**Rates of Reaction Past Paper Questions**

1. The diagram below shows the energy profile for a reaction carried out with and without a catalyst.



What is the enthalpy change, in kJ mol-1, for the catalysed reaction?

**A**  -100

**B**  -50
**C** +50
**D** +100
2016 CfE

1. A reaction has the following potential energy diagram.


The activation energy for the forward reaction is:

**A**  X-Y
**B**  Y-X
**C** Y-Z
**D** Z-Y
2015 CfE,
2. In which of the following will **both** changes result in an increase in the rate of a chemical reaction?

**A** A decrease in the activation energy
 and an increase in the frequency of
 collisions.

**B** An increase in activation energy and
 a decrease in particle size.

**C** An increase in temperature and an
 increase in the particle size.

**D** An increase in concentration and a
 decrease in the surface area of the
 reactant particles.
Specimen CfE
3. Which of the following is **not** a correct statement about the effect of a catalyst?

**A** provides energy so that more
 molecules have successful collisions.

**B** lowers the energy that molecules
 need for successful collisions.

**C** provides an alternative route to the
 products.

**D** forms bonds with reacting
 molecules.

Specimen CfE

1. The graph shows how the rate of a reaction varies with the concentration of one of the reactants.

Calculate the reaction time, in seconds, when the concentration of the reactant was 0.5 mol l-1.

**A**  0.2
**B**  0.5
**C** 2.0
**D** 5.0

Specimen CfE


When a catalyst is used, the activation energy of the forward reaction is reduced to 35 kJ mol-1. What is the activation energy of the catalysed reverse reaction?

**A**  30 kJ mol-1
**B**  35 kJ mol-1
**C** 65 kJ mol-1
**D** 190 kJ mol-1
Exemplar CfE

1. 

Rev H 2014



Rev H 2013

1. Which of the following diagrams represents an exothermic reaction which is most likely to take place at room temperature?



Rev H 2013

1. The enthalpy change for the forward reaction
can be represented by

**A** X
**B** Y
**C** X+Y
**D** X-Y

Rev H 2012

1. In a reaction involving gases, an increase in temperature results in

**A** an increase in energy.
**B** an increase in the enthalpy change.
**C** a decrease in the activation energy.
**D** more molecules per second forming
 an activated complex.

Rev H 2012

**11.**

Rev H Specimen 

**12.**

 Rev H Specimen

**Section B**

 **1.**




2015 CfE

**2.**



2016 CfE

**3.**Specimen CfE

**4.**



Exemplar CfE

**5.**
 Rev H 2014

**6.**

Rev H Specimen