

## Rate of Reactions

01) Given below are some of reactions around us.

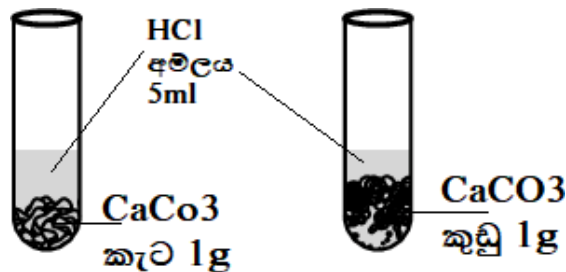
- Ripening of fruits
- Burning a paper
- Dissolving salt in water
- Blast of a cracker
- Rusting of iron nail
- Breaking a rock
- Turning water into ice

i) Select the chemical reactions from the above.

ii) Name 2 fastest chemical reactions from the above.

02) What are the 4 factors that affect the rate of reactions?

03) Following is the apparatus related to a chemical reaction.



i) It was taken 8 minutes to complete the reaction of  $\text{CaCO}_3$  crystals and 2 minutes to complete the reaction of  $\text{CaCO}_3$  powder. Calculate the rate of the reactions separately.

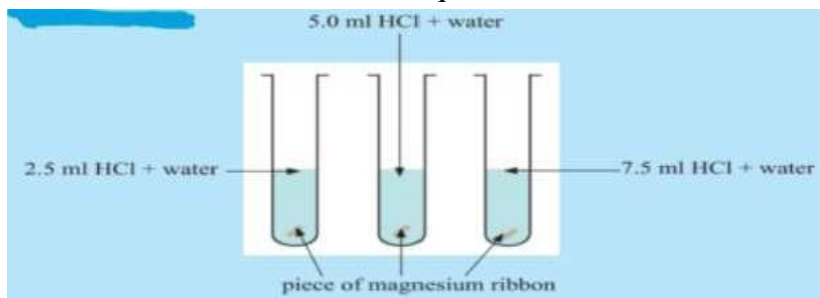
ii) What is the conclusion of this activity?

04) Pay your attention to the activity on page number 120 in your textbook.

i) If the time to disappear the purple colour of the  $\text{KMnO}_4$  solutions is measured, which  $\text{KMnO}_4$  solution will get a lesser time to disappear the purple colour?

ii) What is the reason for the above observation?

05) Below activity is arranged to find out how the concentration of reactants affects the rate of reactions. The volume of water in each test tube is equal.



i) Write the increasing order of acid concentration in the above test tubes.

ii) Which test tube has the highest rate of gas bubbles evolution?

iii) What is the conclusion you can arrive after doing this activity?

06) i) What is a **catalyst** ?

ii) Activity ~~17.4~~(page no.120) in your text book, highlights the effect of a catalyst on the rate of a chemical reaction, what is the chemical substance used in it as the catalyst?

ii) When the above reaction is over, the solution was filtered to get  $\text{MnO}_2$  and dried that residue and weighed it. What is the noticeable difference in its mass?

iii) Write few applications of catalysts in industrial processes.

07) Write down the observations of the following chemical changes.

Chemical reaction	Observations
i. $\text{CaCO}_3 \xrightarrow{\hspace{2cm}} \text{CaO} + \text{CO}_2$	
ii. $2\text{HCl} + \text{Mg} \xrightarrow{\hspace{2cm}} \text{MgCl}_2 + \text{H}_2$	
iii $2\text{H}_2\text{O}_2 \xrightarrow{\hspace{2cm}} 2\text{H}_2\text{O} + \text{O}_2$	
iv. Reaction between Fe and acidified $\text{KMnO}_4$	

