



মণিপুরৰ অৰ্থ নৱায়ন (অৰ্থ)
DEPARTMENT OF EDUCATION (S)
Government of Manipur
Chapter- 5.

Acids, Bases and Salts.

SOLUTIONS:

EXERCISES

Q 1. State difference between acids and bases

Answer:

Acids	Bases
1. Acids are sour in taste	1. Bases are bitter in taste
2. Acids turn blue litmus paper into red litmus paper	2. Bases turn red litmus paper into blue
3. Acids are corrosive in nature	3. Bases are soapy in nature

Q 2. Ammonia is found in many household products, such as window cleaners. It turns red litmus blue. What is its nature?

Answer: Ammonia turns red litmus blue. Therefore it is basic in nature.

Q 3. Name the source from which litmus solution is obtained? What is the use of this solution?

Answer: Litmus solution is obtained from lichens. This solution is used as an indicator to distinguish whether the solution is acidic or basic in nature.

Q 4. Is the distilled water acidic/ basic/neutral? How would you verify it?

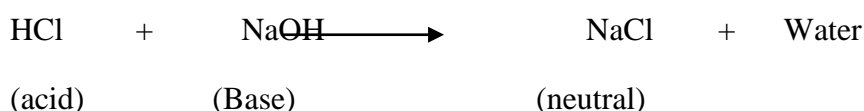
Answer: Distilled water is neutral. We can verify it by showing that neither blue nor red litmus paper changes colour when dipped in it.

Q 5. Describe the process of neutralisation with the help of an example.

Answer : When an acid solution and a base solution are mixed in suitable amount, both the acidic and basic nature are destroyed, resulting in a solution which is neutral. This process is called neutralization.

Example:-

When Hydrochloric acid (HCl) reacts with Sodium hydroxide (NaOH), the product formed is sodium chloride and water which are neutral in nature.



Q 6. Mark 'T' if the statement is true and 'F' if it is false:-

- I. Nitric acid turn red litmus blue. (T/ F)
Answer :- F
- II. Sodium hydroxides turn blue litmus red. (T/ F)
Answer:- F
- III. Sodium hydroxide and hydrochloric acid neutralize each other and form salt and water. (T/F)
Answer:-T
- IV. Indicator is a substance which shows different colours in acidic and basic solutions. (T/F)
Answer:-T
- V. Tooth decay is caused by presence of a base. (T/F)
Answer:-F

Q 7. Dorji has a few bottles of soft drink in his restaurant. But unfortunately, these are not labelled. He has to serve the drinks on the demand of customers. One customer wants acidic drinks; another wants basic and third one wants neutral drink. How will Dorji decide which drink is to be served to whom?

Answer: To test whether the drinks are acidic, basic or neutral, Dorji can use an indicator such as litmus paper. Pouring little amount of the different soft drinks into different glasses, he can dip the litmus paper into each of the glass. The soft drinks which turn the blue litmus paper into red is acidic, while the one that turns red litmus paper into blue is basic and the one that remains unchanged in colour is neutral.

Q 8. Explain why:-

- a. An antacid tablet is taken when you suffer from acidity.

Answer:- An antacid tablet is a base which contains magnesium hydroxide. That is why it is taken when we suffer from acidity to neutralise the effect of excessive acid.

- b. Calamine solution is applied on the skin when an ant bites.

Answer:- The sting of an ant is acidic in nature since it contains formic acid. This is neutralised by applying Calamine solution, which contains Zinc carbonate.

- c. Factory waste is neutralised before disposing it into the water bodies.

Answer:- Factory waste contains harmful acids and if it is disposed off in water bodies without neutralising, it will be harmful for aquatic plants or animals.

Q 9. Three liquids are given to you. One is hydrochloric acid, another is sodium hydroxide and third is a sugar solution. How will you identify them? You have only turmeric indicator.

Answer: Turmeric is an indicator which turns into red while in contact with an acid. Few drops of each solution are taken and mix with turmeric solution. The one that turns into red is sodium hydroxide, the one that turns into blue is hydrochloric acid and the one that remains unchanged in colour is sugar solution.

Q 10. Blue litmus paper is dipped in a solution, it remains blue. What is the nature of the solution? Explain.

Answer: - If a blue litmus paper when dipped in a solution, remains blue, it implies that the solution is either basic or neutral. Both types of substance have no effect on blue litmus.

Q 11. Consider the following statements:-

- a. Both acids and bases changes colour of all indicators.
- b. If an indicator gives a colour change with an acid, it does not give a change with a base.
- c. If an indicator changes colour with an acid.
- d. Change of colour in an acid and base depends on the type of the indicator.

Which of the statements are correct?

- I. All four (ii) a and d (iii) b, c and d (iv) only d

Answer: - (iv) only d



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EXTRA QUESTIONS AND ANSWERS

Q 1. What is an acid? Name some natural acid.

Answers: An acid is a substance which is sour in taste. Some natural acids are curd, lemon juice, orange juice and vinegar.

Q 2. What is a base? How does it feel when touched?

Answer: A base is a substance which is bitter in taste. When it is touched, it feels soapy.

Q 3. What is an indicator? Name some naturally occurring indicators?

Answer: An indicator is a substance used to test whether another substance is acidic or basic. Indicators change their colour when added to a solution containing an acidic or a basic substance.

Some naturally occurring indicators are Turmeric, litmus, China rose petals etc.

Q 4. Give four features of the natural dye litmus.

Answer:

- I. Litmus is a commonly used natural indicator.
- II. Litmus is extracted from lichens.
- III. Litmus has a purple colour in distilled water.
- IV. When litmus is added to an acidic solution, it turns red and when added to a basic solution, it turned blue

Q 5. What is a neutral solution?

Answer: The solutions which do not change the colour of either red or blue litmus are known as neutral solutions. They are neither acidic nor basic.

Q 6. What is a salt?

Answer: A salt is a new substance formed from the reaction of an acid with a base.

Q 7. Define neutralisation? What are the products formed?

Answer: The reaction between an acid and a base is known as neutralisation. The products formed are salt, water and evolution of heat.

Q 8. How is an acidic soil treated?

Answer: When the soil is acidic, it is treated with bases like quick lime (calcium oxide) or slaked lime (calcium hydroxide) to neutralise it.

Q 9. How is a basic soil treated?

Answer: When the soil is basic, it is treated or mixed with organic matter release acids which neutralises the basic nature of the soil.

Q 10. Below given are some indicators. How will their colour change in acidic and basic solution?

(a) Litmus (b) Turmeric (c) china rose (d) Phenolphthalein

Indicators	Acidic solution	Basic solution
Litmus	Red	Blue
Turmeric	Blue	Red
China Rose	Dark pink (Magenta)	Green
Phenolphthalein	colourless	Pink

Q 11. What is acid rain? How is it formed?

Answer: The rain containing excess of acids is called an acid rain.

The rain becomes acidic because carbon dioxide, sulphur dioxide and nitrogen dioxide which are released into the air as pollutants dissolve in rain drops to form acids, such as carbonic acid, sulphuric acid and nitric acid respectively.

Q 12. How is lime water prepared?

Answer: To prepare lime water, we can take some water in a tumbler. To this, add some lime (chuna) and stir it. Keep it for some time. Pour a little solution from the top. This is lime water.



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