Key
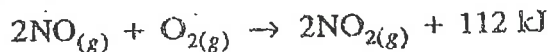
1. increasing temperature results in an increase in reaction rate. This is due to

A. an increase in ΔH.
B. an alternate reaction path.
C. a decrease in activation energy.
   an increase in the fraction of particles possessing sufficient energy.

D

2. Consider the following reaction:

$$2NO_{(g)} + O_{2(g)} \rightarrow 2NO_{2(g)} + 112 \text{ kJ}$$

The rate of the above reaction could be increased by

A. an increase in [NO].
B. a decrease in pressure.
C. a decrease in temperature.
D. an increase in surface area.

3. A solution of acid is added to a solution of base, resulting in an increase in temperature. This result indicates that the acid-base reaction is

A. exothermic and ΔH is positive.
B. exothermic and ΔH is negative.
C. endothermic and ΔH is positive.
D. endothermic and ΔH is negative.

4. Consider the following equation:

$$2H_2O_{2(aq)} \rightarrow 2H_2O_{(l)} + O_{2(g)}$$
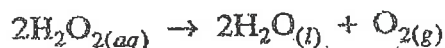
When a piece of raw potato was added to the above reaction, the reaction rate increased dramatically. An enzyme in the potato was found to be responsible for the increase in the reaction rate. In this reaction, the enzyme would be referred to as

A. a catalyst.
B. an inhibitor.
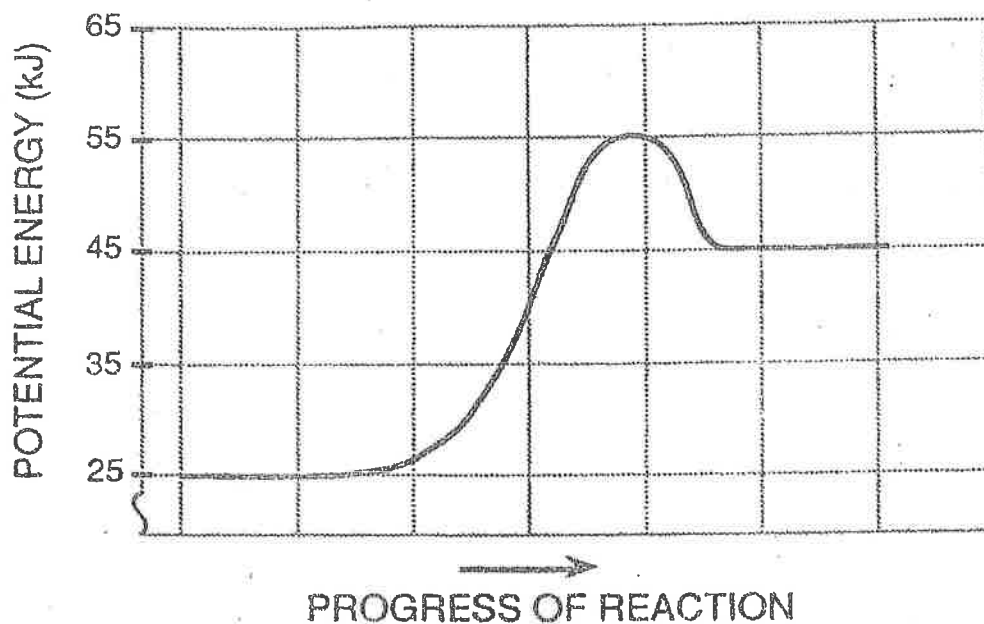C. an activated complex.
D. a reaction intermediate.

2. List two requirements for an effective collision between two reactant molecules. (2 marks)

I. Kinetic energy

II. Collision Geometric

Score for Question 2:
2. ____
(2)

- 15 -

5. Consider the potential energy diagram below.

The value of the activation energy (E) for the forward reaction is

A. 10 kJ
B. 20 kJ
C. 30 kJ
D. 55 kJ

1. The decomposition of N_2O_5 occurs according to the following equation:

$$2N_2O_5 \rightarrow 4NO_2 + O_2$$

The following data are collected for the above reaction:

time (sec)	mole N_2O_5
START	1.62
2.00×10^2	1.46
4.00×10^2	1.30
6.00×10^2	1.14

Using the above data, calculate the reaction rate. (2 marks)

$$rate = \frac{\Delta\,mole}{\Delta\,time} = \frac{-0.16}{2.00 \times 10^2} = 8.0 \times 10^{-4}\,mol/s$$

Score for
Question 1:

1. _____
(2)