CLASS 12 BATCH

FOR CHEMISTRY

LECTURE - 08

CHEMICAL KINETICS

Today's Goal

Energy Profile Diagrams
Effects of Catalyst

Energy Profile Diagram

Graph for Zero E_a

Q The activation energy of reaction is equal to –

A Threshold energy for the reaction

B Threshold energy + Energy of the reactants

C Threshold energy – Energy of the reactants

D Threshold energy + Energy of the products

Q

In which of the following E_a for backward reaction is greater than E_a for forward reaction ?

A. $a \xrightarrow{E_a=50\text{kcal}} b$ $\quad \Delta H = -10$ kcal

B. $a \xrightarrow{E_a=60\text{kcal}} b$ $\quad \Delta H = +30$ kcal

C. $a \xrightarrow{E_a=50\text{ kcal}} b$ $\quad \Delta H = +10$ kcal

D. $a \xrightarrow{E_a=60\text{kcal}} b$ $\quad \Delta H = +20$ kcal

Q

The chemical reactions in which reactants require high amount of activation energy are generally -

A Slow

B Fast

C Instantaneous

D Spontaneous

Q

The activation energy of the reaction A + B → C + D + 38 k cal, What would be the activation energy of the reaction. C + D → A + B

A 20 K cal

B -20 K cal

C 18 K cal

D 58 K cal

Catalyst

The substance which can change the speed of reaction without itself undergo any permanent change in mass and composition at end of the reaction.

Energy profile Diagram

Q Which of the following explains the increase of the reaction rate by catalyst

A Catalyst decreases the rate of backward reaction so that the rate of forward reaction increases

B Catalyst provides extra energy to reacting molecules so that they may reduce effective collisions

C Catalyst provides an alternative path of lower activation energy to the reactants

D N.O.T

Q

Calculate the ratio of catalyzed and uncatalyzed rate constant at 27°C if activation energy of a catalyzed rxn is 100 KJ and uncatalyzed rxn is 200 KJ.

THANK YOU !!

Homework

REVISE FORMULA OF LAST CHAPTER

DPP Of this Lecture