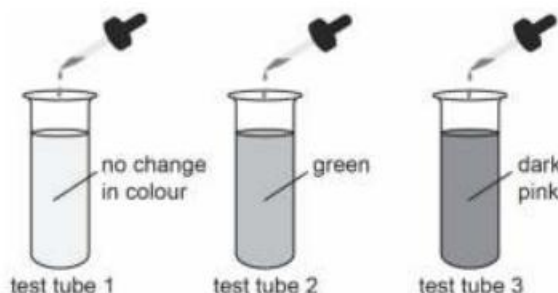


	INDIAN SCHOOL AL WADI AL KABIR	
Class: VII	DEPARTMENT: SCIENCE 2026-27	DATE: 24/08/2026
WORKSHEET NO: 5 WITH ANSWERS	TOPIC: EXPLORING SUBSTANCES: ACIDIC, BASIC, AND NEUTRAL	NOTE: A4 FILE FORMAT
CLASS & SEC:	NAME OF THE STUDENT:	ROLL NO.

I. OBJECTIVE-TYPE QUESTIONS

1. Samal takes 10 ml of three colourless liquids in separate test tubes. She adds 5 drops of red rose indicator to each test tube. The pictures show the colour of the liquid in each test tube after adding the indicator.



Which test tube contains liquid soap?

- (a) Test tube 1
- (b) Test tube 2
- (c) Test tube 3
- (d) Test tubes 2 and 3

2. Meera spilt soap solution on her notebook. She wanted to check whether the soap solution is acidic or basic. Which observation would confirm it?

- (a) Blue litmus turns red.
- (b) Red litmus turns blue.
- (c) Both litmus papers remain unchanged.
- (d) Both litmus papers turn green.

3. 'Litmus', a natural dye, is an extract of which of the following?

- (a) Lichen
- (b) China Rose
- (c) Beetroot
- (d) Blueberries

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

- (a) Acidic and basic.
- (b) Basic or neutral.
- (c) Acidic or neutral.
- (d) Only neutral.

5. Which of the following pairs shows a correct neutralisation example?

- (a) Acidic soil-add vinegar.
- (b) Acidic soil-add lime.
- (c) Acidic soil-add manure.
- (d) Acidic soil-add sugar.

6. A student adds blue litmus solution to diluted lemon juice. Then lime water is added drop by drop. What will happen first?

- (a) The solution immediately turns green.
- (b) The colour changes from red to blue after adding enough lime water.
- (c) The blue litmus will turn red.
- (d) The solution becomes colourless.

7. A teacher asks students to identify a basic solution without using colour-changing indicators. Which of the following could be used?

- (a) Onion extract
- (b) Distilled water
- (c) Sugar solution
- (d) Salt crystals

For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (A), (B), (C), and (D) as given below:

- A) Both A and R are true, and R is the correct explanation of the assertion.**
- B) Both A and R are true, but R is not the correct explanation of the assertion.**
- C) A is true, but R is false.**
- D) A is false, but R is true**

8. **Assertion (A):** The solutions which are neither acidic nor basic are called neutral solutions.

Reason (R): Lemon juice is of acidic nature because it contains citric acid.

9. **Assertion (A):** If the soil is basic, organic matter like manure and composted leaves is added to it.

Reason (R): Organic matter releases acids that neutralise the basic nature of the soil.

10. **Assertion (A):** In a neutralisation reaction, heat is always produced, or evolved.

Reason (R): The evolved heat decreases the temperature of the reaction mixture.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. Describe one chemical method of preparing a salt with an example.

[Hint: Salts are compounds that are formed when acids react with bases. For example, sodium chloride is formed when hydrochloric acid reacts with sodium hydroxide.]

2. Under what soil conditions would a farmer treat the soil of his fields with slaked lime and why?

[Hint: If the soil is acidic in nature, then a farmer would treat the soil with slaked lime (calcium hydroxide) to neutralise the acidic nature of the soil.]

3. How is turmeric used as an indicator?

[Hint: Turmeric is a natural indicator. It can be used to distinguish acidic and basic solutions. It remains yellow in acid and changes to red in base.]

4. How can we prepare the red rose indicator?

[Hint: Collect some red rose petals and place them in a beaker. Wash them with water. Crush the petals using a mortar and pestle. Pour some hot water into the crushed flower petals for some time till the water becomes coloured. Use the coloured water as an acid-base indicator.]

5. What are natural indicators? Explain with examples.

[Hint: Natural indicators are substances obtained from plants or other natural sources that change their colour to show whether a substance is acidic or basic. For example-

a) Litmus obtained from lichens turns red in acids and blue in bases.

b) Turmeric remains yellow in acids but turns red in bases.]

6. Why does a turmeric stain red on a white shirt when it is washed with soap?

[Hint: It is because the soap solution is basic in nature, and turmeric acts as a natural indicator that turns red in a basic solution.]

III. SHORT ANSWER TYPE QUESTIONS: (3M)

1. Red rose extract turns green when added to a solution. What will happen if excess amla juice is added to the same solution? Explain briefly.

[Hint: The red rose extract turned green, so the solution is basic. If excess amla juice is added to the same solution, the colour will change from green to red because amla juice is acidic.]

The acid in amla juice neutralises the base, and if added in excess, the solution becomes acidic.]

2. ACID + BASE $\longrightarrow$ SALT + WATER

i. Name the above reaction. **[Hint: Neutralisation reaction]**

ii. Give an example of this type of reaction.

[Hint: Hydrochloric acid reacts with sodium hydroxide producing salt and water.]

iii. Write its word equation.

[Hint: Hydrochloric acid + Sodium hydroxide $\longrightarrow$ Sodium chloride + Water]

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

[Hint: Distilled water is neutral in nature. This can be verified by using red and blue litmus papers. Both the indicators will not show a change in colour with distilled water. This proves that distilled water is neutral.]

4. List the properties of acids and bases.

[Hint: ACIDS- Acids have a sour taste. They are corrosive in nature. They turn blue litmus red. Acids are soluble in water. Heat is produced when a strong acid is mixed with water.

BASES- Bases are slippery or soapy to touch. They taste bitter. They turn red litmus blue. They react with acids to produce salt and water.]

5. Write the observations of change in smell of onion with acidic and basic substances.

[Hint: Onion acts as an olfactory indicator, which means its characteristic odour changes depending on acidic or basic medium.

With Acidic Substances-The characteristic smell of onion remains unchanged and can be easily detected.

With Basic Substances- The characteristic smell of onion is destroyed or vanishes.]

IV. LONG ANSWER TYPE QUESTIONS. (5M):

1. Explain any 3 neutralisation reactions used in our daily life situations.

[Hint:1. Ant Bite: When an ant bites, it injects an acidic liquid (formic acid) into the skin. The effect of the acid can be neutralised by rubbing a mild base like baking soda solution (sodium hydrogen carbonate) or calamine solution. Calamine solution contains a base called zinc carbonate. Thus, being a base, baking soda solution or calamine solution neutralises the acidic liquid injected by the ant and cancels its effect.

2. Soil Treatment- The soil may be acidic or basic naturally. The plants do not grow well if the soil at a place is too acidic or too basic. Excessive use of chemical fertilisers makes the soil acidic. When the soil is too acidic, it is treated with bases like quick lime (calcium oxide) or slaked lime (calcium hydroxide). These bases neutralise the excess acid present in the soil and reduce its acidic nature. If the soil is basic, organic matter called manure or compost is added to it. The organic matter releases acids which neutralise the excess bases present in the soil and reduce its basic nature.

3. Factory Wastes: The waste substances discharged by many factories contain acids. If these factory wastes are allowed to flow into the water bodies (like rivers, ponds, lakes, etc), then the acid present in them will kill fish and other organisms which live in the water bodies. The factory wastes are therefore neutralised by adding basic substances before discharging them into water bodies.]

2. There are a few solutions given. Compare the reactions to the use of litmus, turmeric and red rose as an indicator.

Lime water, lemon juice, milk, toothpaste

Solution	Litmus	Turmeric	Red Rose
Lime water	Blue	Red	Green
Lemon juice	Red	Yellow	Red
Milk	Red	Yellow	Red
Toothpaste	Blue	Red	Green

V. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS:

Turmeric is a natural indicator that helps us identify whether a substance is acidic or basic. It is yellow in colour and remains yellow in acidic and neutral substances. However, when turmeric comes in contact with a basic substance, it changes from yellow to reddish-brown. This property makes turmeric useful in simple science experiments. For example, if turmeric paste is applied to a kitchen platform and a soap solution is spilt on it, the turmeric turns reddish-brown, showing that the soap solution is basic.

i. What is the function of turmeric as a natural indicator?

[Hint: Turmeric helps identify whether a substance is acidic or basic.]

ii. What colour change is observed when turmeric comes in contact with a basic substance?

[Hint: Turmeric changes from yellow to red when it comes in contact with a basic substance.]

iii. A student notices that turmeric paste on a kitchen platform turns reddish-brown after a cleaning liquid is spilt on it. What can the student conclude about the nature of the cleaning liquid?

[Hint: The student can conclude that the cleaning liquid is basic in nature because turmeric turns reddish-brown in the presence of a base.]

ANSWERS FOR OBJECTIVE TYPE QUESTIONS (1 to 10)

1-(b) Test tube 2

2-(b) Red litmus turns blue.

3-(a) Lichen

4-(b) Basic or neutral

5-(b) Acidic soil-add lime

6-(c) The blue litmus will turn red.

7-(a) Onion extract

8-(B) Both A and R are true, but R is not the correct explanation of the assertion.

9-(A) Both A and R are true, and R is the correct explanation of the assertion.

10-(C) A is true, but R is false.

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