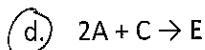
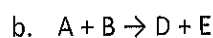
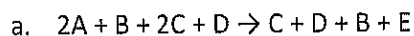


Use the following information to answer questions 2 – 5.

A multi-step reaction takes place with the following elementary steps:



2. What is the overall balanced equation for this reaction?



3. What is the function of species B in this reaction?

a. Without it, no reaction would take place.

b. It is a reaction intermediate which facilitates the progress of the reaction.

c. It is a catalyst which lowers the activation energy of the reaction.

d. It increases the temperature, thus increasing the rate of the reaction.

4. If step II is the slow step for the reaction, what is the overall rate law?

a. $\text{rate} = k[A]^2[B]$

c. $\text{rate} = k[A][B]$

b. $\text{rate} = k[A][C]$

d. $\text{rate} = k[A]/[D]$

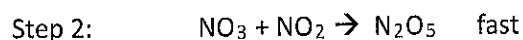
5. Why would increasing the temperature make the reaction rate go up?

a. It is an endothermic reaction that needs an outside energy source to function.

b. The various molecules in the reactions will move faster and collide more often.

c. The overall activation energy of the reaction will be lowered.

d. A higher fraction of molecules will have the same activation energy.



6. A proposed reaction mechanism for the reaction of nitrogen dioxide and ozone is detailed above. Which of the following is the rate law for the reaction?

a. $\text{rate} = k[NO_2][O_3]$

c. $\text{rate} = k[NO_2]^2[O_3]$

b. $\text{rate} = k[NO_3][NO_2]$

d. $\text{rate} = k[NO_3][O_2]$