



## INDIAN SCHOOL AL WADI AL KABIR



<b>CLASS: VII</b>	<b>DEPARTMENT: SCIENCE 2023-24</b>	<b>DATE: 02-11-2023</b>
<b>TEXTBOOK Q &amp; A</b>	<b>TOPIC: ACIDS, BASES AND SALTS</b>	<b>NOTE: A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT:</b>	<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

### 1. State the differences between acids and bases.

<b>ACIDS</b>	<b>BASES</b>
<ul style="list-style-type: none"><li>▪ These are sour to taste.</li></ul>	<ul style="list-style-type: none"><li>▪ These are bitter to taste.</li></ul>
<ul style="list-style-type: none"><li>▪ Acids turn blue litmus red.</li></ul>	<ul style="list-style-type: none"><li>▪ Bases do not change the colour of blue litmus.</li></ul>
<ul style="list-style-type: none"><li>▪ Acids do not change the colour of red litmus.</li></ul>	<ul style="list-style-type: none"><li>▪ Bases turn red litmus blue.</li></ul>
<ul style="list-style-type: none"><li>▪ With china rose indicator, these give dark pink (magenta) colour</li></ul>	<ul style="list-style-type: none"><li>▪ Bases give green colour with china rose indicator</li></ul>
<ul style="list-style-type: none"><li>▪ Acids do not change the colour of turmeric indicator</li></ul>	<ul style="list-style-type: none"><li>▪ Bases turn the colour of turmeric indicator to red</li></ul>

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

**Ans - Ammonia is basic in nature as it turns the colour of red litmus paper to blue.**

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

**Ans - Litmus solution is obtained from lichens. A natural dye extracted from lichens is dissolved in distilled water to obtain a litmus solution.**

**It is used as an indicator to distinguish between acids and bases.**

4. Is distilled water acidic/basic/neutral? How will you verify it?

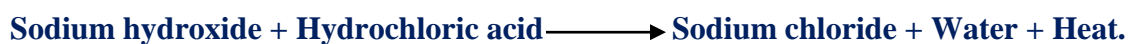
**Ans - Distilled water is neutral in nature. It can be verified by using red and blue litmus papers. Neither of the litmus papers will show a colour change with distilled water. This proves that distilled water is neutral.**

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

**Ans - The reaction between an acid and a base is known as a neutralisation reaction. In Neutralisation reaction salt and water are produced along with the evolution of heat.**



**For example, when sodium hydroxide is added to hydrochloric acid, sodium chloride and water are obtained.**



**6. Mark T if the statement is true and F if the statement is false -**

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

**(Nitric acid is an acid and turns blue litmus red.)**

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

**(Sodium hydroxide is a base and will turn red litmus blue.)**

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

(iv) An indicator is a substance which shows different colours in acidic and basic solutions. (T)

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

**(Tooth decay is caused by the acid released by bacteria by decomposing leftover food particles in our mouth.)**

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

**Ans - Since the soft drinks are edible, Dorji can decide by tasting the drinks. Acidic drinks will be sour to taste whereas basic drinks will be bitter to taste and neutral drinks will have no taste.**

**Dorji can also use litmus paper to identify the acid, base and neutral drink. If Dorji has a litmus indicator (solution or paper), then he should put one drop of each sample soft drink on blue litmus paper. If the colour of the litmus paper changes to red, then it is an acidic drink.**

Out of the remaining drinks, some are basic and some are neutral. Again, put one drop of the remaining drinks on red litmus paper. If the colour changes to blue, then it is basic and the others are neutral. In this way, he can serve all three customers their respective drinks.

**8. Explain why:**

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

**Ans** - This is because, during acidity, an excess of acid is produced in the stomach. An antacid contains a base, such as milk of magnesia. These bases react with excess acids and neutralise their effect, thus giving us relief.

b) Calamine lotion is applied on the skin when an ant bites.

**Ans** - When an ant bites, it injects formic acid into the skin. Calamine solution contains zinc carbonate which is basic in nature. Therefore, it is applied on the skin to neutralise the effect of formic acid.

c) Factory waste is neutralised before disposing it of in water bodies.

**Ans** - Factory wastes contain acids. Therefore, these wastes, when thrown directly into water bodies, harm aquatic lives. Hence, these wastes are neutralised with basic chemicals before being disposed of in water bodies.

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

**Ans** - We will put a drop each of the hydrochloric acid, sodium hydroxide, and sugar solution on the turmeric indicator. The liquid which changes the colour of the turmeric indicator to red is basic in nature, that is, sodium hydroxide.

Now, we will put a drop of sodium hydroxide (base) in each of the other two above liquids separately. Then we will put the drops of these mixtures which have sodium hydroxide added to them on the turmeric indicator. The drop which will change the colour of the turmeric indicator to red contains sugar solution because when we add basic solution (sodium hydroxide) to sugar solution, the mixture becomes basic in nature.

On the other hand, the drop which will not change the colour of the turmeric indicator contains hydrochloric acid. This is because when hydrochloric acid reacts with sodium hydroxide it forms a neutral solution.

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

**Ans - The above solution could be a base or a neutral solution because:**

- Bases turn red litmus to blue but do not react with blue litmus.
- Neutral substance also does not react with litmus solution.

**11. Consider the following statements:**

- a) Both acids and bases change the 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 acid.
- d) Change of colour in an acid or base depends on the type of indicator

Which of these statements are correct?

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

**Ans - (iv) Only d is correct.**

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