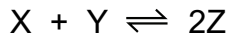


- 13** One particle of X reacts with one particle of Y in a single-step reaction to produce two particles of Z.

This reaction is exothermic and reversible.



Three statements about the forward and reverse reactions are listed.

- 1 The activation energy of the forward reaction is equal to the activation energy of the reverse reaction.
- 2 At equilibrium, the frequency of collisions between one particle of X and one particle of Y is equal to the frequency of collisions between two particles of Z.
- 3 At equilibrium, the frequency of effective collisions between one particle of X and one particle of Y is equal to the frequency of effective collisions between two particles of Z.

Which statements are correct?

- A** 1 only                      **B** 2 and 3                      **C** 2 only                      **D** 3 only