

Faculty Submitting: Siobhan Toal

Specify here whether “Pre” or “End” of Unit and the Unit #: Pre Unit 11

<i>LOs:</i> Distinguish between initial, average and instantaneous rates of reaction Perform kinetics calculations to determine reaction and reactant order, and half-life Perform calculations using integrated rate laws, predict the linearity of concentration vs. time graphs based on integrated rate laws, define and calculate the half-life for a chemical reaction Analyze and interpret reaction coordinate diagrams - identify reactants, intermediates, reaction mechanisms, transition states, catalysts and products Solve steady state kinetics reaction problems; choose between two possible mechanism given an experimental rate law	
<i>Readings: Ch 12</i>	
Unit 11_ Question 1	Canvas Question Type: Matching
	Question Text: Rate at which a reaction is proceeding at a given, specific time – instantaneous rate The instantaneous rate at time = 0 – initial rate Reaction rate computed over a long time period where rate is changing – average rate
Read More	https://openstax.org/books/chemistry-2e/pages/12-1-chemical-reaction-rates
Unit 11_ Question 2	Canvas Question Type: Multiple Choice GROUP
a	Question Text: In the following generalized reaction, $2A + B \rightarrow 2C$ Which of the following is true: Correct The rate that A is consumed is twice the rate of consumption of B Wrong The rate that A and B are consumed is constant over time The rate that B is consumed is twice the rate that A is consumed The rate that B is consumed is twice the rate that C is produced
b	Question Text: In the following generalized reaction, $A + 2B \rightarrow C$

	<p>Which of the following is true:</p> <p>Correct The rate that B is consumed is twice the rate that A is consumed</p> <p>Wrong The rate of that A is consumed twice the rate of consumption of B The rate that A and B are consumed is constant over time The rate that C is produced is twice the rate that B is consumed</p>
Read More	https://openstax.org/books/chemistry-2e/pages/12-1-chemical-reaction-rates
Unit 11_ Question 3	Question Type: Multiple Answers/Checkboxes
a	<p>Which of the following would typically increase reactant rate in forward direction (towards product formation)?</p> <p>Correct Answers: Increasing reactant concentration Increasing temperature Breaking down solid into powder Addition of effective catalyst</p> <p>Wrong Answer Increasing Product Concentration</p>
b	<p>Which of the following would not typically increase reactant rate in forward direction (towards product formation)?</p> <p>Correct Answers: Increasing Product Concentration</p> <p>Wrong Answer Increasing reactant concentration Increasing temperature Breaking down solid into powder Addition of effective catalyst</p>
Read More	https://openstax.org/books/chemistry-2e/pages/12-1-chemical-reaction-rates
Unit 11_ Question 4	<p>Question Type: Multiple Drop Downs</p> <p>Given the following rate law, the rate constant for the reaction is [drop 1], the order with respect to reactant A is [drop 2] and the order with respect to B is [drop 3]</p> $\text{rate} = 0.11 \text{M}^{-2} \text{s}^{-1} [\text{A}]^1 [\text{B}]^2$ <p>Drop 1</p>

	<p>$0.11\text{M}^{-2} \text{s}^{-1}$</p> <p>Drop 2 1</p> <p>Drop 3 2</p>
Read More	https://openstax.org/books/chemistry-2e/pages/12-1-chemical-reaction-rates
Unit 11_ Question 5	Question Type: Multiple Choice
	<p>Question Text: Given the following rate law, what can be said about the rate of reaction</p> $\text{rate} = 0.11\text{M}^{-2} \text{s}^{-1} [\text{A}]^1 [\text{B}]^2$ <p>Correct Answer: the rate of reaction depends more on the concentration of B than A</p> <p>Wrong Answers: the rate of reaction depends more on the concentration of A than B the rate of reaction depends equally on the concentration of A and B the rate of reaction is independent of A and B concentrations</p>
Read More	https://openstax.org/books/chemistry-2e/pages/12-3-rate-laws
Unit 11_ Question 6	Question Type: Multiple Choice
a	<p>Question Text: Doubling the concentration of a reactant increases the rate of a reaction four times. With this knowledge, answer the following questions: What is the order of the reaction with respect to that reactant?</p> <p>Correct Answer: 2</p> <p>Wrong Answers 0 1 4</p>
b	<p>Question Text: Doubling the concentration of a reactant doubles the rate of a reaction. With this knowledge, answer the following questions: What is the order of the reaction with respect to that reactant?</p>

	<p>Correct Answer: 1 Wrong Answers 0 2 4</p>
c	<p>Question Text: Doubling the concentration of a reactant has no effect on the rate of a reaction. With this knowledge, answer the following questions: What is the order of the reaction with respect to that reactant?</p> <p>Correct Answer: 0 Wrong Answers 1 2 4</p>
Unit 11_ Question 7	<p>Question Text: According to the Arrhenius equation and collision theory, which factor(s) increase rate of a reaction.</p> <p>Increasing temperature Decreasing activation energy E_a Adding a catalyst Increasing the number of successful collisions (all correct)</p>
Read More	<p>https://openstax.org/books/chemistry-2e/pages/12-5-collision-theory</p>