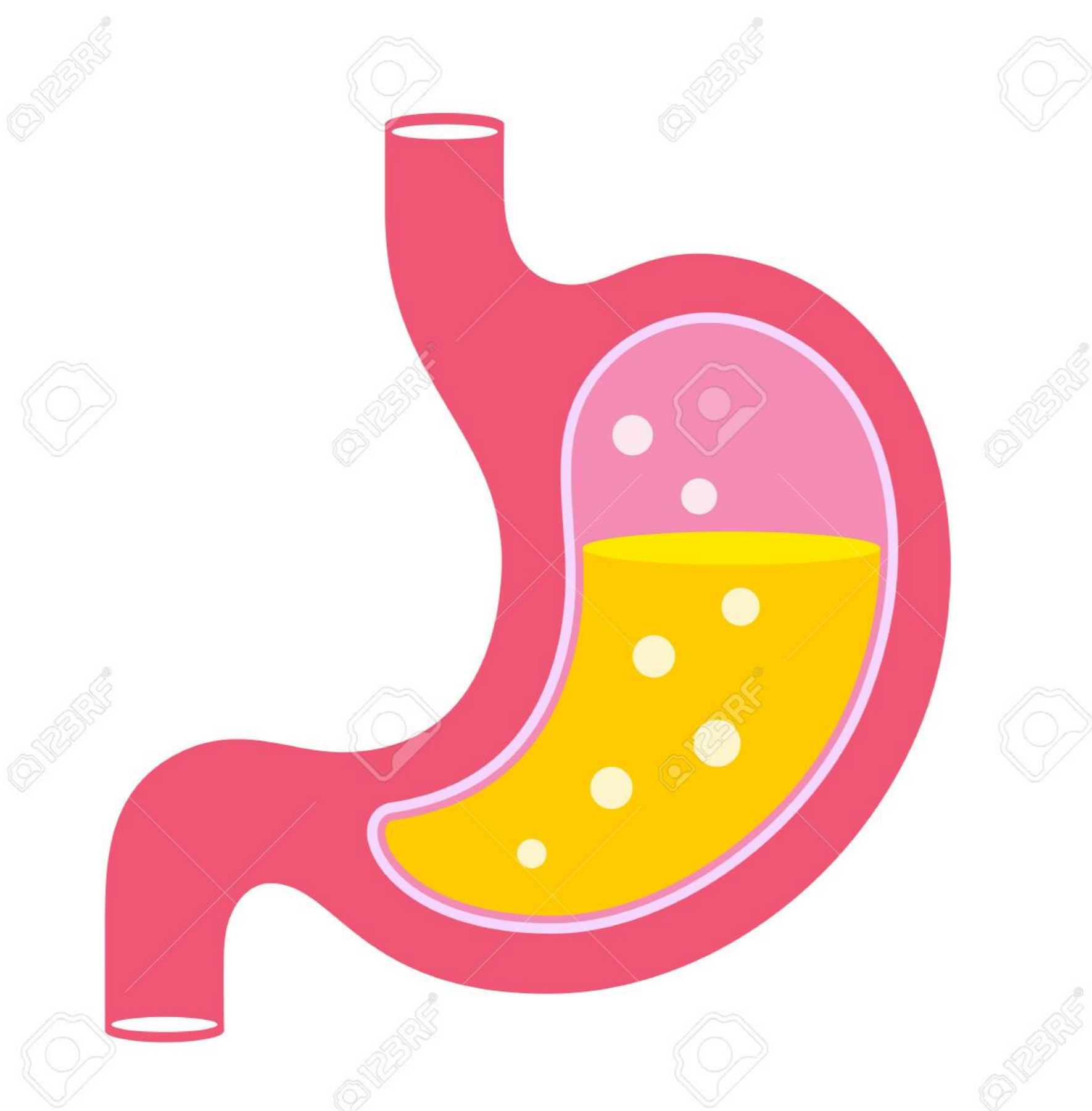


Case study based questions
10th Science

Acids, Bases and Salts

Passage - 1

5 Marks



Ram was suffering from a stomach pain for a number of days. He consulted a doctor who advised him to take two antacid tablets after each meal for about a week and avoid spicy food. Ram followed the advice strictly and was cured.

Q1. (2) Acidity

Q2. (1) TRUE

Q3. (1) YES

Q4. (3) Acid

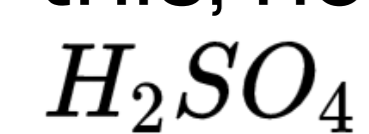
Q5. (1) YES

Passage - 2

5 Marks



Ritesh was asked to determine the melting point of a given organic solid. For this, he used a bath containing conc.



. When he was looking at the thermometer, he lost his concentration and became a little casual. The beaker containing boiling sulphuric acid fell on his clothes. His clothes were burnt and he got severe burns on hands.

Q1. (4) All of the above

Q2. (2) Acid fell on the clothes

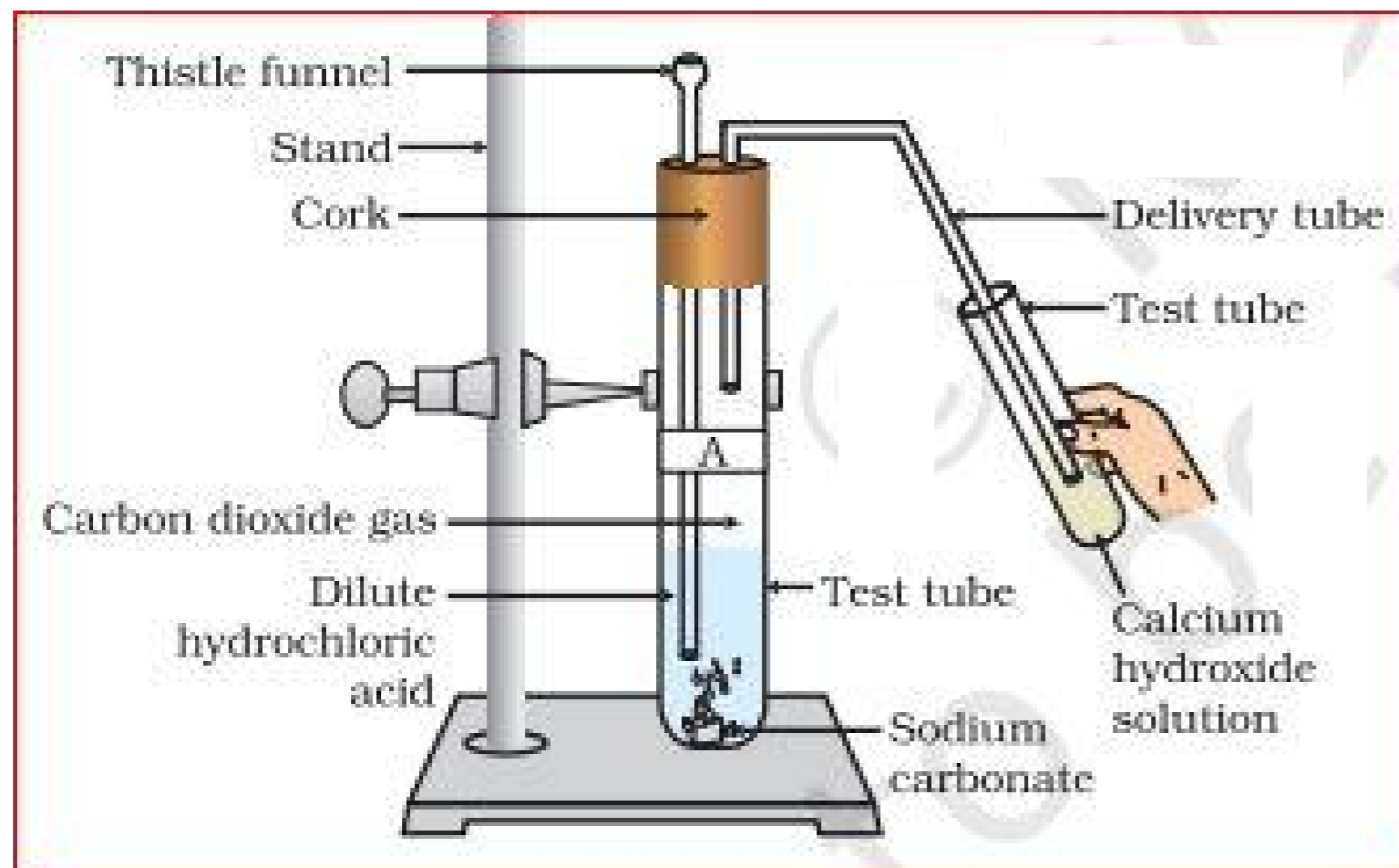
Q3. (1) Acid

Q4. (1) 0-7

Q5. (2) 7-14

Passage - 3

5 Marks



Refer to above figure. Neha took two test tubes, labelled them as A and B. Then she took about 0.5 g of sodium carbonate (Na_2CO_3) in test tube A and about 0.5 g of sodium hydrogencarbonate ($NaHCO_3$) in test tube B. She added about 2 mL of dilute HCl to both the test tubes.

Q1. (2) Carbon dioxide

Q2. (1) Carbon dioxide

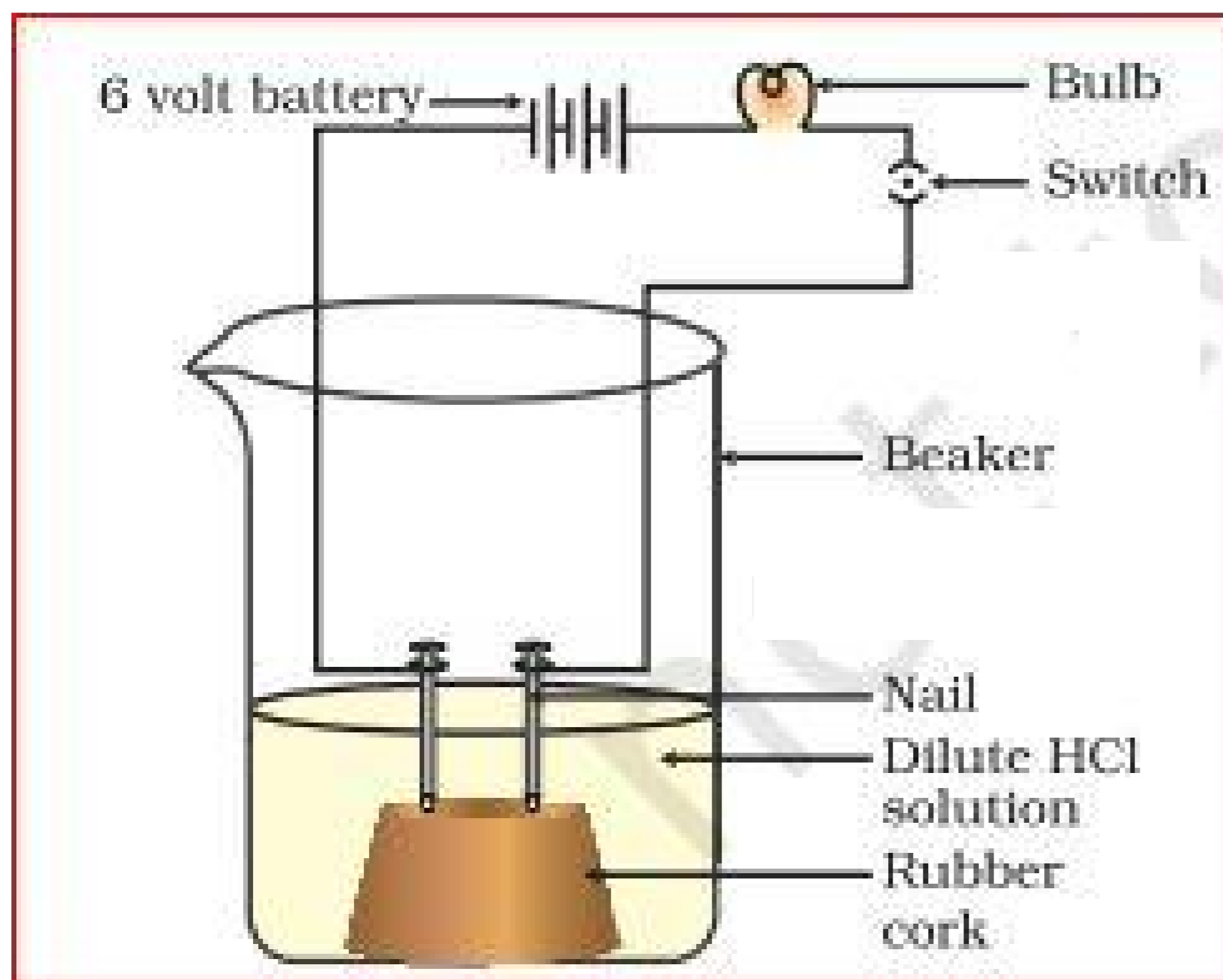
Q3. (3) Turns milky

Q4. (4) All of these

Q5. (4) All of these

Passage - 4

5 Marks



Refer to the above figure. A student took solutions of glucose, alcohol, hydrochloric acid, sulphuric acid, etc. He fixed two nails on a cork, and placed the cork in a 100 mL beaker. He connected the nails to the two terminals of a 6 volt battery through a bulb and a switch, as shown in the above figure. He then poured some dilute HCl in the beaker and switched on the current.

Q1. (2) NO

Q2. (1) YES

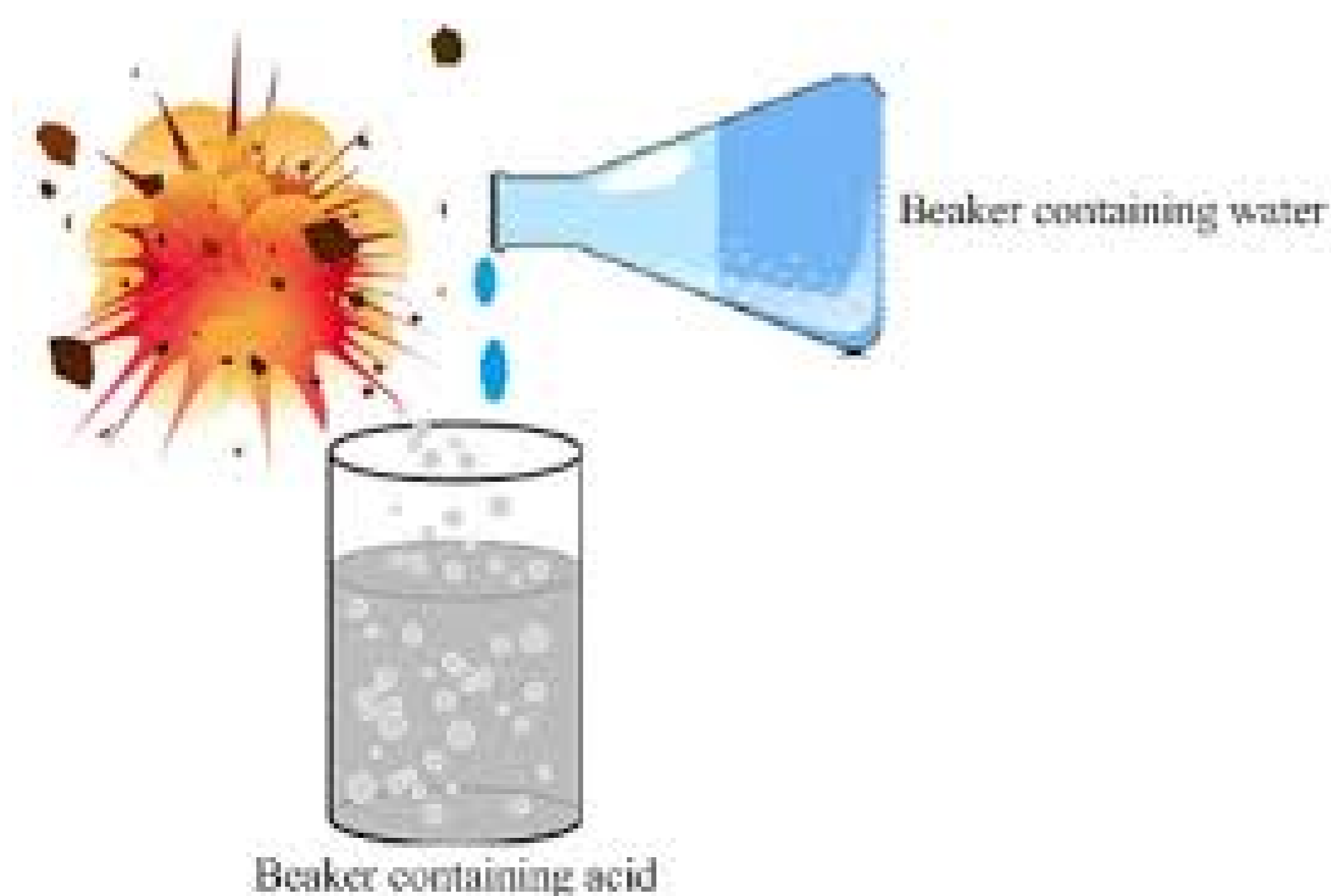
Q3. (3) Ions

Q4. (1) TRUE

Q5. (2) FALSE

Passage - 5

5 Marks



Care must be taken while mixing concentrated nitric acid or sulphuric acid with water. The acid must always be added slowly to water with constant stirring. If water is added to a concentrated acid, the heat generated may cause the mixture to splash out and cause burns. The glass container may also break due to excessive local heating. Mixing an acid or base with water results in decrease in the concentration of ions (H_3O^+ / OH^-) per unit volume. Such a process is called dilution and the acid or the base is said to be diluted.

Q1. (2) Temperature increases

Q2. (1) Exothermic

Q3. (1) Concentration of ions decreases

Q4. (1) TRUE

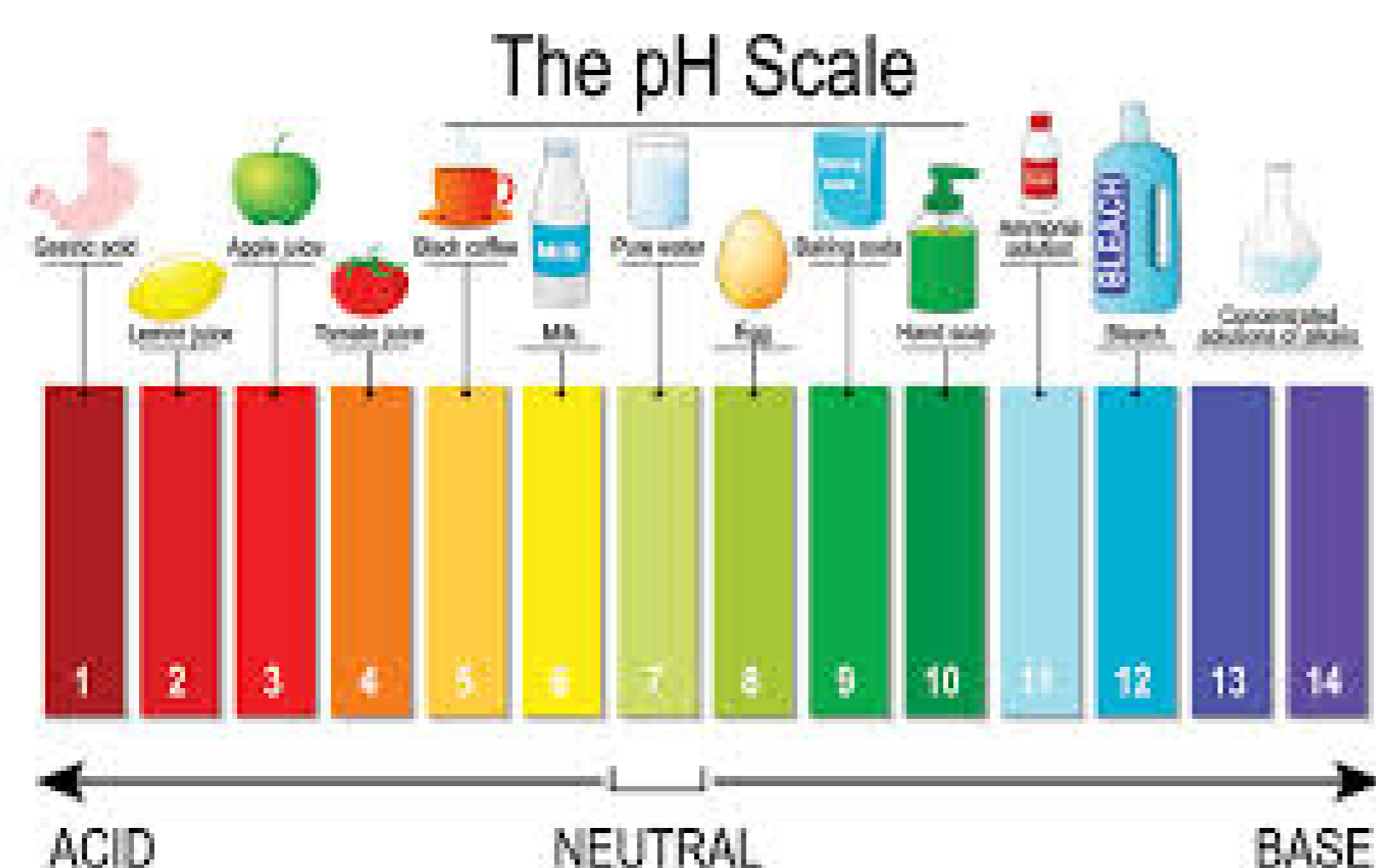
Q5. (1) Acid to water slowly

Case study based questions
10th Science

Acids, Bases and Salts

Passage - 1

11 Marks



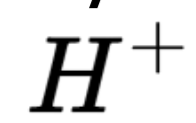
The strength of acids and bases depends on the number of



ions and



ions produced, respectively. If we take hydrochloric acid and acetic acid of the same concentration, say one molar, then these produce different amounts of hydrogen ions. Acids that give rise to more



ions are said to be strong acids, and acids that give less



ions are said to be weak acids.

Q1. (2) FALSE

Q2. (3) Hydrochloric acid

Q3. (1) YES

Q4. (2) Acid- pH below 7

Q5. (3) *KCl*

Q6. (0) undefined

Q7. (1) Salt

Q8. (1) Hydrogen gas

Q9. (3) *Acid + Metal → Salt + Hydrogen gas*

Q10. (3) No reaction will take place

Q11. (2) Hydrochloric acid

Passage - 2

5 Marks



The acids are sour in taste and change the colour of blue litmus to red, whereas, bases are bitter and change the colour of the red litmus to blue. Litmus is a natural indicator, turmeric is another such indicator. A stain of curry on a white cloth becomes reddish-brown when soap, which is basic in nature, is scrubbed. It turns yellow again when the cloth is washed with plenty of water.

Q1. (3) Purple

Q2. (2) Indicators

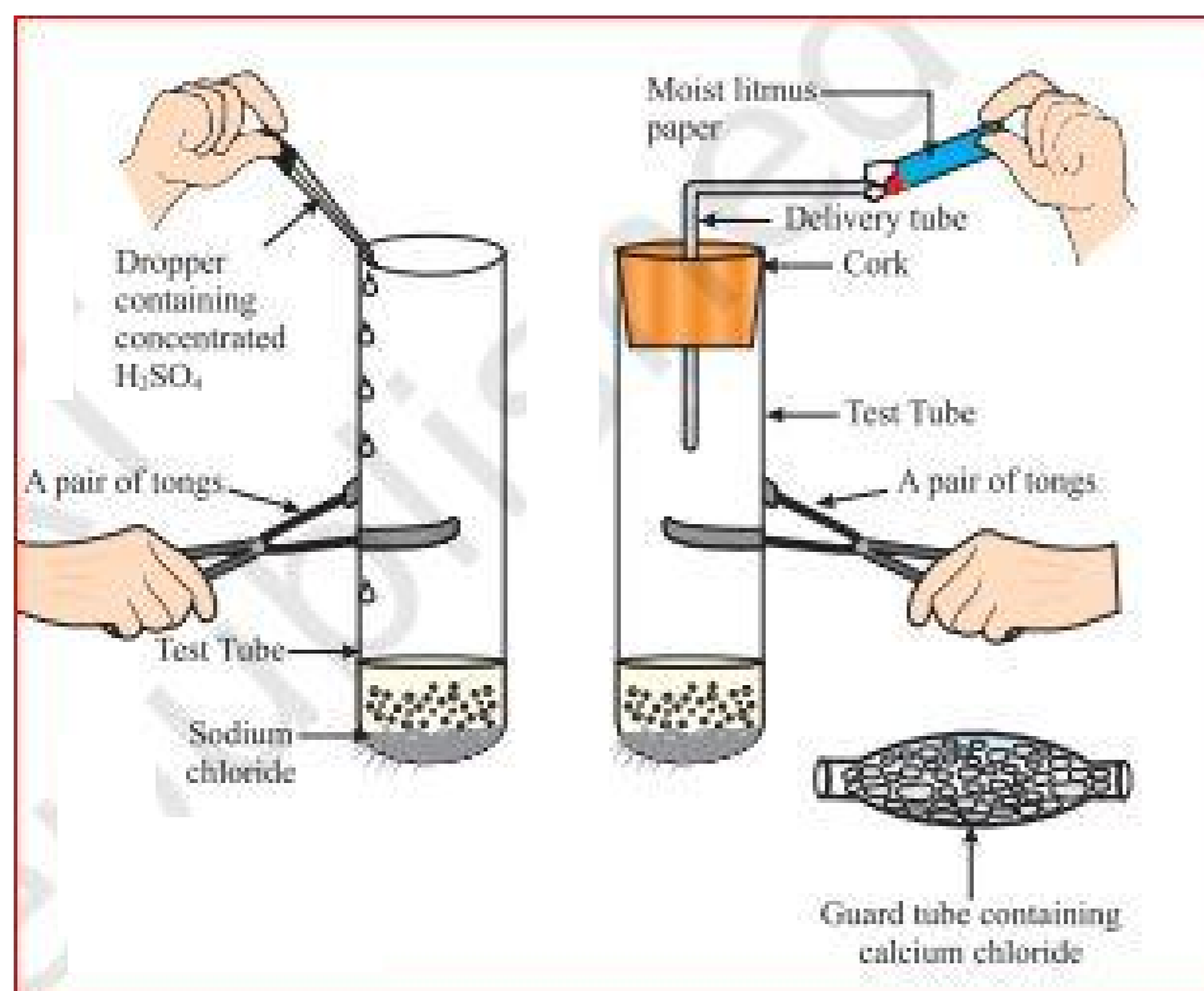
Q3. (3) Both A and B

Q4. (2) Turmeric

Q5. (1) YES

Passage - 3

5 Marks



Krishna of class X took about 1g solid NaCl in a clean and dry test tube and had set up the apparatus as shown in the above figure. She added some concen-

trated sulphuric acid to the test tube. Gas came out of the delivery tube. She tested the gas evolved successively with dry and wet blue litmus paper.

Q1. (2) HCl gas

Q2. (1) Wet blue litmus paper

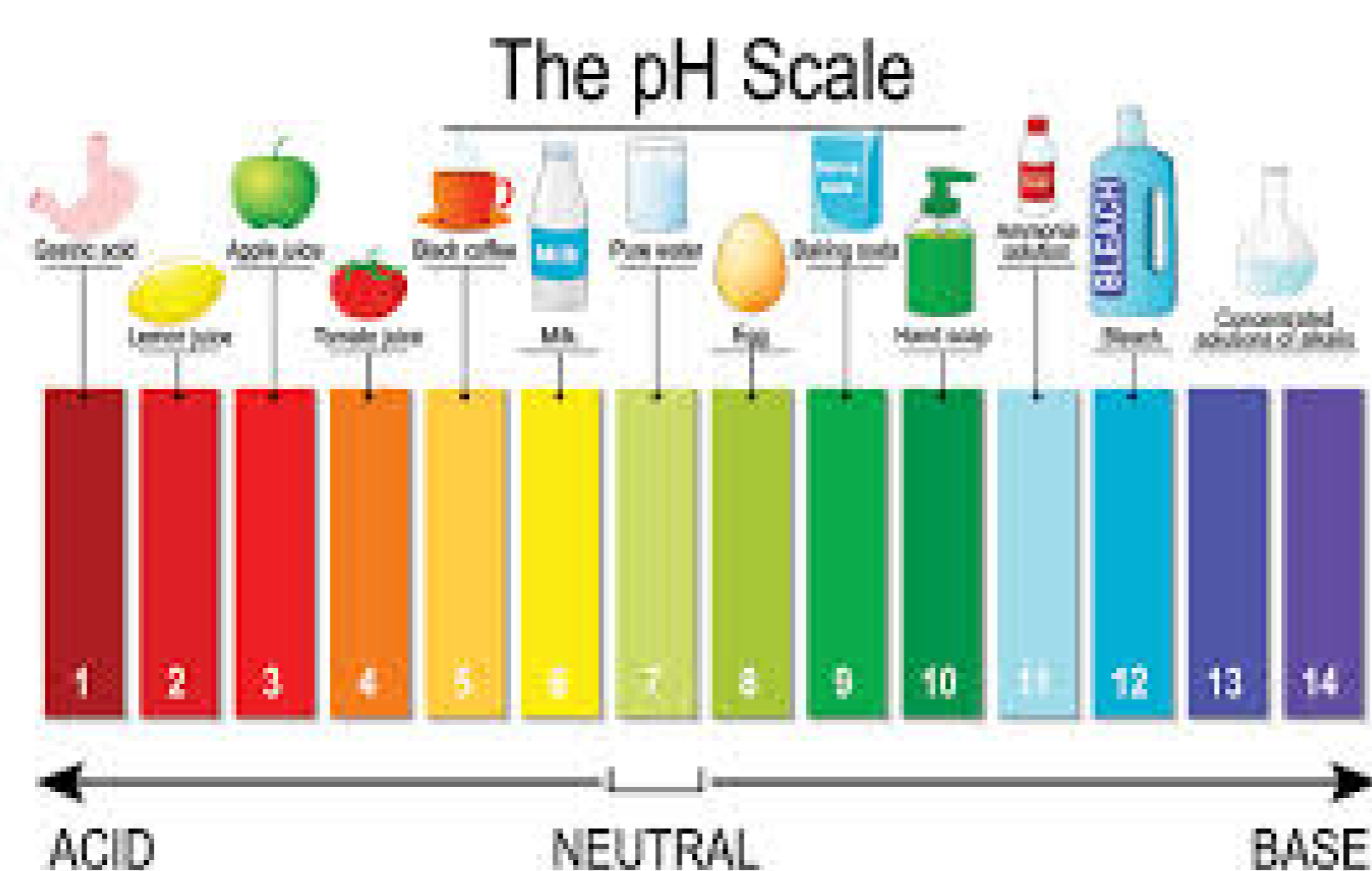
Q3. (1) TRUE

Q4. (2) Acidic

Q5. (1) YES

Passage - 4

5 Marks



A scale for measuring hydrogen ion concentration in a solution, called pH scale has been developed. The p in pH stands for 'potenz' in German, meaning power. On the pH scale we can measure pH generally from 0 (very acidic) to 14 (very alkaline). pH should be thought of simply as a number which indicates the acidic or basic nature of a solution. Higher the hydronium ion concentration, lower is the pH value.

Q1. (2) 0 to 7

Q2. (1) 7 to 14

Q3. (2) 7

Q4. (1) TRUE

Q5. (2) FALSE

Passage - 5

5 Marks



Tooth decay starts when the pH of the mouth is lower than 5.5. Tooth enamel, made up of calcium hydroxyapatite (a crystalline form of calcium phosphate) is the hardest substance in the body. It does not dissolve in water, but is corroded when the pH in the mouth is below 5.5. Bacteria present in the mouth produce acids by degradation of sugar and food particles remaining in the mouth after eating. The best way to prevent this is to clean the mouth after eating food. Using toothpastes, which are generally basic, for cleaning the teeth can neutralise the excess acid and prevent tooth decay.

Q1. (2) 6.2-7.6

Q2. (1) TRUE

Q3. (1) Acids

Q4. (2) Clean the mouth after eating

Q5. (2) FALSE
