

Chemical Kinetics

Std. XII
CHEMISTRY

Time: 30 mts
Max.Marks: 25

- Acid hydrolysis of an ester is an example for
 - zero order reaction
 - pseudofirst order reaction
 - second order reaction
 - third order reaction
- The unit of zero order rate constant is
 - sec^{-1}
 - $\text{mol} - \text{lit}^{-1} - \text{sec}^{-1}$
 - $\text{lit} - \text{mol}^{-1} \text{sec}^{-1}$
 - $\text{lit}^{-2} - \text{mol}^2 - \text{sec}^{-1}$
- Arrhenius equation is
 - $k = \frac{x}{t}$
 - $\frac{dx}{dt} = kt$
 - $k = Ae^{-Ea/RT}$
 - $K = A \cdot e^{-Ea/T}$
- The sum of the powers of the concentration terms that occur in the rate law equation is called
 - rate constant
 - rate
 - molecularity
 - order
- The order of decomposition of HI on gold surface is
 - 0
 - 1
 - 2
 - 3
- The half life period ($t_{1/2}$) of a first order reaction is equal to
 - $0.693 k$
 - $2.303 \log k$
 - $\frac{0.693}{k}$
 - $\frac{k}{0.693}$
- Which one of the following is an example for first order reaction.
 - Iodination of acetone
 - Decomposition of hydrogen peroxide
 - Decomposition of HI on gold surface
 - Oxidation of KI by potassium per disulphate
- A straight line parallel to x -axis is obtained by plotting $\frac{dx}{dt}$ against $(a-x)$ in a
 - zero order reaction
 - first order reaction
 - second order reaction
 - third order reaction
- The slope of Arrhenius plot is having a value.
 - $\frac{k}{2.303}$
 - $\frac{E_a}{R}$
 - $\frac{-E_a}{2.303R}$
 - $\frac{-2.303 E_a}{R}$
- The half life period of second order reaction is proportional to
 - a^1
 - a^0
 - a^{-2}
 - a^{-1}
- The unit of activation energy is
 - sec^{-1}
 - $\text{Jk}^{-1} \text{mol}^{-1}$
 - J mol^{-1}
 - $\text{K}^{-1} \text{mol}^{-1}$

12. The rate constant of decomposition of N_2O_5 in CCl_4 is
- a $k = \frac{2.303}{t} \log \frac{V_t}{V_\alpha - V_t}$ b $k = \frac{2.303}{t} \log \frac{V_\alpha}{V_\alpha - V_t}$
- c $k = \frac{2.303}{t} \log \frac{V_\alpha - V_0}{V_\alpha - V_t}$ d $k = \frac{2.303}{t} \log \frac{V_\alpha}{V_t}$
13. The $t_{1/2}$ of a reaction is 12.5 days. The percentage of radioactive element left after 50 days is
- a 50% b 12.5% c 6.25% d 37.5%
14. The activation energy of a reaction can be lowered by
- a lowering temperature b removing products
- c lowering pressure d adding a catalyst
15. Which one of the following is a second order reaction
- a $2 NO + O_2 \rightarrow 2 NO_2$
- b Dissociation of H_2O_2 in solution
- c Dissociation of HI on the surface of gold
- d $K_2S_2O_8 + 2KI \rightarrow 2K_2SO_4 + I_2$
16. If the activation energy is high, then the rate of the chemical reaction is
- a high b moderate
- c low d cannot be predicted
17. If the rate of the reaction is independent of initial concentration of the reactant, then it is a _____ order reaction
- a third b second
- c first d zero
18. If 25% of a radioactive element is left after 40 days, then its half life period is
- a 4 days b 10 days
- c 20 days d 80 days
19. The number of moles of water in 1 litre is
- a 50.5 b 55
- c 55.05 d 55.55
20. The integrated rate expression for first order reaction is
- a $k = \frac{2.303}{t} \log \frac{a}{a-x}$ b $k = \frac{x}{t}$
- c $t = \frac{x}{ta(a-x)}$ d $k = \frac{xt}{a}$
21. The half life period for n^{th} order reaction is proportional to
- a $a^{(n-1)}$ b a^{-n}
- c $a^{(1-n)}$ d a^{1+n}
22. The minimum amount of energy a molecule should possess for an effective collision is
- a Internal energy b Potential energy
- c Threshold energy d Activation energy
23. The additional energy required by the molecules to attain the threshold energy is
- a activation energy b threshold energy
- c internal energy d kinetic energy
24. The parallel reactions are also called as
- a reversible reactions b consecutive reactions
- c combination reactions d side reactions
25. The reactions which take place in a sequence of a number of elementary steps are called
- a simple reactions b ionic reaction
- c molecular reactions d complex reactions