# CBSE NCERT Based Chapter wise Questions (2025-2026)

## Class-XII

## Subject: Chemistry

## Chapter Name : *Chemical Kinetics*

**Total : 7 Marks (expected)** [MCQ-1 Mark, A/R-1 Marks, VSQ-2 Mark, SQ-3 Marks]

**Level - 1**

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**I. MCQ (One correct Answer)**

**1.** The role of a catalyst is to change _____.

Ⓐ Gibb's energy of reaction
Ⓑ Enthalpy of reaction
Ⓒ Activation energy of reaction
Ⓓ Equilibrium constant

**[Hints : NCERT, Vol-I, Pg-79]**

**2.** In the presence of a catalyst, the heat evolved or obsorbed during the reaction _____.

Ⓐ increases
Ⓑ decreases
Ⓒ remains unchanged
Ⓓ may increase or decrease

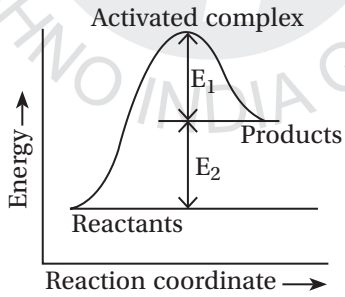
**[Hints : NCERT, vol-I, Pg-79]**

**3.** Activation energy of a chemical reaction can be determined by_____.

Ⓐ determining the rate constant at standard temperature
Ⓑ determining the rate constant at two temperature
Ⓒ determining probability of collision
Ⓓ using catalyst

**[Hints : NCERT, vol-I, Pg-80-81]**

**4.** Consider the following figure and mark the correct option.




Ⓐ Activation energy of forward reaction is $E_1 + E_2$ and product is less stable than reactant.
Ⓑ Activation energy of forward reaction is $E_1 + E_2$ and product is more stable than reactant.
Ⓒ Activation energy of both forward and backward reaction is $E_1 + E_2$ and reactant is more stable than product.
Ⓓ Activation energy of backward reaction is $E_1$ and product is more stable than reactant.

**[Hints : NCERT, Pg 70]**

**5.** Consider a first order gas phase decomposition reaction given below:

$$A(g) \longrightarrow B(g) + C(g)$$

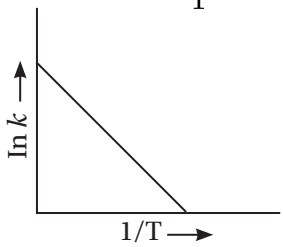
The initial pressure of the system before decomposition of A was $p_1$. After lapse of time '$t$' total pressure of the

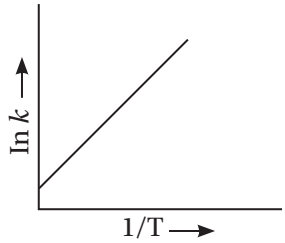
system increased by $x$ units and became '$p_1$'. The rate constant $k$ for the reaction is given as_____.

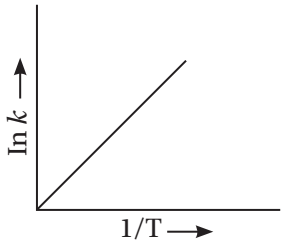
Ⓐ $\frac{2.303}{t}\log\frac{p_t}{p_t - x}$ Ⓑ $\frac{2.303}{t}\log\frac{p_t}{2p_t - p_t}$ Ⓒ $\frac{2.303}{t}\log\frac{p_i}{p_i - p_t}$ Ⓓ $\frac{2.303}{t}\log\frac{p_i}{p_t x}$

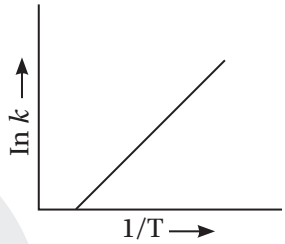
**[Hints : First order reaction]**

**6.** According to Arrhenius equation rate constant $k$ is equal to A $e^{-Ea/RT}$. Which of the following options represents the graph of in k vs $\frac{1}{T}$?

Ⓐ 


Ⓑ 


Ⓒ 


Ⓓ 


**7.** Consider the Arrhenius equation given below and mark the correct option. $k = A\ e^{-Ea/RT}$

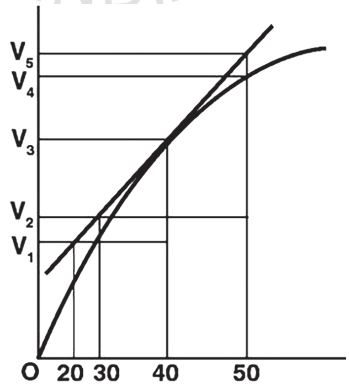
Ⓐ Rate constant increases exponentially with increasing activation energy and decreasing temperature.

Ⓑ Rate constant decreases exponentially with increasing activation energy and decreasing temperature.

Ⓒ Rate constant increases exponentially with decreasing activation energy and decreasing temperature.

Ⓓ Rate constant increases exponentially with decreasing activation energy and increasing temperature

**8.** A graph of volume of hydrogen released vs time for the reaction between zinc and dil.HCl is given in figure. On the basis of this mark the correct option.




Ⓐ Average rate upto 40 seconds $\frac{V_3 - V_2}{40}$

Ⓑ Average rate upto 40 seconds is $\frac{V_3 - V_2}{40 - 30}$

Ⓒ Average rate upto 40 seconds is $\frac{V_3}{40}$

Ⓓ Average rate upto 40 seconds is $\frac{V_3 - V_1}{40 - 20}$

9. Which of the following statements is not correct about order of a reaction?
   Ⓐ The order of a reaction can be a fractional number
   Ⓑ Order of a reaction is experimentally determined quantity
   Ⓒ The order of a reaction is always equal to the ??? of the stoichiometric coefficients of reactants in the blanced chemical equation for a reaction
   Ⓓ The order of a reaction is the sum of the powers ???? molar concentration of the reactants in the rate law expression

10. Consider the graph given in previous question. Which of the following options does not show instantaneous rate of reaction at 40th second?
   Ⓐ $\frac{V_5 - V_2}{50 - 30}$ Ⓑ $\frac{V_4 - V_2}{50 - 30}$ Ⓒ $\frac{V_3 - V_2}{40 - 30}$ Ⓓ $\frac{V_5 - V_1}{40 - 20}$

## II. Long Answer Type Questions:

11. All energetically effective collision do not result in a chemical change.
   Explain with the help of an example.

**[Hints : NCERT, vol-I, Pg-83]**

12. What happens to most probable kinetic energy and the energy of activation with increase in temperature?

**[Hints : NCERT, Vol-1, Pg-80]**

13. Describe how does the enthalpy of reaction remain unchanged when a catalyst is used in the reaction.

**[Hints : NCERT, vol-I, Pg-82]**

14. Explain the difference between instantaneous rate of a reaction and average rate of a reaction.

**[Hints : NCERT, vol-I, Pg-62, 63, 64]**

15. With the help of an example, explain what is meant by pseudo first order reaction?

**[Hints : NCERT Vol-I, Pg-78]**



## ANSWER

1. Ⓒ
2. Ⓒ
3. Ⓑ
4. Ⓐ
5. Ⓑ
6. Ⓐ
7. Ⓓ
8. Ⓒ
9. Ⓒ
10. Ⓐ