

Exercise Questions**Page number 56 -57****1. State differences between acids and bases.****Solution:**

Acids	Bases
Acids are sour in taste	Bases are bitter in taste
Acids turn blue litmus paper into red color	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 color
Acids do not change the colour of turmeric	Bases turn turmeric to red

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

The answer is basic in nature

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

Litmus solution is extracted from lichens. Litmus solution is used as an indicator to find acidic and basic nature of a solution.

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

Distilled water is neutral in nature, and this can be tested by using red and blue litmus paper. In either of the cases, colour remains unchanged.

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

Neutralisation is a reaction between an acid and a base. Here both acids and bases get neutralised For example, when sodium hydroxide (NaOH) is added to hydrochloric acid (HCl), sodium chloride (NaCl) and water (H₂O) are obtained.



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

- (i) Nitric acid turn 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)

Solution:

- i) False
- ii) False
- iii) True
- iv) True
- v) False

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?

Solution:

Dorji can taste a few drops out of soft drinks bottles, acidic solution is sour in taste, basic solution is bitter in taste, and the neutral solution has no taste. Along with tasting, Dorji can use litmus paper to test the nature of soft drink. He should use blue litmus paper to test the acidic solution. Dorji has to put a drop of solution on blue litmus. If it turns red then the solution will be acidic in nature.

Similarly, he can use red litmus paper to test the basic solution. He has to put a drop of solution on red litmus. If it turns blue then the solution will be basic in nature.

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.

Solution:

- a) The antacid tablet contains base like milk of magnesia which neutralises the acid produced in the stomach. Hence, it is used while suffering from acidity.
- 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 are acidic in nature which may cause harm to the aquatic life. Hence, they are neutralised by using a base before disposing it into the water bodies.

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.

Solution:

Add solution to container with turmeric indicator. If the solution is NaOH, it would turn turmeric indicator to red. To the same container, add test solution number 2. If the added solution is sugar solution indicator remains red because mixture of basic and neutral solution will remain basic in nature.

Similarly, add the test solution number 3 to another container with turmeric indicator. If the indicator remains red then the solution will be hydrochloric acid.

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

Solution:

Above solution may be neutral or basic in nature as both of them will not change the colour of the blue litmus paper.

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, c and d
 - (iv) only d

Solution:

Only d) is correct