



UNIQUE STUDY POINT

Chapter 5 Acids, Bases and Salts NCERT Solutions

EXERCISES

Question 1: State differences between acids and bases.

Answer:

Acids	Bases
Acids are sour in taste	Bases are bitter in taste
Acids turn blue litmus paper into red colour	The base does not change the colour of blue litmus paper
Acids does not change the colour of the red litmus	Bases turn red litmus paper to blue colour
Acids do not change the colour of turmeric indicator.	Bases turn the colour of turmeric indicator to red.
With china rose indicator, these give dark pink colour.	Bases give green colour with china rose indicator.

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

Answer: Bases turn red litmus blue, so nature of ammonia is basic.

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

Answer: Litmus is extracted from lichens. It has a mauve (purple) colour in distilled water. When added to an acidic solution, it turns red and when added to a basic solution, it turns blue. So, it is used to test the acidic or basic nature of solutions.

Question 4: Is the distilled water acidic/basic/neutral? How would you verify it?

Answer: Distilled water is neutral by nature. We can verify it by litmus test. Water does not change the colour of either red or blue litmus. This proves that distilled water is neutral.

Question 5: Describe the process of neutralisation with the help of an example.

Answer: The reaction between an acid and a base is known as neutralization reaction. In this reaction, both acid and base cancel each other's effect. Neutralisation reaction results in the formation of salt and water. During this reaction, energy in the form of heat is evolved.



For example: when sodium hydroxide (NaOH) is added to hydrochloric acid (HCl), sodium chloride (NaCl) and water (H₂O) are obtained.



Question 6: Mark 'T' if the statement is true and 'F' if it is false:

(i) Nitric acid turns red litmus blue. (T/F)

(ii) Sodium hydroxide turns blue litmus red. (T/F)

(iii) Sodium hydroxide and hydrochloric acid neutralise each other and form salt and water. (T/F)

(iv) Indicator is a substance which shows different colours in acidic and basic solutions. (T/F)

(v) Tooth decay is caused by the presence of a base. (T/F)

Answer:

(i) False

(ii) False

(iii) True

- (iv) True
- (v) False

Question 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 drink, another wants basic and third one wants neutral drink. How will Dorji decide which drink is to be served to whom?

Answer: Dorji can use litmus test on these drinks. Just drop few drops of drink on litmus paper and take the decision according to the following:

Question 8: Explain why:

- (a) An antacid tablet is taken when you suffer from acidity.
- (b) Calamine solution is applied on the skin when an ant bites.
- (c) Factory waste is neutralised before disposing it into the water bodies.

Answer: (a) Due to release of excess of hydrochloric acid, we suffer from acidity. An antacid tablet consists of a base like Milk of Magnesia (magnesium hydroxide). It neutralizes the effect of excessive acid and brings relief.

(b) When ant bites, it injects formic acid inside the skin. Calamine consists of Zinc carbonate which is basic in nature. Hence calamine neutralises the effect of formic acid to bring relief for the affected person.

(c) Factory wastes contain acids. Therefore, these wastes, when thrown directly to water bodies, harm aquatic lives. Hence, these wastes are neutralised with basic chemicals before disposing to water bodies.

Question 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: The following steps are taken to test the given liquids:

- Put a drop of provided liquid on the turmeric indicator. The solution that changes the colour of the indicator to red, is sodium hydroxide, which is basic in nature.
- Now, to make two mixtures, add a drop of sodium hydroxide on the other two liquids individually.
- The drop of each combination added to the turmeric indicator one after another.
- The mixture that changes the indicator to red colour includes a neutral solution of sugar.
- While the mixture contains hydrochloric acid that has been neutralized by the addition of sodium hydroxide, which does not show any colour change in the indicator.

Question 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 the solution is either basic or neutral.

Question 11: Consider the following statements:

- (a) Both acids and bases change 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 a base, it does not change colour with an acid.
- (d) Change of colour in an acid and a base depends on the type of the indicator.

Which of these statements are correct?

- (i) All four
- (ii) a and d
- (iii) b and c
- (iv) only d

Answer: (iv) only d

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