

NAME:		ROLL NO:		TIME:	15: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 7 (Reaction Kinetics)	T. MARKS	13	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x13=13)

1. The rate of reaction:

- (A) Increases as the reaction proceeds
- (B) Decreases as the reaction proceeds
- (C) Remains the same as the reaction proceeds
- (D) May decrease or increase as the reaction proceeds

2. Increasing the temperature of a chemical reaction increases the rate of reaction because:

- (A) Both the collision frequency and collision energies of reactant molecules increase
- (B) Collision frequency of reactant molecules increases
- (C) Activation energy increase
- (D) Activation energy decrease

3. Consider two reactions with different activation energies at the same temperature. The reaction with the lower activation energy will have:

- (A) A smaller rate constant
- (B) A larger rate constant
- (C) The same rate constant
- (D) A rate constant that depends on the enthalpy change

4. The order of the chemical reaction, that is independent of concentration is:

- (A) Second order reaction
- (B) First order reaction
- (C) Zero order reaction
- (D) Pseudo first order reaction

5. On a Boltzmann distribution curve, the area under the curve represents:

- (A) Activation energy of the reaction
- (B) Total number of molecules in the sample
- (C) Average kinetic energy of the molecules
- (D) Rate constant of the reaction

6. On a Boltzmann distribution curve, the activation energy (E_a) is represent by:

- (A) The height of the peak
- (B) The area under the entire curve
- (C) A vertical line drawn at a specific kinetic energy value
- (D) The difference between the peak and the X-axis

7. If we double the concentration of a reactant, the rate increases by four times, the reaction is:

- (A) Second order
- (B) First order
- (C) Third order
- (D) Zero order

8. The rate determining step in a multi-step reaction is:

- (A) Always the first step
- (B) Always the last step
- (C) The slowest step
- (D) The fastest step

9. The reaction $\text{NO}_2 + \text{CO} \rightarrow \text{NO} + \text{CO}_2$ occurs in two steps. What is the rate law equation for this reaction?

- $2\text{NO}_2 \rightarrow \text{NO} + \text{NO}_3$ (k_1) slow $\text{NO}_3 + \text{CO} \rightarrow \text{CO}_2 + \text{NO}_2$ (k_2) fast
- (A) $R = k_1[\text{NO}_2]^3$
 - (B) $R = k_2[\text{NO}_3][\text{CO}]$
 - (C) $R = k_1[\text{NO}_2]$
 - (D) $R = k_1[\text{NO}_2]^2$

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10. How does the presence of a catalyst affect the rate of a chemical reaction?

- (A) It always decreases the rate of the reaction.
- (B) It always increases the rate of the reaction.
- (C) It increases the rate of the forward and decreases the rate of the reverse reaction.
- (D) It increases the rate of both the forward and reverse reactions.

11. On an energy profile diagram, the presence of a catalyst is represented by:

- (A) A higher peak representing the activation energy.
- (B) A lower peak representing the activation energy.
- (C) A change in the energy level of the reactants or products.
- (D) A shift in the equilibrium position.

12. The units of the rate constant (k) for a reaction depend on the:

- (A) Activation energy of the reaction
- (B) Temperature of the reaction
- (C) Overall order of the reaction
- (D) Stoichiometry of the balanced chemical equation

13. A first-order reaction has a half-life ($t_{1/2}$) of 20 minutes. What is the value of its rate constant (k)?

- (A) 0.05 min^{-1}
- (B) 0.693 min^{-1}
- (C) 0.0347 min^{-1}
- (D) 13.86 min^{-1}



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1ST YEAR SOLVED EXERCISE MCQs



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Answer Key

1	B	2	A	3	B	4	C
5	B	6	C	7	A	8	C
9	D	10	D	11	B	12	C
13	C						