

**Chapter: 6.2 (The rate of chemical reactions)**

1. Copy and complete the following sentences.

For particles to react with each other, they must have enough **energy** and **collide** with each other. The rate of chemical reaction is changed by **temperature**, **concentration** of solution and the **surface area** of solids. A **catalyst** is a substance that speeds up a reaction but is not used up.

2. Explain each of the following:

- a) **Butter goes rancid ( goes off) faster if it is not kept in a fridge.**

**Ans.** The higher the temperature the faster the reaction. So, butter is kept in the fridge to slow down the reaction, if not the butter would go rancid faster.

- b) **Carrots cook faster if they are sliced.**

**Ans.** Decreasing the size of pieces of a solid increase its surface area. This makes a reaction go faster because there are more particles at the surface for the other reactant to collide with.

- c) **Difficult stains can be removed more easily with neat cleaning solutions rather than adding the solutions to water first.**

**Ans.** Higher the concentration of a solution faster the reaction as more particles are available which are closer together and collide more often. So, concentrated solution can remove difficult stains faster than a dilute one.

- d) **An aspirin tablet works faster if it is crushed rather than swallowed whole.**

**Ans.** The more pieces a solid is broken up into, the more surface area it has and so more of its particles can be hit by the other reactant. Hence the tablet works faster if it is crushed rather than swallowed whole.

**3. Name the factors that speed up the reactions.**

**Ans.** i) Effect of temperature:- higher the temperature faster the reaction.

ii) Effect of concentration:- higher the concentration, faster the reaction.

iii) Increasing surface area:- increasing the surface area, faster the reaction.

iv) Effect of catalyst:- Catalysts speedup the reaction by lowering the activation energy.

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