




Reaction Kinetics

Sr	Questions	Answers Choice
1	The reaction rate is expressed in the units of	A. $\text{mol dm}^{-3}\text{s}^{-1}$ B. mol dm^{-3} C. $\text{mol dm}^{-3}\text{N}^{-1}$ D. $\text{dm}^{-3}\text{s}^{-1}$
2	With the progressive of the reaction the slope of the curve between concentration of product and time	A. Gradually becomes more steep B. Gradually becomes less steep C. No change occurs in slope D. None of these occurs
3	The rate of reaction determined at a given time is called	A. Average rate B. Instantaneous rate C. Specific rate D. Overall rate
4	In the expression rate = $K[A]^a[B]^b$ K is	A. The order of reaction B. The speed of reaction C. The specific rate constant D. The overall order of reaction
5	Question Image	A. Zero B. 253 sec C. 150 sec D. 500 sec
6	The chemical method used for determination of rate of reaction is	A. Spectroscopic B. Conductimetric C. Refractometric D. Titration
7	Activation energy is the difference of energy between the energy of the reactant and	A. The product B. The activated complex C. Both a and b D. None of these
8	Factor which slows down the rate of reaction is	A. Small size of the particles of the reactant B. High temperature of reaction C. More concentration of reactant D. Lowering the temperature
9	A substance which increases the rate of a reaction without being consumed during the reaction is called	A. An autocatalyst B. A catalyst C. A negative catalyst D. All of these
10	Which statement is not correct	A. Enzymes catalyst a specific reaction B. Enzymes show catalytic activity at a specific temperature C. The catalytic activity of enzymes is stopped if optimum pH is changed D. The catalytic activity is poisoned by a co-enzymes
11	The unit of rate of reaction is	A. mole dm^{-3} B. mole Kg^{-1} C. $\text{moles dm}^{-3}\text{sec}^{-1}$ D. grams dm^{-3}
12	Question Image	A. Small change in concentration of product B. Small time interval C. Co-efficient of the reactant D. Co-efficient of the product
13	In the rate equation when the concentration of reactants are unity, then rate is equal to	A. Instantaneous rate B. Average rate C. Active mass of products D. Specific rate constant
14	The rate of reaction determined at a given time is called	A. Average rate B. Instantaneous rate C. Specific rate D. Overall rate
15	The rate of reaction between two specific time intervals is called	A. Instantaneous rate B. Average rate C. Specific rate

		D. Ordinary rate
16	In the hydrolysis of $\text{CH}_3\text{COOC}_2\text{H}_5$ the acid produced is	A. Inhibitor B. Catalyst C. Auto catalyst D. None of above
17	The sum of the exponents of the conc. terms in the rate equation is called	A. Rate of reaction B. Order of reaction C. Specific rate constant D. Average rate
18	The rate of reaction is denoted by	A. $\frac{dc}{dp}$ B. $\frac{dc}{ac}$ C. $\frac{dc}{dT}$ D. $\frac{dc}{dt}$
19	Question Image	A. Zero B. 1 C. 2 D. 1.5
20	Question Image	A. First order B. Pseudo first order C. Second order D. Zero order
21	Question Image	A. $\text{Rate} = k[\text{FeCl}]^3 [\text{KI}]^2$ B. $\text{Rate} = k[\text{Fe}]^3 [\text{Cl}]^{-1} [\text{KI}]$ C. $\text{Rate} = k[\text{Fe}]^3 [\text{Cl}]^{-1} [\text{K}]$ D. $\text{Rate} = k[\text{KI}]^3 [\text{FeCl}]^3$
22	The experimental relationship between a reaction rate and the concentration of reactants is called	A. Order or reaction B. Rate law C. Activated complex D. Molecularity
23	When the rate of reaction is entirely independent of the conc. of reaction molecules then order of reaction is	A. Zero B. First C. Second D. Third
24	If half life period of a reaction is independent of the concentration of the reactants, then the reaction is	A. Zero order B. First order C. Second order D. Order is in fraction
25	If initial concentration of the reactants and half life period of the reaction is known, then we can determine	A. Average rate of reaction B. Order of reaction C. Rate constant k D. Instantaneous rate
26	When initial concentration of reactants an order of reaction is given, then its half life period can be calculated by the equation	
27	Question Image	A. Rate is independent of concentration of water since it is in excess B. Rate is independent of concentration of ester since it is in excess C. Rate depends upon the concentration of acid catalyst added D. $\text{Rate} = k[\text{CH}_3\text{COOC}_2\text{H}_5]^{1/2} [\text{H}_2\text{O}]^{1/2}$
28	Question Image	
29	The unit of rate constant k is the same as that of the rate of reaction in	A. First order reaction B. Second order reaction C. Third order reaction D. Zero order reaction
30	Value of rate constant k is specific for a reaction, and varies from reaction to reaction. The value of k of a reaction changes with	A. Time B. Temperature C. Concentration of reactants D. Order of reaction
31	The reaction rate is expressed in the units of	A. $\text{mol dm}^{-3} \text{s}^{-1}$ B. mol dm^{-3} C. $\text{mol dm}^{-3} \text{N}^{-1}$ D. $\text{dm}^{-3} \text{s}^{-1}$
32	To determine the rate of reaction chemically a graphical method is applied. A graph is plotted between the amount or reactant decomposed or product formed against the time. The rate $\frac{dx}{dt}$ at any time is equal to	A. k B. $\text{Tangent} = \frac{dx}{dt}$ C. $\frac{1}{a}$, a is initial conc. D. $\frac{1}{a^2}$

33	If a reactant or product of a reaction absorbs radiation, then physical method for determining the rate of reaction is	A. Spectrometry B. Refractometry C. Conductivity measurement D. Optical method
34	Refractometric method is used when	A. Reactions involving absorption of I.R. or U. V B. Reactions involving change of refractive index C. Reactions involving ions D. Change of optical activity
35	Dilatometric method is used for rate determination when	A. Reactions involving change of optical B. Reactions involving change of optical activity C. Reactions involving small volume change D. None of above
36	Optical rotation method is used when	A. Reaction involve ions B. Change of refractive indices C. Reactions involving change of optical activity D. None of the above
37	Question Image	A. Measuring pH B. Measuring density C. Titration against standard NaOH D. Titration against standard KMnO_4 solution
38	For a chemical reaction to take place the particles must have sufficient energy for the effective collisions, the energy is called	A. Average energy B. Activation energy C. Potential energy D. Collision energy
39	For effective collisions the molecules slow down before collision and their kinetic energy decreases which results in increase in their	A. Activation energy B. Average energy C. Potential energy D. Collisions frequency
40	By the use of catalysis the energy of activation is	A. Decreased B. Increased C. Not affected D. None
41	In the hydrolysis of $\text{CH}_3\text{COOC}_2\text{H}_5$ the acid produced is	A. Inhibitor B. Catalyst C. Auto catalyst D. None of above
42	In exothermic reaction decrease in potential energy of the products will result in	A. Decreases in kinetic energy of the particles B. Increases in kinetic energy of the particles C. No change in kinetic energy D. Decreases in activation energy
43	Question Image	A. Initial concentration of reaction B. Initial concentration of products C. Final concentration of products D. Order of the reaction
44	When we perform the same reaction by taking two different initial concentrations of a reactant for a second order reaction then	A. Reaction becomes exothermic B. Energy of activation is different C. Mechanism of reaction is changed D. Half life period is changed
45	Question Image	A. Three times B. Six times C. Nine times D. Two times
46	Question Image	A. 1st order B. 2nd order C. Zero order D. 3rd order
47	Half life period of N_2O_5 is 24 minutes and it remains same where we increase or decrease its initial concentration, then reactions	A. Zero order B. First order C. Second order D. Third order
48	Half life period of a reaction is inversely proportion to the initial concentration of the reactant, then order of reaction is	A. Third order B. Second order C. First order D. Zero order
49	In thermal decomposition of N_2O the half life period for two different initial concentrations of N_2O are (i) 255 second for initial N_2O 290 mm Hg (ii) 212 second for initial N_2O 360 mm Hg then it is	A. Zero order B. First order C. Second order D. Third order

50	Decreases in concentration of reactant is denoted by	A. $\frac{dc}{dt}$ B. $-\frac{dc}{dt}$ C. $+\frac{dc}{dt}$ D. None
51	In an experiment the concentration of a reactant 'A' is doubled the rate increases four times. If concentration is tripled, then rate increases nine times. Thus the rate is proportional to _____ of concentration of 'A'	A. Square root B. Square C. Twice D. Cube
52	Group I-A elements react with water faster than the reaction of group II-A elements because	A. I_A elements are more soft than II_A B. I_A elements are non-metals C. I_A elements have 1 electron in their outermost s-orbital and are strongly electropositive D. I_A elements make ionic bond
53	The actual number of atoms or molecules taking part in rate determining step is	A. Rate of reaction B. Velocity of reaction C. Order of reaction D. Molecularity
54	Which one of the following reaction rate is affected by the light	
55	Which of the following is not affected by light	
56	The factor which affects the rate of reaction	A. Nature of reactants B. Surface area C. Light D. All of the above
57	With increases in temperature of 10 K of the reacting gases the rate of reaction is doubled because	A. Increase in number of collisions B. Number of molecules having energy more than E_a is doubled C. Increase in order of reaction D. Increase in surface area
58	The rate constant k of a reaction, activation energy E_a and temperature are related by Arrhenius in the form of an equation which is	
59	Which statement about Arrhenius equation is incorrect	A. Factor 'A' called Arrhenius constant depends upon collision frequency of reactants B. Rate of reaction increases by increasing temperature C. Rate constant k is increased D. Activation energy E_a is decreased by rise in temperature
60	The value of activation energy E_a of a reaction can be determined from the value of slope of the straight line obtained by plotting a graph between $1/T$ and $\log k$. The value of E_a is equal to	A. Slope B. $1/\text{Slope}$ C. Slope $\times R$ D. Slope $\times 2.303 R$
61	A catalyst is a substance which increases the rate of a chemical reaction, but remains unchanged at the end of reaction, but remains unchanged at the end of reaction, because	A. It increases the temperature B. It increases the surface area C. It increases the rate constant D. It decreases the energy of activation
62	Homogeneous catalysis is that in which catalyst and reactants are in same phase. Which one of the following reaction is a homogeneous catalysis	
63	Which one of the following is a heterogeneous catalysis	
64	Platinum is poisoned by	A. Arsenic B. Silver C. Argon D. Zinc
65		A. Homogeneous B. Heterogeneous C. Isogeneous D. None
66	The effective activity of a metal catalyst is increased if it is in	A. Solid form B. Liquid state C. Gaseous state D. Finely divided form
67	The catalytic activity of Pt is much higher when	A. It is mixed with asbestos B. It is mixed with Pd C. It is mixed with arsenic D. It is made colloidal platinum
68	In the manufacture of NH_3 by Haber's process catalyst used is iron its catalytic efficiency is poisoned by	A. Presence of Al_2O_3 B. Presence of Cr_2O_3 C. MnO_2 D. CO present with H_2 gas

69	Hydrogenation of vegetable oils is accelerated by Ni catalyst. The catalytic activity of Bi is increased by a promoter of activator which is	A. Na and K B. Na and Hg C. Hg and Zn D. Cu and Te
70	In the reaction of oxalic acid with KMnO_4 and H_2SO_4 is slow at the beginning but after sometimes the reaction becomes faster due to	A. Formation of MnSO_4 which acts as 'Auto catalyst' B. Formation of CO_2 which acts as 'Auto catalyst' C. Formation of K_2SO_4 which acts as 'Auto catalyst' D. Evolution of O_2 gas which acts as 'Auto catalyst'
71	When copper is allowed to react with HNO_3 , the reaction is slow in the beginning, finally becomes very fast. It is due to the formation of an auto catalyst which is	A. $\text{Cu}(\text{NO}_3)_2$ B. CuO C. O_2 D. HNO_2
72		A. Diastase B. Lipase C. Inverters D. Zymase
73	Complex protein molecules which catalyses the organic reactions in the living cells are called	A. Living organisms B. Enzymes C. Viruses D. Bacteria
74	_____ are called biocatalysts	A. Organic acids B. Organic bases C. Enzymes D. All
75	The number of atoms or molecules whose concentrations determine the rate of the reaction is called	A. Molecularity B. Order C. Rate of reaction D. Rate constant
76	The experimental relationship between a reaction rate and the concentration of reactants is known as	A. Order B. Molecularity C. Rate constant D. Rate law
77	Which of the following factors does not influenced the rate of reaction	A. Concentration of the reaction B. Nature of the reactants C. Molecularity of the reaction D. Temperature
78	The addition of a catalyst to a reaction changes the	A. Enthalpy B. Entropy C. Nature of reactants D. Energy of activation
79	If the rate of reaction is independent of the concentration of the reactant, the reaction is of	A. Zero order B. First order C. Second order D. Third order
80		A. 2 B. 3 C. 4 D. 9
81	A white precipitate of silver chloride immediately formed on addition of :	A. Silver nitrate solution to sodium chloride solution. B. Silver chloride solution to sodium nitrate solution. C. Silver nitrate solution to potassium chloride solution D. Silver nitrate solution to hydrogen chloride solution.
82	A white precipitate of silver chloride immediately formed on addition of :	A. Silver nitrate solution to sodium chloride solution. B. Silver chloride solution to sodium nitrate solution. C. Silver nitrate solution to potassium chloride solution D. Silver nitrate solution to hydrogen chloride solution.
83	Which of the following reactions occur at moderate rate :	A. Rusting of iron B. Chemical weathering of stone work of buildings by acidic gases in atmosphere. C. Hydrolysis of an ester D. Fermentation of sugars
84	All reactions occur in :	A. A single step. B. A series of steps C. Two steps. D. Both (a) and (b)
85	The rate determining step is the :	A. Slowest step. B. Fastest step. C. Moderate step. D. None of these

		D. Both (a) and (b).
86	Which of the following will affect the rate :	A. First step of reaction. B. Last step of reaction. C. Rate determining step. D. Fastest step.
87	It is common observation that rates of chemical reactions differ :	A. Greatly. B. A little bit. C. Moderately.
88	Which of the following may affect the rate constant (k) for a reaction :	A. Change in concentration. B. Change in pressure. C. Change in pH. D. Change in temperature.
89	The change in concentration of reactant or product per unit time is called :	A. Rate constant. B. Rate of reaction. C. Rate equation. D. Rate law.
90	Rate of chemical reaction depends upon :	A. The number of total collisions per second. B. Number of molecules taking part in a chemical reaction. C. Number of fruitful collisions per second D. Number of fruitless collisions per second.
91	Which statement is true about order of reaction :	A. Order of reaction can only be determined by an experiment. B. Order of reaction can be determined from a balance equation only. C. Order of reaction increase by increasing temperature. D. Order of reaction must be in whole number and not in fraction.
92	The unit of rate constant K is $\text{mole}^{-1} \text{dm}^3 \text{s}^{-1}$ for a chemical reaction, the order of reaction is :	A. Order of reaction can determined by an experiment B. Order of reaction can determined from a balance equation only. C. Order of reaction can determined increases by increasing temperature. D. Order of reaction must be in whole number and not in fraction.
93	The unit rate of constant K is $\text{mole}^{-1} \text{dm}^3 \text{s}^{-1}$ for a chemical reaction, the order of reaction is :	A. 3 B. 2 C. 1 D. 0
94	Hydrolysis of ethyl-acetate (ester) has order of reaction :	A. 3 B. 2 C. 1 D. 1
95	If rate law of an equation is written as $\frac{dx}{dt} = k[A][B]$?	A. Reaction is independent of the concentration of A and B. B. Product is decreasing with passage of time. C. Reactant is increasing with passage of time. D. Reactant is increasing with passage of time.
96	The example of a photo chemical reaction is photosynthesis has order of reaction :	A. 1 B. 2 C. 0 D. 3
97	Rate law of an equation is obtained :	A. From a balance equation. B. Can be calculated theoretically as well as determined experimentally. C. It is only calculated theoretically. D. Experimentally.
98	A pseudo uni-molecular reaction has order of reaction :	A. 3 B. 2 C. 1 D. 0
99	A zero order reaction is one in which :	A. Rate is not affected by changing concentration of reactants. B. concentration of reactants do not change with the passage of time. C. Reactants do not react. D. One reactants in large excess.
100	The rate equation for a reaction is $\text{Rate} = k[A]$. what are unit of K ?	A. $\text{Mole}^{-1} \text{dm}^3 \text{s}^{-1}$ B. $\text{Mole dm}^3 \text{s}^{-1}$ C. $\text{Mole}^3 \text{dm}^3 \text{s}^{-1}$ D. $\text{Mole}^3 \text{dm}^3 \text{s}^{-1}$

D. $\frac{1}{[A]^2}$

101	The unit of the rate constant is the same as that of rate of reaction in :	<p>A. Third order reaction</p> <p>B. Second order reaction</p> <p>C. First order reaction</p> <p>D. Zero order reaction</p>
102	Half life period of a first order reaction is independent of:	<p>A. Presence of catalyst.</p> <p>B. Conditions of temperature</p> <p>C. Initial concentration of the compound</p> <p>D. All of above</p>
103	If the rate of decay of radioactive isotope decreases from 200 cpm to 25 cpm after 24 hours, what is its half life :	<p>A. 8 hours</p> <p>B. 6 hours</p> <p>C. 4 hours</p> <p>D. 3 hours</p>
104	The rate of reaction b/w two specific time intervals is called :	<p>A. Instantaneous rate of reaction.</p> <p>B. Average rate of reaction.</p> <p>C. Rate of a reaction.</p> <p>D. Minimum rate of a reaction.</p>
105	Dilatometer method is useful for the reaction that involve :	<p>A. Small volume changes in solutions</p> <p>B. Change in refractive indices</p> <p>C. Where reactants absorb U.V, visible or infrared radiation</p>
106	The rate of reaction :	<p>A. Decreases as the reaction proceeds</p> <p>B. Increases as the reaction proceeds</p> <p>C. May decrease or increase reaction proceeds</p> <p>D. Remains same as the reaction proceeds</p>
107	Which technique is used to determine the absorption of radiations?	<p>A. Dilatometer method</p> <p>B. Optical rotation method</p> <p>C. Spectrometry</p> <p>D. Refractometric method</p>
108	In zero order reaction, the rate is independent of :	<p>A. Temperature of reaction</p> <p>B. Concentration of reactants</p> <p>C. Concentration of products</p> <p>D. None of these.</p>
109	If the rate equation of a reaction $2A + B \rightarrow \text{Products}$ is , Rate = $k[A][B]$, and A is present in large excess, then order of reaction is :	<p>A. 1</p> <p>B. 2</p> <p>C. 3</p> <p>D. Above</p>
110	The rate of reaction :	<p>A. Increase as the reaction proceeds.</p> <p>B. Decreases as the reaction proceeds.</p> <p>C. Remains the same as the reaction proceed.</p> <p>D. May decrease or increase as the reaction proceeds.</p>
111	With increases of 10°C temperature the rate of reaction doubles. This increase in rate of reaction is due to :	<p>A. Decrease in activation energy of reaction.</p> <p>B. Decrease in number of collisions between reactant molecules.</p> <p>C. Increase in activation energy of reactants.</p> <p>D. Increase in number of effective collisions</p>
112	The unit of rate constant is the same as that of the rate of reaction in :	<p>A. First order reaction.</p> <p>B. Second order reaction.</p> <p>C. Zero order reaction.</p> <p>D. Third order reaction.</p>