



Class 12 Chemistry | Chemical Kinetics

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. For rate = $k[A]^2[B]$, the overall reaction order is:

- A. 3 B. 1 C. 2 D. 0

2. If rate = $k[A]^2$, doubling $[A]$ changes rate by a factor:

- A. 8 B. 1 C. 2 D. 4

3. For a first-order reaction, the unit of k is:

- A. $L\ mol^{-1}\ s^{-1}$ B. s^{-1}
C. $mol\ L^{-1}\ s^{-1}$ D. $L^2\ mol^{-2}\ s^{-1}$

4. For a zero-order reaction, the unit of k is:

- A. $mol\ L^{-1}\ s^{-1}$ B. $mol^{-1}\ s^{-1}$ C. $L\ mol^{-1}\ s^{-1}$ D. s^{-1}

5. A first-order reaction has $k = 0.0231\ min^{-1}$. Its half-life is:

- A. 15 min B. 60 min C. 3 min D. 30 min

6. After three half-lives of a first-order reaction, the fraction remaining is:

- A. $1/8$ B. $1/6$ C. $1/3$ D. $3/8$

7. A first-order half-life is independent of:

- A. Temperature
B. Activation energy indirectly
C. Initial concentration
D. Rate constant

8. For zero-order kinetics, a straight-line plot is:

- A. $\ln[A]$ versus t B. $[A]$ versus t
C. Rate versus $1/t$ D. $1/[A]$ versus t

9. Slope of $\ln[A]$ versus time for first-order kinetics is:

- A. $1/k$ B. $+k$ C. $-k/2.303$ D. $-k$

10. In $A \rightarrow \text{products}$, $[A]$ falls from 0.50 to 0.30 M in 20 s. Average disappearance rate is:

- A. $0.004\ M\ s^{-1}$ B. $0.020\ M\ s^{-1}$
C. $0.010\ M\ s^{-1}$ D. $0.040\ M\ s^{-1}$

11. For $2A \rightarrow B$, $d[B]/dt = 0.020\ M\ s^{-1}$. $-d[A]/dt$ is:

- A. $0.010\ M\ s^{-1}$ B. $0.080\ M\ s^{-1}$
C. $0.020\ M\ s^{-1}$ D. $0.040\ M\ s^{-1}$

12. A catalyst increases rate mainly by:

- A. Lowering activation energy
B. Changing equilibrium constant
C. Increasing reaction enthalpy
D. Increasing product energy

13. In an Arrhenius plot of $\ln k$ against $1/T$, slope is:

- A. $-R/E_a$ B. E_a/R C. E_a D. $-E_a/R$

14. Molecularity of an elementary reaction must be:

- A. Always two
B. A positive integer
C. Zero or fractional
D. Always equal to overall order

15. Hydrolysis of an ester in a large excess of water may show:

- A. Negative molecularity
B. Pseudo-first-order kinetics
C. No concentration dependence at all
D. Zero activation energy

ANSWER KEY — check after completing all 15 questions

1.A 2.D 3.B 4.A 5.D 6.A 7.C 8.B 9.D 10.C 11.D 12.A 13.D 14.B 15.B