Subject: CHEMISTRY	**Grade: 7**

Chapter: 16 (Rates of reaction)

T.B Question 1. Copy and Complete.

a) Small pieces of solid, especially powders, have a **large** surface area. The **larger** the surface area, the faster the reaction.

b) The more concentrated a solution is, the **faster** it reacts. This is because there are more particles in the same **volume**. Therefore, the particles **collide** more often in a certain time.

c) The **higher** the temperature, the faster the reaction. Hot particles have more energy, so they move around more **faster.** This means that they collide **more** often. The collisions are also **harder** and more effective.

d) A **catalyst** is a substance which speeds up a reaction, but is chemically **unchanged** itself at the end of the reaction.

e) An **enzyme** is a catalyst found in living things.

Question / Answer:

1) Define rate of reaction.

Ans. Rate of reaction = Amount of reactants used or products formed / time. There are two types of reactions, eg. Slow reaction, like rusting and fast reaction, like fireworks.

2) How can we measure the rate of reaction?

Ans. we can measure how quickly one of the reactants used up.

Eg. $CaCO_3 + 2HCl \dashrightarrow CaCl_2 + H_2O + CO_2$.

CO_2 escapes as gas.

3) Write the factors affecting the rate of reaction. Briefly explain them.

Ans. factors affecting the rate of reactions are:

i) Surface area. ii) Temperature iii) Concentration iv) Catalyst

Surface area: It is the measure of how much area is exposed for the reaction. Larger the surface area, faster the rate of reaction.
Ex. A whole potato will take more time to cook than the small pieces.

Temperature: Increasing the temperature, increase the rate of reaction. Increasing the temperature makes the particles to collide more often in a certain time and with a greater kinetic energy.

Concentration: As the concentration increase, the rate of reaction increases. The more the number of particles in a particular volume, the greater chance of more collisions between the solid and liquid particles.

Catalyst: Catalyst is a substance which speed up the reaction without changing itself. Eg. V_2O_5 in H_2SO_4 manufacturing.