1. Activation energy is defined as the minimum amount of extra energy required by a reacting molecule to get converted into a product. 2. Enzymes generally lower activation energy by reducing the energy needed for reactants to come together and react 3. Lowering the activation energy can significantly change the rate of a chemical reaction. Activation energy is the minimum amount of energy required to start a chemical reaction, and it plays a crucial role in determining the reaction rate. When the activation energy is lowered, the reaction rate increases because less energy is needed to initiate the reaction. This means that the reactants will collide more frequently and with greater force, leading to a faster reaction rate. In other words, lowering the activation energy makes it easier for the reactants to overcome the barrier to reaction, resulting in a faster reaction time. 4. The lock and key model is a widely used analogy to explain how enzymes work. According to this model, enzymes have a specific three-dimensional structure with a region called the active site. The active site is a pocket or cleft in the enzyme where the reactant molecull 5. es, called substrates, bind. The active site and substrates have complementary shapes, much like a lock and key. When a substrate molecule fits into the active site, the enzyme undergoes a conformational change to create an enzyme-substrate complex. This complex allows the enzyme to catalyze the conversion of the substrate into the product(s) of the reaction. The enzyme remains unchanged after the reaction, ready to bind and convert more substrate molecules.

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