



TEST

Practice Test-1 (8A: Chemical Kinetics)



10 Questions



10 min

Topics

REACTION KINETICS, Rate of Reaction and Determination of the Rate of Reaction, Energy of Activation, Catalysis, Types of Catalysis, Enzyme catalysis

[Start Test](#)

09 : 59



1/10



10 min



Hint

Q : The rate of reaction decreases how many times when temperature drops from 150K to 120K.



Two



Four



Eight



Sixteen

1

2

3

4

5

6

7

09 : 58



2/10



10 min



Hint

Q : The value of activation energy of chemical reaction is primarily determined by



Nature of reacting species



Temperature



Number of collisions per unit time



Concentration of species

1

2

3

4

5

6

7

09 : 57



3/10



10 min



Hint

Q : Which statement is incorrect about activated complex



Short lived



Maximum energy



Unstable combination of atoms



Less energy than E_a

1

2

3

4

5

6

7

09 : 56



4/10



10 min



Hint

Q : Enzymes are complex protein molecules and catalyze the

A

B

C

D

1

2

3

4

5

6

7

09 : 54



4/10



10 min



Hint

Q : Enzymes are complex protein molecules and catalyze the



Organic reactions in the non-living cells



Inorganic reactions in the living cells



Organic reactions in the living cells



Inorganic reactions in the non-living cells

1

2

3

4

5

6

7

09 : 52



5/10



10 min



Hint

Q : A catalyst is a substance which



Increases the equilibrium concentration of the product



Increases the equilibrium constant of the reaction



Supplies energy to the reaction



Shortens the time to reach equilibrium

1

2

3

4

5

6

7

09 : 52



6/10



10 min



Hint

Q : Anything which increases rate of reaction without being involved in the reaction



Promoter



Catalyst



Inhibitor



All of the above

1

2

3

4

5

6

7

09 : 51



7/10



10 min



Hint

Q :

For a chemical reaction $A \rightarrow B$ it is found that the rate of reaction doubles when the concentration is increased four times. The order of A for this reaction is



Two



One



Zero



Half

1

2

3

4

5

6

7

09 : 48



9/10



10 min



Hint

Q :

The formation of $\text{SO}_3(\text{g})$ from $\text{SO}_2(\text{g})$ and $\text{O}_2(\text{g})$ in the lead chamber process for the manufacture of sulphuric acid is the example of

A

Homogeneous catalysis

B

Heterogeneous catalysis

C

Auto catalyses

D

Negative catalyses

4

5

6

7

8

9

10

09 : 47



10/10



10 min



Hint

Q : Rate expression of two reactions are given below

(1) $\text{rate} = k[A]^2$

(2) $\text{rate} = k[A][B]$

which one is correct

A

Both have different order

B

Both have same order

C

Equation 1 is 1st order while equation 2 is 2nd order

D

Equation 1 is 2nd order while equation 2 is 1st order

4

5

6

7

8

9

10



Correct



Unattempted



Incorrect



1/10

Q : The rate of reaction decreases how many times when temperature drops from 150K to 120K.



Two



Four



Eight



Sixteen



Correct



Unattempted



Incorrect



2/10

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A

B

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D

1

2

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Unattempted



Incorrect



2/10

Q : The value of activation energy of chemical reaction is primarily determined by



A Nature of reacting species



B Temperature



C Number of collisions per unit time



D Concentration of species



Correct



Unattempted



Incorrect



3/10

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Short lived



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Incorrect



4/10

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Organic reactions in the non-living cells



Inorganic reactions in the living cells



Organic reactions in the living cells



Inorganic reactions in the non-living cells



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Unattempted



Incorrect



5/10

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Two



One



Zero



Half

1

2

3

4

5

6

7



Correct



Unattempted

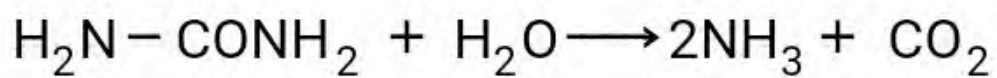


Incorrect



8/10

Q : Indicate the enzyme which catalyses the following reaction



Zymase



Invertase



Urease



Diastase



Correct



Unattempted



Incorrect



9/10

Q :

The formation of $\text{SO}_3(\text{g})$ from $\text{SO}_2(\text{g})$ and $\text{O}_2(\text{g})$ in the lead chamber process for the manufacture of sulphuric acid is the example of



Homogeneous catalysis



Heterogeneous catalysis



Auto catalyses



Negative catalyses



Correct



Unattempted



Incorrect



10/10

Q : Rate expression of two reactions are given below

(1) $\text{rate} = k[A]^2$

(2) $\text{rate} = k[A][B]$

which one is correct



A Both have different order



B Both have same order



C Equation 1 is 1st order while equation 2 is 2nd order



D Equation 1 is 2nd order while equation 2 is 1st order



TEST

Practice Test-2 (8A: Chemical Kinetics)



10 Questions



10 min

Topics

Order of Reaction and Determination of Order of Reaction, Factors Affecting Rates of Reactions including Arrhenius Equation

[Start Test](#)

09 : 59



1/10



10 min



Hint

Q : The half-life of following first order reaction $A \rightarrow B + C$ is 10min. The concentration of A would be reduced to 12.5% of original concentration in



30 min



40 min



70 min



90 min

1

2

3

4

5

6

7

09 : 58



2/10



10 min



Hint

Q : Factor which does not generally affect the rate of reaction



Surface area



Light



Temperature



Pressure

1

2

3

4

5

6

7

09 : 57



3/10



10 min



Hint

Q : The rate constant 'k' is 6.93 min^{-1} . The half life for the 1st order reaction will be



1 min



0.1 min



6.93 min



0.693min

1

2

3

4

5

6

7

09 : 52



Q:

Equation for formation of CCl_4 is shown below

$\text{CHCl}_3 + \text{Cl}_2 \longrightarrow \text{CCl}_4 + \text{HCl}$. The rate equation is $\text{Rate} = k[\text{CHCl}_3][\text{Cl}_2]^{1/2}$ for CCl_4 formation. The order of reaction may be

A $-\frac{1}{2}$

B $\frac{3}{2}$

C 2

D $\frac{-3}{2}$

1

2

3

4

5

6

7

09 : 50



5/10



10 min



Hint

Q : The SI unit of slope of Arrhenius equation has same dimension as



Energy



Temperature



Work



It has no units

1

2

3

4

5

6

7

09 : 49



6/10



10 min



Hint

Q : Photosynthesis a photochemical reaction has order of reaction



0



1



2



Fractional

1

2

3

4

5

6

7

09 : 48



7/10

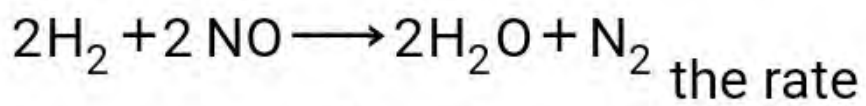


10 min



Hint

Q : For a given equation



equation is $\frac{dx}{dt} = k[\text{H}_2][\text{NO}]^2$ then what is order of reaction



Zero order



First order



Second order



Third order

1

2

3

4

5

6

7

09 : 46



9/10



10 min



Hint

Q : The quantitative relationship between rate and concentration is given by



law of mass action



rate law



both of these



none of these

4

5

6

7

8

9

10

09 : 45



10/10



10 min



Hint

Q : Half life period of first order reaction is



Independent of the initial concentration of the reactant



Depend upon the initial concentration of the reactant



Independent of initial concentration of the product



Depend upon the initial concentration of the product

4

5

6

7

8

9

10



Correct



Unattempted



Incorrect



1/10

Q : The half-life of following first order reaction $A \rightarrow B + C$ is 10min. The concentration of A would be reduced to 12.5% of original concentration in



30 min



40 min



70 min



90 min



Correct



Unattempted



Incorrect



2/10

Q : Factor which does not generally affect the rate of reaction



Surface area



Light



Temperature



Pressure



Correct



Unattempted



Incorrect



3/10

Q : The rate constant 'k' is 6.93 min^{-1} . The half life for the 1st order reaction will be



1 min



0.1 min



6.93 min



0.693min



Correct



Unattempted



Incorrect



4/10

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Equation for formation of CCl_4 is shown below

$\text{CHCl}_3 + \text{Cl}_2 \longrightarrow \text{CCl}_4 + \text{HCl}$. The rate equation is $\text{Rate} = k[\text{CHCl}_3][\text{Cl}_2]^{1/2}$ for CCl_4 formation. The order of reaction may be

 $-\frac{1}{2}$  $\frac{3}{2}$ 

2

1

2

3

4

5

6

7



Correct



Unattempted



Incorrect



5/10

Q : The SI unit of slope of Arrhenius equation has same dimension as



Energy



Temperature



Work



It has no units



Practice Test-2 (8A: Chemical Kin...



Correct



Unattempted



Incorrect



6/10

Q : Photosynthesis a photochemical reaction has order of reaction



0



1



2



Fractional

1

2

3

4

5

6

7



Correct



Unattempted

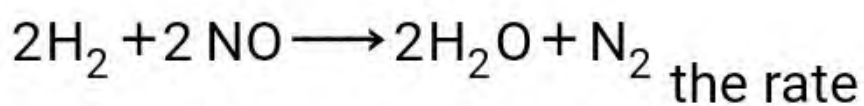


Incorrect



7/10

Q : For a given equation



equation is $\frac{dx}{dt} = k[\text{H}_2][\text{NO}]^2$ then what is
order of reaction



Zero order



First order



Second order



Third order



Correct



Unattempted



Incorrect



8/10

Q : In a reaction $2X + Y \longrightarrow M + N$
if the concentration of Y kept constant and
that of X is trippled. The reaction will be



increase 3 times



increase 27 times



increase 9 times



increase 27 times

3

4

5

6

7

8



Correct



Unattempted



Incorrect



9/10

Q : The quantitative relationship between rate and concentration is given by



law of mass action



rate law



both of these



none of these



Correct



Unattempted



Incorrect



10/10

Q : Half life period of first order reaction is



Independent of the initial concentration of the reactant



Depend upon the initial concentration of the reactant



Independent of initial concentration of the product



Depend upon the initial concentration of the product



Test Level-1 (8A: Chemical Kinetics)



20 Questions



20 min

Topics

REACTION KINETICS, Rate of Reaction and Determination of the Rate of Reaction, Order of Reaction and Determination of Order of Reaction, Factors Affecting Rates of Reactions including Arrhenius Equation, Energy of Activation, Catalysis, Types of Catalysis, Characteristics of a Catalyst, Enzyme catalysis

[Start Test](#)

19 : 58



1/20



20 min



Hint

Q : Arrhenius equation describes the effect of



Temperature on rate of reaction



Volume on rate of reaction



Pressure on rate of reaction



Number of moles on rate of reaction

1

2

3

4

5

6

7

19 : 57



2/20



20 min



Hint

Q : The collision frequency is



Inversely proportional to the concentration of the reacting molecules



Proportional to the concentration of reacting molecules



Equal to the concentration of reactants



Equal to the concentration of products

1

2

3

4

5

6

7

19 : 56



3/20



20 min



Hint

Q : When a product acts as catalyst then it is called



Autocatalysis



Negative catalysis



Promotor



Activator

1

2

3

4

5

6

7



4/20



20 min



Hint

Q : Spectrometry is applied for rate determining when



Reactants or products absorb U.V / VIS or I.R radiations



Reaction involve ion



Reaction involve change in volume



One of the substance is optically active

19 : 54



5/20



20 min



Hint

Q : For endothermic reaction, E_a is activation energy in KJ/mole. The maximum value of enthalpy of reaction (ΔH) will be



Less than E_a



More than E_a



Equal to E_a



Zero

1

2

3

4

5

6

7

19 : 53



6/20



20 min



Hint

Q : In the hydrolysis of ester $\text{CH}_3\text{COOC}_2\text{H}_5$, the acid produced acts as



Inhibitor



Auto-catalyst



Promoter



Catalyst

1

2

3

4

5

6

7

19 : 52



7/20



20 min



Hint

Q : Decrease in the rate of reaction is denoted by



$$dx/dt$$



$$-dx/dt$$



$$dt/dx$$



$$-dt/dx$$

1

2

3

4

5

6

7

19 : 51



8/20



20 min



Hint

Q : Which one is not an example of heterogeneous catalysis



Formation of NH_3 by Haber's process



Ester formation



Formation of SO_3 in contact process



Formation of ghee from edible oil

4

5

6

7

8

9

19 : 50



9/20



20 min



Hint

Q : In homogeneous catalysis, what are in same phase



Reactants and products



Reactants and catalyst



Catalyst and products



Reactant, products and catalyst

4

5

6

7

8

9

19 : 48



10/20



20 min



Hint

Q :

The rate expression of a reaction is, $\text{Rate} = k[A][B]$

What happens to rate of reaction if concentrations of A and B are doubled?



Increases two times



Increase four times



Increases six time



Increases eight times

6

7

8

9

10

11

19 : 48



11/20



20 min



Hint

Q : The catalytic activity of enzymes is greatly enhanced by the presence of



Coenzyme



Apoenzyme



Retarder



Without any substance

6

7

8

9

10

11

19 : 46



12/20



20 min



Hint

Q :

The power to which the concentration of a substance appear in the rate expression is known as



Rate of reaction



Molecularity of reaction



Order of reaction



Rate constant of reaction

9

10

11

12

13

14

15



14/20



20 min



Hint

Q : Which one is incorrect about rate of reaction



At start instantaneous rate is greater than average rate



At start average rate is greater than instantaneous rate



If time approaches to zero instantaneous and average rate become equal



Rate of reaction decreases progressively



15/20



20 min



Hint

Q : If temperature of a reaction is raised from 0°C to 30°C of rate of reaction generally with



Decrease four time



Increase four time



Increase two time



Increase eight times

19 : 42



16/20



20 min



Hint

Q : Which one of the following statements is incorrect?



Enzymes are protein in nature



Enzymes can act as a catalyst



Enzymes can catalyse any reaction



Urease is an enzyme

13

14

15

16

17

18

19 : 41



17/20



20 min



Hint

Q : A substance which itself is not a catalyst but increase the activity of a catalyst is called



Promoter



Poisoner



Inhibitor



Enzyme

13

14

15

16

17

18

19 : 40



18/20



20 min



Hint

Q : Activation energy of a reaction is usually



Unaffected by the presence of catalyst



Low for reaction that takes place slowly



Different for forward and backward reaction



Zero for exothermic reaction

13

14

15

16

17

18

19 : 39



19/20



20 min



Hint

Q : If the rate of decay of radioactive isotope decrease from 200 cpm to 25 cpm after 24 hours. What is its half life?



3 hours



4 hours



6 hours



8 hours

3

14

15

16

17

18

19

19 : 37



20/20



20 min



Hint

Q : In which case half life does not depend upon initial concentration of reactant.



1st order



2nd order



3rd order



both a and b

4

15

16

17

18

19

20



Correct



Unattempted



Incorrect



2/20

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3/20

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6/20

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7/20

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$$-dx/dt$$



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Incorrect



8/20

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9/20

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Reactants and products



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10/20

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Incorrect



12/20

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Molecularity of reaction



Order of reaction



Rate constant of reaction

7

8

9

10

11

12



Correct



Unattempted



Incorrect



13/20

Q:

Measurement of rate of reaction involving change in ionic concentration is followed by



Spectrometric method



Dilatometric method



Refractometric method



Conductometric method



Correct



Unattempted



Incorrect



14/20

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At start average rate is greater than instantaneous rate



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Incorrect



15/20

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Unattempted



Incorrect



16/20

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Unattempted



Incorrect



17/20

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18/20

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19/20

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4 hours



6 hours



8 hours



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Incorrect



19/20

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3 hours



4 hours



6 hours



8 hours



Correct



Unattempted



Incorrect



20/20

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1st order



2nd order



3rd order



both a and b



TEST

Test Level-2 (Topic 8A)



30 Questions



25 min

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Rate of Reaction and Determination of the Rate of Reaction, Order of Reaction and Determination of Order of Reaction, Factors Affecting Rates of Reactions including Arrhenius Equation, Types of Catalysis, Characteristics of a Catalyst

[Start Test](#)

24 : 58



1/30



25 min



Hint

Q : Which change will never happens to a catalyst during a reaction



Appearance



Surface area



Chemical composition



Physical state

1

2

3

4

5

6

7

24 : 56



2/30



25 min



Hint

Q : If during reaction, there is rotation in plane polarized light, then its rate can be determined by



Spectrometry method



Electrical conductivity method



Optical rotation method



Dilatometric method

1

2

3

4

5

6

7

24 : 55



3/30



25 min



Hint

Q : One of the following is not a physical method for determination of rate of reaction



Spectrometry



Refractrometry



Electrical Conductivity



Titrimetry

1

2

3

4

5

6

7

24 : 54



4/30



25 min



Hint

Q : For third order reaction, rate constant has units



$\text{mol dm}^{-3} \text{s}^{-1}$



s^{-1}



$\text{mol}^{-1} \text{dm}^3 \text{s}^{-1}$



$\text{mol}^{-2} \text{dm}^6 \text{s}^{-1}$

1

2

3

4

5

6

7

24 : 53



5/30



25 min



Hint

Q : Slowest step in the reaction is called



Elementary step



Rate law



Rate determining step



Order of reaction

1

2

3

4

5

6

7

24 : 52



6/30



25 min



Hint

Q : The rate of a chemical reaction doubles for every 10°C rise of temperature. If the temperature is raised by 50°C , the rate of the reaction increases by about



16



64



32



08

1

2

3

4

5

6

7

24 : 51



7/30



25 min



Hint

Q : A certain reaction has the rate equation, $\text{Rate} = k[\text{A}][\text{B}]^2$. The rate is $2.5 \times 10^{-3} \text{ mol dm}^{-3} \text{ s}^{-1}$. When $[\text{A}]$ is 0.2 mol dm^{-3} and $[\text{B}]$ is $0.050 \text{ mol dm}^{-3}$. Calculate the numerical value of rate constant



50



5.0



2



0.05

1

2

3

4

5

6

7

24 : 49



8/30



25 min



Hint

Q : Half life of radioactive isotope is 10days. Days required when 12.5% concentration is left behind



10



20



30



40

7

8

9

10

11

12



9/30

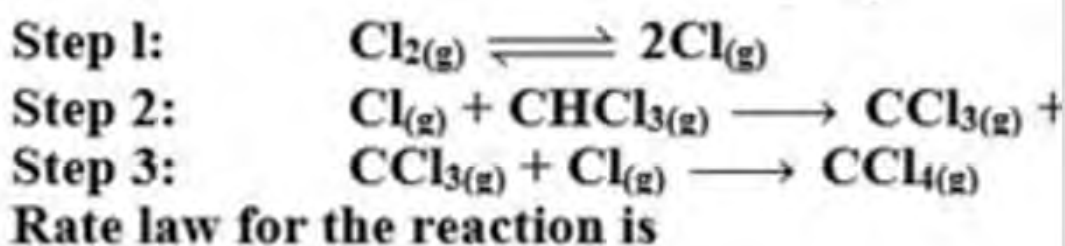


25 min



Hint

Q : The mechanism below has been proposed for the reaction of CHCl_3 with Cl_2



A Rate = $[\text{CHCl}_3][\text{Cl}]^2$

B Rate = $[\text{CHCl}_3][\text{Cl}_2]^{1/2}$

C Rate = $[\text{CCl}_3][\text{Cl}]$

D Rate = $[\text{Cl}_2]$

7

8

9

10

11

12

24 : 47



10/30



25 min



Hint

Q : The order of reaction may be determined by:



Differential



Half-life method



Graphical method



All of these

7

8

9

10

11

12

24 : 46



11/30



25 min



Hint

Q : Half-life of the reaction becomes half when initial concentrations of reactants are doubled. The order of the reaction will be



First order



Second order



Third order



Zero order

7

8

9

10

11

12

24 : 45



12/30



25 min



Hint

Q :

In the hydrolysis of an organic chloride in the presence of large excess of water

$R_3C-Cl + H_2O \rightarrow R_3C-OH + HCl$, order of reaction is



Second order



First order



Third order



Pseudo First order

7

8

9

10

11

12

24 : 44



13/30



25 min



Hint

Q : All are correct about zero order except



All photochemical reactions are zero order



Rate is independent of concentration



Radioactive decay follows zero order



Half life is directly proportional to initial concentration

12

13

14

15

16

17

24 : 41



15/30



25 min



Hint

Q : In a reaction, $A + B \rightarrow \text{Product}$, rate is doubled when the concentration of B is doubled, and rate increases by a factor of 8 when the concentrations of both the reactants (A and B) are doubled, rate law for the reaction can be written as



Rate = $k [A][B]$



Rate = $k [A]^2[B]$



Rate = $k [A]^3[B]$



Rate = $k [A][B]^2$

12

13

14

15

16

17

24 : 41



16/30



25 min



Hint

Q : Which will change for first order reaction with time



Rate constant



Rate of reaction



Half-life



All of these

12

13

14

15

16

17

24 : 40



17/30



25 min



Hint

Q : Half life of certain reaction decreases with decrease in concentration. Order of reaction is



Zero order



First order



Second order



Third order

12

13

14

15

16

17

24 : 39



18/30



25 min



Hint

Q : For endothermic reaction, the minimum value for the energy of activation will be



Less than ΔH



More than ΔH



Zero



Equal to ΔH

2

13

14

15

16

17

18

24 : 36



19/30



25 min



Hint

Q : Yield of ammonia in Haber's process can be increased by all except



A Decreasing temperature



B Adding catalyst



C Adding nitrogen



D Increasing pressure

16

17

18

19

20

21

22

24 : 35



20/30



25 min



Hint

Q : In Arrhenius equation $k = Ae^{-E_a/RT}$,
_____ depends upon collision frequency



k



A



e



E_a

16

17

18

19

20

21

22

24 : 34



21/30



25 min



Hint

Q : Unit of slope in Arrhenius equation is



Kelvin



Kelvin⁻¹



Jmol⁻¹



mol⁻¹

16

17

18

19

20

21

22

24 : 34



22/30



25 min



Hint

Q : Difference of energy between reactants and transition state is called



Enthalpy of reaction



Kinetic energy



Activation energy



Internal energy

6

17

18

19

20

21

22

24 : 32



23/30



25 min



Hint

Q : Following is an exothermic reaction

$A + B \rightleftharpoons C + D$ Which is correct statement?



Rate of reaction will increase by increasing temperature



Yield of C can be increased by increasing pressure



Rate of reaction will decrease by increasing temperature



Rate is not affected by adding catalyst

21

22

23

24

25

26

27



24/30

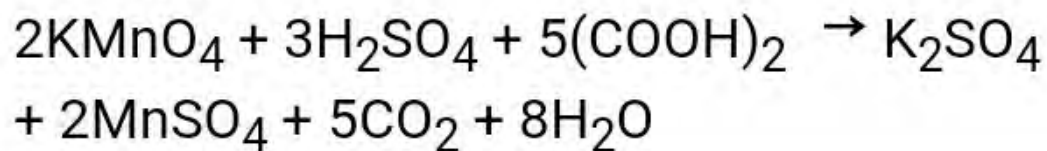


25 min



Hint

Q : Autocatalysis is the phenomenon in which product formed acts as catalyst, which is autocatalyst in the following reaction

 K_2SO_4  Mn^{+2}  CO_2  H_2O

24 : 30



25/30



25 min



Hint

Q : Hydrogenation of vegetable oils is accelerated by nickel. Catalytic activity of nickel can be increased by using



Co and Cu



Cr and Te



Cu and Te



Fe and Cu

21

22

23

24

25

26

27

24 : 29



26/30



25 min



Hint

Q : Catalyst can change



K_c



ΔH



Yield



E_a

21

22

23

24

25

26

27

24 : 28



27/30



25 min



Hint

Q : A catalyst works by



Decreasing activation energy



Providing alternate pathway



Forming stable transition state



All of these

21

22

23

24

25

26

27

24 : 26



28/30



25 min



Hint

Q : Rate of exothermic reaction is increased by increasing all except



Temperature



Surface area of reactants



Volume of vessel



Concentration of reactants

24

25

26

27

28

29

30



29/30



25 min



Hint

Q : Rate of following reaction can be expressed as $\text{PCl}_5 \longrightarrow \text{PCl}_3 + \text{Cl}_2$



$$\text{Rate} = - \frac{d[\text{PCl}_5]}{dt}$$



$$\text{Rate} = - \frac{d[\text{PCl}_3]}{\text{Cl}_2}$$



$$\text{Rate} = - \frac{d[\text{PCl}_3]}{dt}$$



$$\text{Rate} = - \frac{d[\text{Cl}_2]}{dt}$$



30/30



25 min



Hint

Q : Homogeneous process among the following is

A

B

C

D

24

25

26

27

28

29

30



30/30

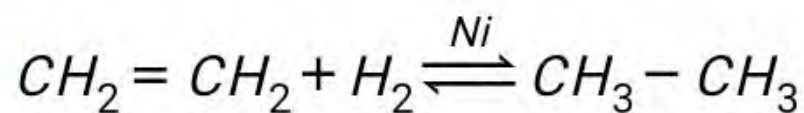
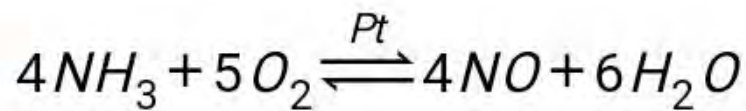
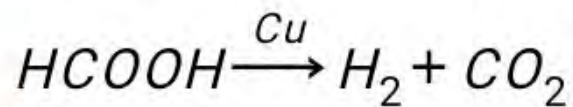
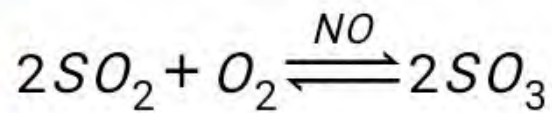


25 min



Hint

Q : Homogeneous process among the following is





Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



1/30

Q : Which change will never happens to a catalyst during a reaction



Appearance



Surface area



Chemical composition



Physical state

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



2/30

Q : If during reaction, there is rotation in plane polarized light, then its rate can be determined by



A Spectrometry method



B Electrical conductivity method



C Optical rotation method



D Dilatometric method

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



3/30

Q : One of the following is not a physical method for determination of rate of reaction



Spectrometry



Refractrometry



Electrical Conductivity



Titrimetry

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



4/30

Q : For third order reaction, rate constant has units



$\text{mol dm}^{-3} \text{s}^{-1}$



s^{-1}



$\text{mol}^{-1} \text{dm}^3 \text{s}^{-1}$



$\text{mol}^{-2} \text{dm}^6 \text{s}^{-1}$

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



5/30

Q : Slowest step in the reaction is called



Elementary step



Rate law



Rate determining step



Order of reaction

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



6/30

Q : The rate of a chemical reaction doubles for every 10°C rise of temperature. If the temperature is raised by 50°C , the rate of the reaction increases by about



16



64



32



08

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



7/30

Q : A certain reaction has the rate equation, $\text{Rate} = k[\text{A}][\text{B}]^2$. The rate is $2.5 \times 10^{-3} \text{ mol dm}^{-3} \text{ s}^{-1}$. When $[\text{A}]$ is 0.2 mol dm^{-3} and $[\text{B}]$ is $0.050 \text{ mol dm}^{-3}$. Calculate the numerical value of rate constant



50



5.0



2



0.05

1

2

3

4

5

6

7



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



8/30

Q : Half life of radioactive isotope is 10days. Days required when 12.5% concentration is left behind



10



20



30



40

6

7

8

9

10

11



Test Level-2 (Topic 8A)



Correct



Unattempted

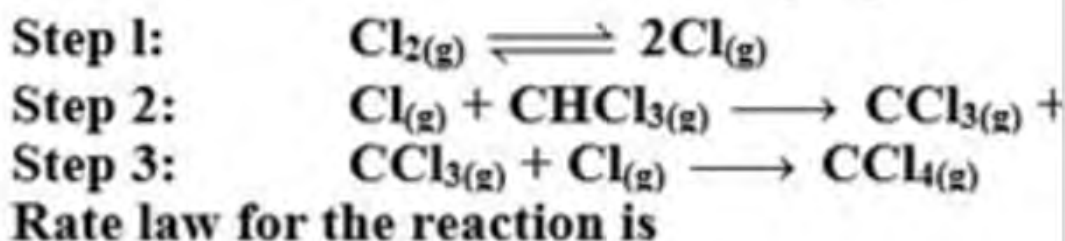


Incorrect



9/30

Q : The mechanism below has been proposed for the reaction of CHCl_3 with Cl_2



A

$$\text{Rate} = [\text{CHCl}_3][\text{Cl}]^2$$

B

$$\text{Rate} = [\text{CHCl}_3][\text{Cl}_2]^{1/2}$$

C

$$\text{Rate} = [\text{CCl}_3][\text{Cl}]$$

6

7

8

9

10

11



Test Level-2 (Topic 8A)



Correct



Unattempted

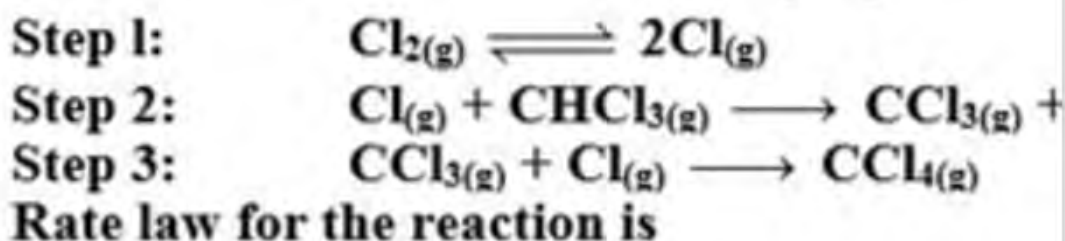


Incorrect



9/30

Q : The mechanism below has been proposed for the reaction of CHCl_3 with Cl_2



A

$$\text{Rate} = [\text{CHCl}_3][\text{Cl}]^2$$

B

$$\text{Rate} = [\text{CHCl}_3][\text{Cl}_2]^{1/2}$$

C

$$\text{Rate} = [\text{CCl}_3][\text{Cl}]$$

6

7

8

9

10

11



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



10/30

Q : The order of reaction may be determined by:



Differential



Half-life method



Graphical method



All of these

6

7

8

9

10

11



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



11/30

Q : Half-life of the reaction becomes half when initial concentrations of reactants are doubled. The order of the reaction will be



First order



Second order



Third order



Zero order

6

7

8

9

10

11



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



12/30

Q:

In the hydrolysis of an organic chloride in the presence of large excess of water

$R_3C-Cl + H_2O \rightarrow R_3C-OH + HCl$, order of reaction is



Second order



First order



Third order



Pseudo First order

8

9

10

11

12

13

14



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



13/30

Q : All are correct about zero order except



All photochemical reactions are zero order



Rate is independent of concentration



Radioactive decay follows zero order



Half life is directly proportional to initial concentration



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



14/30

Q : For a reaction like $X + 2Y \rightarrow Z$
Rate = $k [X]^0 [Y]^2$
If concentration of X and Y is doubled,
then rate of reaction will increase



8 times



6 times



4 times



16 times



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



15/30

Q : In a reaction, $A + B \rightarrow \text{Product}$, rate is doubled when the concentration of B is doubled, and rate increases by a factor of 8 when the concentrations of both the reactants (A and B) are doubled, rate law for the reaction can be written as



A Rate = $k [A][B]$



B Rate = $k [A]^2[B]$



C Rate = $k [A]^3[B]$



D Rate = $k [A][B]^2$



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



16/30

Q : Which will change for first order reaction with time



Rate constant



Rate of reaction



Half-life



All of these



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



17/30

Q : Half life of certain reaction decreases with decrease in concentration. Order of reaction is



Zero order



First order



Second order



Third order



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



18/30

Q : For endothermic reaction, the minimum value for the energy of activation will be



Less than ΔH



More than ΔH



Zero



Equal to ΔH



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



19/30

Q : Yield of ammonia in Haber's process can be increased by all except



A Decreasing temperature



B Adding catalyst



C Adding nitrogen



D Increasing pressure



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



20/30

Q : In Arrhenius equation $k = Ae^{-E_a/RT}$,
_____ depends upon collision frequency



k



A



e



E_a



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



21/30

Q : Unit of slope in Arrhenius equation is



Kelvin



Kelvin^{-1}



Jmol^{-1}



mol^{-1}



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



23/30

Q : Following is an exothermic reaction

$A + B \rightleftharpoons C + D$ Which is correct statement?



Rate of reaction will increase by increasing temperature



Yield of C can be increased by increasing pressure



Rate of reaction will decrease by increasing temperature



Rate is not affected by adding catalyst



Correct



Unattempted

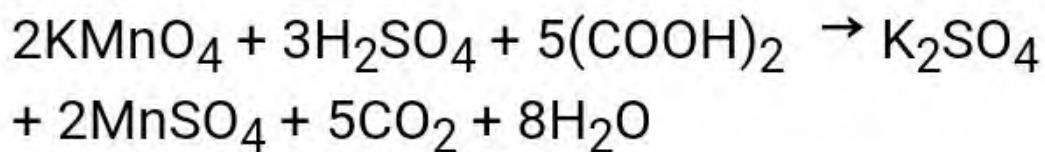


Incorrect



24/30

Q : Autocatalysis is the phenomenon in which product formed acts as catalyst, which is autocatalyst in the following reaction

A K_2SO_4 B Mn^{+2} C CO_2 D H_2O



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



25/30

Q : Hydrogenation of vegetable oils is accelerated by nickel. Catalytic activity of nickel can be increased by using



A Co and Cu



B Cr and Te



C Cu and Te



D Fe and Cu



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



26/30

Q : Catalyst can change



K_c



ΔH



Yield



E_a

20

21

22

23

24

25

26



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



27/30

Q : A catalyst works by



Decreasing activation energy



Providing alternate pathway



Forming stable transition state



All of these



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



28/30

Q : Rate of exothermic reaction is increased by increasing all except



Temperature



Surface area of reactants



Volume of vessel



Concentration of reactants



Correct



Unattempted



Incorrect



29/30

Q : Rate of following reaction can be expressed as $\text{PCl}_5 \longrightarrow \text{PCl}_3 + \text{Cl}_2$



$$\text{Rate} = - \frac{d[\text{PCl}_5]}{dt}$$



$$\text{Rate} = - \frac{d[\text{PCl}_3]}{\text{Cl}_2}$$



$$\text{Rate} = - \frac{d[\text{PCl}_3]}{dt}$$



$$\text{Rate} = - \frac{d[\text{Cl}_2]}{dt}$$



Test Level-2 (Topic 8A)



Correct



Unattempted



Incorrect



30/30

Q : Homogeneous process among the following is

