

Chemistry Worksheets Class 12 on Chapter 4 Chemical Kinetics with Answers - Set 4

Q-1: The increase in the rate of the reaction with every 10° rise in the temperature is:

- a.) Twice the initial rate
- b.) Half of the initial rate
- c.) Thrice of the initial rate
- d.) ten times of the initial rate

Q-2: The rate of the reaction $A + B + C \rightarrow \text{Products}$ is :

$$-d[A] / dt = k[A]^{1/2}[B]^{1/2}[C]^{1/2}$$

The order of the reaction is _____.

- a.) 1/2
- b.) 2
- c.) 13/12
- d.) 1

Q-3: DDT decomposes when it comes in contact with water. The half-life period of DDT is 10 years. Calculate the time required for its 99% decomposition.

Q-4: In the rate expression, the term $-dx/dt$ refers to _____.

- a.) the instantaneous rate of the reaction
- b.) the concentration of the reactants
- c.) the increase in concentration of the reactants
- d.) the average rate of the reaction

Q-5: Give reason for the following:

Coal does not burn itself in air. However, once the burning is initiated by a flame, the coal keeps burning.

Q-6: According to the Collision theory:

- a.) all collisions are sufficiently violent for the reaction
- b.) all collisions are effective
- c.) all collisions result in product formation
- d.) only a few collisions which have the sufficient energy are effective and result in product formation

Q-7: Why does the equilibrium constant remain unchanged even when a catalyst is used for the reaction?

Q-8: Differentiate between the order and the molecularity of a reaction.

Q-9: The rate of a reaction depends on

- a.) the active mass of the reactant
- b.) the molecular mass of the reactant
- c.) the atomic mass of the reactant
- d.) the equivalent mass of the reactant

Q-10: Give an example of a first order reaction.

Q-11: A reactant with initial concentration 'a' undergoes a zero order reaction. How much time will the reaction take for completion?

Q-12: Which is the rate determining step of a chemical reaction?

Q-13: Give reason for the following observation:

1 gram of pulverised wood burns faster than a piece of wood weighing 1 gram.

Q-14: At 27 °C, the activation energy of a reaction reduces by 2 kcal due to the presence of a catalyst. Calculate the increase in the rate of the reaction. (Given $R = 2 \times 10^{-3} \text{ kcal K}^{-1} \text{ mol}^{-1}$)

Q-15: The catalyst

- a.) decreases the activation energy of the reaction
- b.) increases the collision frequency
- c.) increases the activation energy of the reaction
- d.) increases the average kinetic energy of reactants

Q-16: The concentration of A takes 10 minutes to change from 0.5 mol L^{-1} to 0.4 mol L^{-1} in the given reaction: $2A \rightarrow \text{Products}$. What must be the rate of the reaction during this interval?

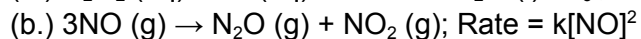
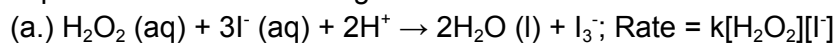
Q-17: Match the following.

Note:- More than 1 option of column I can have the same answer in Column II.

	Column I		Column II
a.	Rate of reaction	(i)	s^{-1}

b.	First order rate constant	(ii)	$\text{mol L}^{-1} \text{s}^{-1}$
c.	Second order rate constant	(iii)	mol L^{-1}
d.	Zero order rate constant	(iv)	$\text{L mol}^{-1} \text{s}^{-1}$

Q-18: Determine the order of the reactions and the dimensions of the rate constants for the given rate expressions of the following reactions:



Q-19: What is the effect of temperature on the rate constant of a reaction?

Q-20: The rate constant of a first order reaction is $1.15 \times 10^{-3} \text{s}^{-1}$. Calculate the time taken by the reactant to reduce from 5 g to 3 g.