Chemical Kinetics Questions for Competitive Exams

Question 1

Which of the following statements is correct for a reaction having activation energy equal to zero?

Question 1 Options

A. The reaction proceeds at an infinite rate.

B. The reaction proceeds at a very slow rate.

C. The reaction proceeds at a moderate rate.

D. The reaction proceeds at a fast rate.

Question 1 Explanation

The rate of a reaction is given by the Arrhenius equation, $k = Ae^{-E_a/RT}$, where k is the rate constant, A is the pre-exponential factor, E_a is the activation energy, R is the gas constant, and T is the temperature in Kelvin. If the activation energy is zero, the exponential term becomes $e^0 = 1$, so the rate constant simplifies to $k = A$. This means the reaction rate is independent of temperature and proceeds at a constant, maximum rate, which is effectively infinite for practical purposes.

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Which of the following statements is correct for a reaction having activation energy equal to zero?

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A. The reaction proceeds at an infinite rate.

B. The reaction proceeds at a very slow rate.

C. The reaction proceeds at a moderate rate.

D. The reaction proceeds at a fast rate.

Question 2 Explanation

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Question 4 Explanation

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Question 40 Explanation

The rate of a reaction is given by the Arrhenius equation, $k = Ae^{-E_a/RT}$, where k is the rate constant, A is the pre-exponential factor, E_a is the activation energy, R is the gas constant, and T is the temperature in Kelvin. If the activation energy is zero, the exponential term becomes $e^0 = 1$, so the rate constant simplifies to $k = A$. This means the reaction rate is independent of temperature and proceeds at a constant, maximum rate, which is effectively infinite for practical purposes.

Question 41

Which of the following statements is correct for a reaction having activation energy equal to zero?

Question 41 Options

A. The reaction proceeds at an infinite rate.

B. The reaction proceeds at a very slow rate.

C. The reaction proceeds at a moderate rate.

D. The reaction proceeds at a fast rate.

Question 41 Explanation

The rate of a reaction is given by the Arrhenius equation, $k = Ae^{-E_a/RT}$, where k is the rate constant, A is the pre-exponential factor, E_a is the activation energy, R is the gas constant, and T is the temperature in Kelvin. If the activation energy is zero, the exponential term becomes $e^0 = 1$, so the rate constant simplifies to $k = A$. This means the reaction rate is independent of temperature and proceeds at a constant, maximum rate, which is effectively infinite for practical purposes.

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D. The reaction proceeds at a fast rate.

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C. The reaction proceeds at a moderate rate.

D. The reaction proceeds at a fast rate.

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Question 50

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Question 50 Options

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