

Case study based questions  
10th Science

## Acids, Bases and Salts

Passage - 1

5 Marks



Salts of a strong acid and a strong base are neutral with pH value of 7. On the other hand, salts of a strong acid and weak base are acidic with pH value less than 7 and those of a strong base and weak acid are basic in nature, with pH value more than 7.

Q 1. pH of strong acid is \_\_\_\_\_.

- (1) Less than 7
- (2) More than 7

Q 2. What is the pH value of Neutral solutions?

- (1) Less than 7
- (2) More than 7
- (3) 7

Q 3. Example of strong acid?

- (1) Hydrochloric Acid

(2) Formic acid

Q 4. Example(s) of strong base?

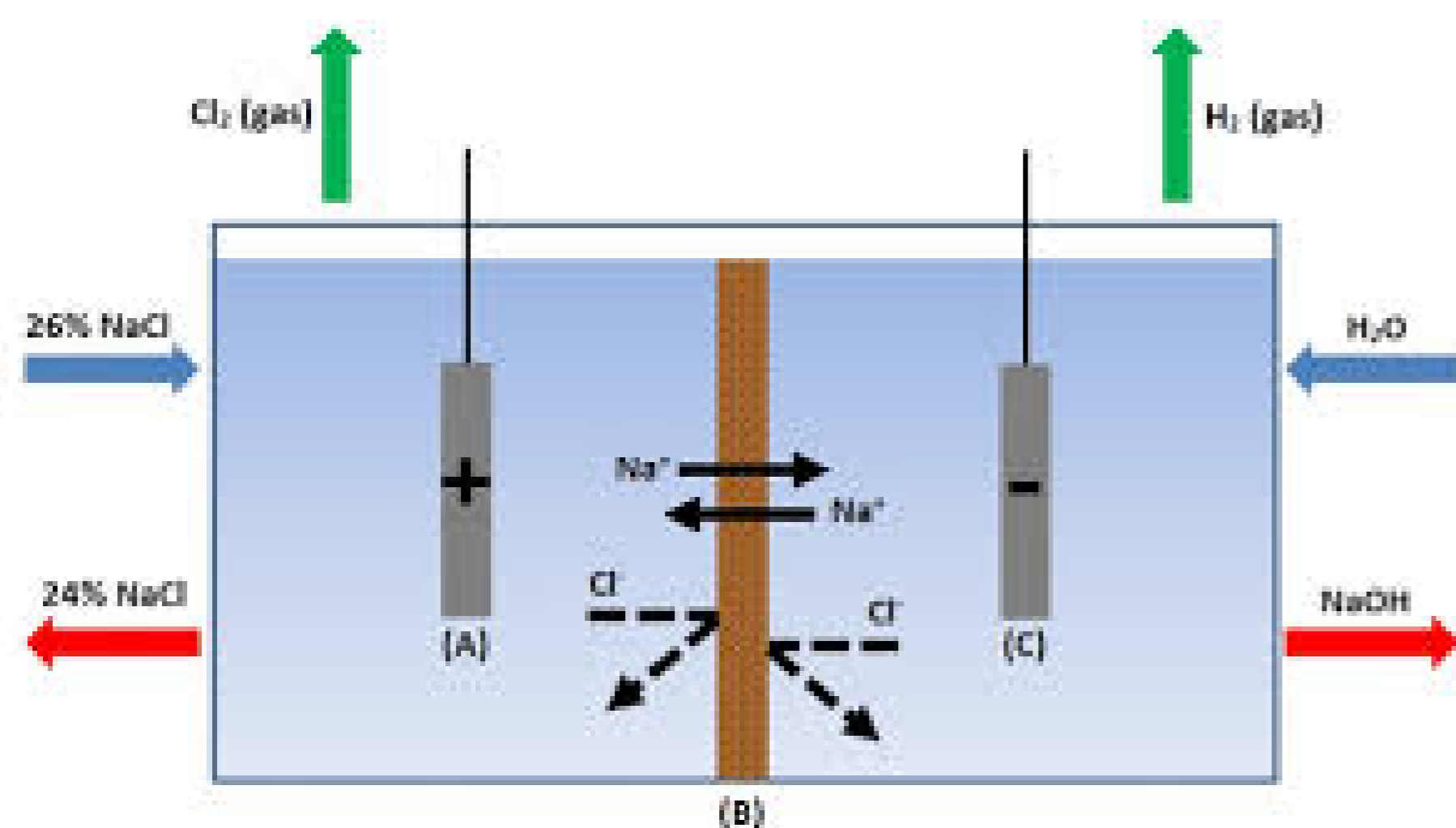
- (1) Sodium Hydroxide
- (2) Potassium hydroxide
- (3) All of the above

Q 5. Example of Neutral solution?

- (1) Water
- (2) Blood

Passage - 2

5 Marks



The common salt is an important raw material for various materials of daily use, such as sodium hydroxide, baking soda, washing soda, bleaching powder and many more. When electricity is passed through an aqueous solution of sodium chloride (called brine), it decomposes to form sodium hydroxide. The process is called the chlor-alkali process because of the products formed- chlor for chlorine and alkali for sodium hydroxide.

Q 1. NaCl is used for \_\_\_\_\_.

- (1) Cooking

(2) Painting

Q 2. Chlor-alkali is named because of-

- (1) Products formed are chlorine and sodium peroxide
- (2) Products formed are chlorine and sodium hydroxide

Q 3. Solution of sodium chloride is called as \_\_\_\_\_.

- (1) Brine
- (2) Wine

Q 4. When electricity is passed through brine what does it form?

- (1) Sodium peroxide
- (2) Sodium hydroxide

Q 5. Is Baking soda used for cooking purposes.

- (1) YES
- (2) NO

Passage - 3

5 Marks

---



Baking powder is a mixture of baking soda (sodium hydrogencarbonate) and a mild edible acid such as tartaric acid. When baking powder is heated or mixed in water, it evolves carbon dioxide gas which gets converted into sodium carbonate. Carbon dioxide produced during the reaction can cause bread or cake to rise making them soft and spongy.

Q 1. Cake and bread becomes soft and spongy because of \_\_\_\_\_.

- (1) Carbon dioxide
- (2) Carbon mono oxide

Q 2. When baking soda is mixed with water it evolves which gas?

- (1) Carbon dioxide
- (2) Carbon mono oxide

Q 3. Baking powder is a mixture of baking soda and \_\_\_\_\_ acid

- (1) Tartaric
- (2) Formic

Q 4. Another name for baking soda is \_\_\_\_\_.

- (1) Sodium carbonate
- (2) Sodium hydrogencarbonate

Q 5. The Carbon dioxide released is converted to \_\_\_\_\_ when baking soda is mixed with water.

- (1) Sodium carbonate
- (2) Sodium hydrogencarbonate

Passage - 4

5 Marks



A stain of curry on a white cloth becomes reddish brown when soap is scrubbed on it because Curry contains turmeric powder and soap is basic in nature. Bases turn turmeric red. Hence, when soap (which is basic in nature) is scrubbed on the stain, the stain turns red. When the cloth is washed with plenty of water, the soap is removed and the yellow colour of the stain reappears.

Q 1. Example of a natural indicator?

- (1) Turmeric
- (2) Chilli powder

Q 2. Bases turn turmeric \_\_\_\_\_.

---

- (1) Orange
- (2) Red

Q 3. Is soap basic in nature?

- (1) YES
- (2) NO

Q 4. Why did the stain become reddish brown when soap is scrubbed on it?

- (1) As it was acidic in nature
- (2) As it is basic in nature

Q 5. What happens when the cloth is washed with plenty of water?

- (1) It turns red again
- (2) It turns yellow again

Passage - 5

5 Marks



~~Soda~~ Soda-acid fire extinguisher contains sodium bicarbonate and sulphuric acid, which are in separate containers. When knob of fire extinguishers is pressed, then sulphuric acid mixes with sodium bicarbonate solution and produces a lot of

---

gas , which forms a blanket over the fire and cuts it off from the supply of the air to the burning substance and the fire stops.

Q 1. What does fire-extinguisher contains?

- (1) Sodium bicarbonate
- (2) Sulphuric acid
- (3) Both A and B

Q 2. Fire extinguisher is used for\_\_\_\_\_.

- (1) To get rid of fire
- (2) To increase fire.

Q 3. In fire extinguisher Sulphuric acid is mixed with \_\_\_\_\_.

- (1) Sodium chloride
- (2) Sodium bicarbonate

Q 4. What is the colour of Fire- extinguisher?

- (1) Red
- (2) Yellow

Q 5. Is Fire extinguisher an emergency tool ?

- (1) YES
  - (2) NO
-

Case study based questions  
10th Science

## Acids, Bases and Salts

Passage - 1

5 Marks

### Water of crystallization



[https://en.wikipedia.org/wiki/File:Copper\\_sulfate.jpg](https://en.wikipedia.org/wiki/File:Copper_sulfate.jpg)

The water of crystallization means having a fixed number of molecules present in one formula of a unit of salt. Crystal salts with water of crystallization are known as hydrates. The other names of water crystallization are crystallization water or water of hydration. The water of crystallization is caused by forming purified crystals from an aqueous solution. These crystals do not include contaminants. These crystals are easily affected by the heat. Examples of water of crystallization are proteins with more than 50% of the water of crystallization and copper sulfate pentahydrate with five molecules of water of crystallization\

Q 1. State true or false: Water of crystallization is fixed Number of water molecules .

- (1) TRUE
- (2) FALSE

Q 2. State True or False. Water of crystallization does not contain contaminants.

- (1) TRUE

(2) FALSE

Q 3. Copper sulfate pentahydrate has \_\_\_\_\_ molecules of water of crystallization.

(1) four

(2) Five

Q 4. What are Crystal salts with water of crystallization are known as \_\_\_\_\_.

(1) Hydrates

(2) Carbonates

Q 5. Another name for crystallization of water is \_\_\_\_\_.

(1) Carbonated water

(2) Hydration water

Passage - 2

5 Marks

---



Curd and sour substances should not be kept in brass and copper vessels because these and other sour food-stuffs contain acids which can react with the metal of the vessel to form poisonous metal compounds which can cause food poisoning and affect our health adversely.

Q 1. Curd is a \_\_\_\_\_ substance?

- (1) Sweet
- (2) Sour

Q 2. Sour substances kept in \_\_\_\_\_ metals can affect our health

- (1) Copper
- (2) Brass
- (3) Both A and B

Q 3. Does copper has malleability property?

- (1) YES

(2) NO

Q 4. State True or False. Food stuffs contains acid which reacts with the metals.

(1) TRUE

(2) FALSE

Q 5. Brass is an alloy of\_\_\_\_\_.

(1) Copper and iron

(2) Copper and zinc

Passage - 3

5 Marks



While diluting an acid it is recommended that the acid should be added to water and not water to the acid because if water is added to concentrated acid to dilute it, then a large amount of heat is evolved at once. This heat changes some of the water to steam explosively which can splash the acid on one's face or clothes and cause acid burns.

Q 1. What happens if water is added to acid?

- (1) Chemical Reaction
- (2) Explosion
- (3) All of the above

Q 2. When acid spills on anyone what will happen?

- (1) Burns
- (2) Fracture

Q 3. Acid contains-

- (1)  ions
- (2)  ions

Q 4. Acid is usually diluted using \_\_\_\_\_.

- (1) Base
- (2) Water

Q 5. When equal amount of acid and base are added what is the by product?

- (1) Salt and water
- (2) Carbon and hydrogen

Passage - 4

5 Marks

---



Distilled water does not conduct electricity because it does not contain any ionic compound (like acids, bases or salts) dissolved in it. Rainwater, while falling to the earth through the atmosphere, dissolves an acidic gas carbon dioxide from the air and forms carbonic acid ( $H_2CO_3$ )

). Carbonic acid provides hydrogen ions,  $H^+$  (aq) and carbonate ions, to rainwater. Hence, due to the presence of carbonic acid which provides ions to rainwater, the rainwater conducts electricity.

Q 1. Distilled water has ionic compounds?

(1) YES

---

(2) NO

Q 2. Carbonic acid provides \_\_\_\_\_.

(1) Hydrogen ions

(2) Calcium ions

Q 3. Do Distilled water conduct electricity?

(1) YES

(2) NO

Q 4. Rain water contains \_\_\_\_\_ ions.

(1) Carbonic

(2) Formic

Q 5. Distilled water does not contain-

(1) Acid

(2) Bases

(3) Salt

(4) All of the above

---