Q. 1. State differences between acids and bases.

Ans.

Acids	Bases
1. Acids are sour in taste.	1. Bases are bitter in taste.
2. Acid is a substance which contains hydrogen ion (H^+).	2. Bases are substances which contain hydroxyl ion (OH^-).
3. They turn blue litmus paper red.	3. They turn red litmus paper blue.

Q. 2. Ammonia is found in many house hold products, such as window cleaners. It turns red litmus paper blue what is its nature ?

Ans. Ammonia has basic nature.

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

Ans. Litmus solution is extracted from lichens. It is used to test the nature of substances i.e.,

whether the substance is an acid and or a base.

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

Ans. Distilled water is neutral. It can be verified with litmus test. Litmus paper does not change its colour when dipped in distilled water.

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

Ans. The reaction between an acid and a base is known as neutralization. Salt and water are produced in this process with the evolution of heat.

Acid + Base

$\longrightarrow$ salt + water + (Heat is evolved

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

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

(ii) Sodium hydroxide turns blue litmus paper 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 colour in acidic and basic solutions. (T/F)

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

Ans. (i) F (ii) F (iii) T (iv) T (v) 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 neutral drink. How will Dorji decide which drink is to be served to whom ?

Ans. Dorji can decide this with the help of litmus paper :

(i) The drink which turns the blue litmus paper red, is acidic.

(ii) The drink which turns the red litmus paper blue, is basic.

(iii) The drink that does not affect the red or blue litmus paper at all is neutral.

Q. 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 neutralized before disposing it into the water bodies.

Ans. (a) Acidity means the excess acid produced in stomach causing discomfort. To neutralise the effect of excess acid antacid such as milk of magnesia is taken.

(b) When an ant bites, it injects the formic acid into the skin that causes irritation. To neutralise the effect of this acid, calamine solution is applied which contains zinc carbonate which is a weak base and does not harm the skin.

(c) The wastes of many factories contain acids. If these wastes are disposed off in the water bodies, the acids in them will kill the aquatic

organisms. Thus these are first neutralized by adding basic substances before disposing off.

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

Ans. The colour of turmeric indicator is yellow.

(i) When hydrochloric acid is added, it turns blue.

(ii) When sodium hydroxide is added, it turns red.

(iii) When sugar solution is added, it does not change colour.

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

Ans. There are two possibilities regarding the nature of the solution :

1. The solution is basic as the blue colour of litmus paper does not change but if a red colour litmus paper is used, it may remain red.

2. The solution is neutral as the colour of litmus paper does not change.

Q. 11. Consider the following statement :

(a) Both acids and bases change colour of all indicators.

(b) If an indicator gives a colour change with an acid, it does not change colour 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.

Ans. (ii) a and d.