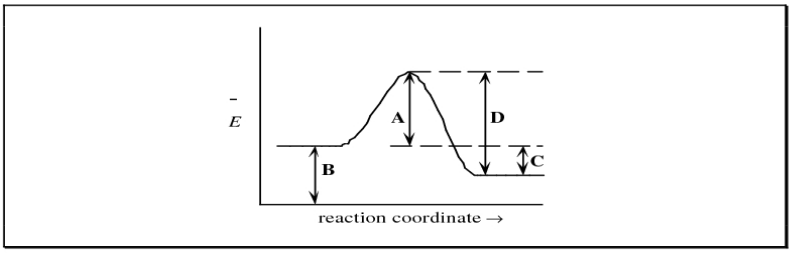
Worksheet 2 – Chapter 14 – Chemical Kinetics

1. The rate equation for a chemical reaction is determined by

(A) theoretical calculations.
(B) measuring reaction rate as a function of concentration of reacting species.
(C) determining the equilibrium constant for the reaction.
(D) measuring reaction rates as a function of temperature

2.

Which line in the diagram represents the activation energy for a forward reaction?



(A) **A** (B) **B** (C) **C** (D) **D**

3. The rate law for the reaction **A** + **B** → **C** + **D**

is first order in [**A**] and second order in [**B**]. If [**A**] is halved and [**B**] is doubled, the rate of the reaction will

(A) remain the same.
(B) be increased by a factor of 2.
(C) be increased by a factor of 4.
(D) be increased by a factor of 8.

4. Bimolecular reactions (e.g. A + B => C) generally occur at much slower rates than one would predict from the rate of collision between molecules as calculated from the gas kinetic theory. The discrepancy can be explained in terms of

(A) intermolecular repulsions.
(B) nonspherical molecular shapes.
(C) erroneous estimates of molecular size.
(D) activation energies of reaction.
(E) the uncertainty principle.

5. If a reaction proceeding by the mechanism **A** + **B** → **C** + **D**

occurs at a rate x, and if the concentrations of **A** and **B** are both doubled, what will be the new rate of reaction?

(A) x (B) $2x$ (C) $4x$ (D) $8x$ (E) $16x$