the rate of reaction for this reaction?

A 35 s

B $0.03\ s^{-1}$

C 0.03 s

D impossible to calculate from the data

2 In general, the rate of a reaction can be increased by all of the following, except

A increasing the temperature

B increasing the activation energy

C increasing the concentration of reactants

D increasing the surface area of the reactants.

3 Which one of the following would not affect the rate of a chemical reaction?

A The size of the enthalpy change.

B The size of solid reactant particles.

C The temperature of the reactants.

D The concentration of the reactants.

4 The rate of a chemical reaction increases with increasing temperature. This increase in reaction rate is caused by

I an increase in the number of collisions per unit time

II a decrease in the activation energy

III an increase in the number of molecules that have energy greater than the activation energy.

A **I**

B **II**

C **I** and **III**

D **I**, **II** and **III**

5 Which change will increase the rate of the reaction when 100 cm^3 of 1.0 mol dm^{-3} HCl are added to 2.0 g of $CaCO_3$?

A The size of the solid $CaCO_3$ particles is increased.

B The concentration of HCl is decreased.

C The size of the solid $CaCO_3$ particles is decreased.

D The volume of HCl is increased.

6 How does a catalyst affect the rate of a reaction?

A Decreases rate of the reaction

B Increases rate of reaction

C Increases the concentration of the reactants

D Decreases the concentration of the reactants

7 Which of the following conditions will make the rate of reaction, between Mg ribbon with HCl, be the fastest?

A 20 cm^3 of 1.0 mol dm^{-3} HCl at 20 °C

B 20 cm^3 of 2.0 mol $^{-3}$ HCl at 293 K

C 20 cm^3 of 2.0 mol dm^{-3} HCl at 40 °C

D 20 cm^3 of 1.0 mol dm^{-3} HCl at 40 °C

8 Ammonia, NH_3, is made from nitrogen and hydrogen according to the following equation:

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

Which of the following explains why increasing the pressure increases the rate of reaction?

A More particles have energy greater than the activation energy.

B There are more frequent collisions.

C The orientation of the molecules changes.

D There are fewer moles of gas on the products side of the reaction.

END OF TEST