

Quiz – Acid & Bases

FILL IN THE BLANKS

1. A _____ is used to determine the PH value of a solution.
2. _____ is responsible for fizz in cold drinks.
3. The reaction of an acid with a base to produce _____ & _____ is called a neutralization reaction.
4. Which of these is not a base?
(i) Soap (ii) Lime Water (iii) Curd (iv) Ammonia
5. Vinegar, fruit juice & cola are examples of _____ acid.
6. Distilled water is _____ solution.
7. _____ acid is present in Car Batteries.
8. Unripe Mangoes have _____ acid.

MULTIPLE CHOICE QUESTIONS

1. The correct way of making a solution of acid in water is to
 - a) add water to acid.
 - b) add acid to water.
 - c) mix acid and water simultaneously.
 - d) add water to acid in a shallow container.
2. Products of a neutralization reaction are always
 - a) an acid and a base
 - b) an acid and a salt
 - c) a salt and water
 - d) a salt and a base
3. Turmeric is a natural indicator. On adding its paste to acid and base separately, which colours would be observed
 - a) Yellow in both acid and base.
 - b) Yellow in acid and red in base.
 - c) Pink in acid and yellow in base.
 - d) Red in acid and blue in base.
4. Phenolphthalein is a synthetic indicator and its colours in acidic and basic solutions, respectively are
 - a) red and blue
 - b) blue and red
 - c) pink and colorless
 - d) colorless and pink

5. When the soil is too basic, plants do not grow well in it. To improve its quality what must be added to the soil?
- Organic matter
 - Quick lime
 - Slaked lime
 - Calamine solution
6. Litmus, a natural dye is an extract of which of the following?
- China rose (Gudhal)
 - Beetroot
 - Lichen
 - Blue berries (Jamun)
7. Neutralization reaction is a
- physical and reversible change.
 - physical change that cannot be reversed.
 - chemical and reversible change
 - chemical change that cannot be reversed.
8. A solution changes the colour of turmeric indicator from yellow to red. The solution is
- basic
 - acidic
 - neutral
 - either neutral or acidic
9. Which of the following set of substances contain acids?
- Grapes, lime water
 - Vinegar, soap
 - Curd, milk of magnesia
 - Curd, Vinegar
10. On adding phenolphthalein indicator to a colorless solution, no change is observed. What is the nature of this solution?
- Basic
 - Either acidic or basic
 - Either acidic or neutral
 - Either basic or neutral
11. Which of the following is an acid-base indicator?
- Vinegar
 - Lime water
 - Turmeric
 - Baking soda
12. Which of the following is not an acid-base indicator?
- blue litmus
 - methyl orange
 - phenolphthalein
 - digene

13. Which of the following is a strong acid?
- a) nitric acid
 - b) citric acid
 - c) acetic acid
 - d) tartaric acid
14. What is the common name of sodium bicarbonate?
- a) phitkari
 - b) caustic soda
 - c) baking soda
 - d) blue vitriol
15. Lime juice will turn
- a) blue litmus red
 - b) methyl orange yellow
 - c) red litmus blue
 - d) phenolphthalein pink
16. Sodium chloride will turn
- a) blue litmus red
 - b) methyl orange yellow
 - c) red litmus blue
 - d) none of the above
17. Acids
- a) have sour taste
 - b) are corrosive in nature
 - c) are soluble in water
 - d) have all of these properties
18. Alkalis
- a) have sour taste
 - b) are soluble in water
 - c) turn blue litmus red
 - d) have all of these properties
19. Which of these is not a base?
- a) soap
 - b) limewater
 - c) curd
 - d) ammonia
20. Vinegar, fruit juice, and cola are examples of
- a) strong bases
 - b) strong acids
 - c) weak bases
 - d) weak acids

21. Which of these is not an indicator?
- turmeric
 - phenolphthalein
 - tomato juice
 - red cabbage
22. Which food item contains ascorbic acid?
- curd
 - banana
 - orange
 - gooseberry
23. _____ is an antacid that reduces acidity in the stomach.
- Magnesium hydroxide
 - Potassium hydroxide
 - Sodium hydroxide
 - Calcium hydroxide
24. When an excess amount of water is added in an acid, it becomes
- diluted acid
 - concentrated acid
 - neutral substance
 - both b and c.

TRUE OR FALSE

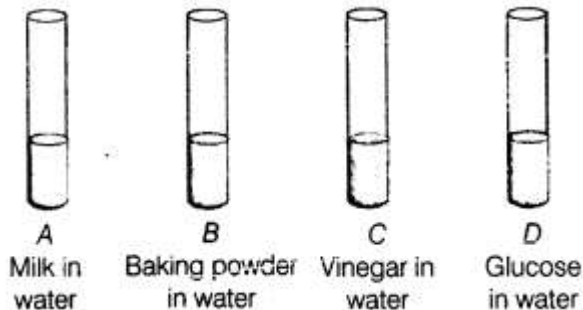
- All substances are either acidic or basic.
- A compound, if acidic will turn all indicators Red.
- Lime water turns red litmus blue.
- Common salt dissolved in water turns blue & it means red.
- Calamine can be used to treat an ant sting.
- Lemon water is basic in nature.
- Vinegar is dilute lactic acid.
- Chemical name of vitamin D is ascorbic acid.
- When an acid reacts with a base neutralization occurs.
- Acids feel slippery to touch.
- Acids produce hydrogen ions when dissolved in water.

QUESTION ANSWER

Q1. If sometimes is having acidity, should we give them organic juice?

Q2. If a wasp stings, should one baking soda or lemon juice a remedy?

Q3.



What will happen when Red litmus is dropped in all 4 test tubes.

Q4. Form a sentence using following words – baking soda, ant bite, moist, effect, neutralized, rubbing.

Q5. There are 3 test tube containing China Rose Solutions in all.

When Solution A is added to Test Tube 1 → It got Pink.

When Solution B is added to Test Tube 2 → It got Green.

When Solution C is added to Test Tube 3 → It Showed no change.

Why?

Q6. 4 Test tubes have sugar solution Baking soda solution, Tamarind solution & Salt solution. Write an activity to find the nature (acidic, basic, neutral) of a solution.

Q7. We have 3 test tubes A, B & C. What will you observe when you put the following in each test tubes:

A) a piece of Blue litmus

B) a piece of Red litmus

C) A few drops of Phenolphthalein solution.

Q8. If you get turmeric (haldi) stains on your clothes while eating food & try to wash it off with soap & water it gets Red. why? How can we remove haldi stain from Clothes?

Q9. Look at the given reaction.

Hydrochloric acid + Sodium hydroxide (base) \rightarrow Sodium chloride (salt) + Water

Sodium chloride formed in this reaction remains in solution form. Can we get solid sodium chloride from this solution? Suggest a method (if any).

Q10. Ram, Shyam and their friend Golu were provided with a test tube each containing China rose solution which was pink in color. Ram added two drops of solution A in his test tube and got dark pink color. Shyam added 2 drops of solution B to her test tube and got green color. Golu added 2 drops of solution C but could not get any change in color. Suggest the possible cause for the variation in their results.

Q11. A farmer was unhappy because of his low crop yield. He discussed the problem with an agricultural scientist and realized that the soil of his field was either too acidic or too basic. What remedy would you suggest the farmer to neutralize the soil?

Q12. Shyam observed that most of the fish in the pond of her village were gradually dying. He also observed that the waste of a factory in their village is flowing into the pond which probably caused the fish to die.

a) Explain why the fish were dying.

b) If the factory waste is acidic in nature, how can it be neutralized?

Q13. Is the meaning of 'weak acid' the same as that of 'dilute acid'?

Q14. The wastes of many factories contain acids. Why is it considered necessary to neutralize them before allowing the wastes to flow into water bodies?

Q15. Name the acid:

a) present in curd _____

b) in lemon juice _____

c) in an ant bite _____

d) in car batteries _____

e) brings the fizz in cold drink _____

Q16. Give reasons for the following:

a) Gardeners add lime to soil.

b) When bitten by an ant, sodium bicarbonate solution is applied quickly.

c) You must brush your teeth after eating grapes.

d) You can use a lemon for cleaning copper vessels.

e) Acids are never stored in metal or plastic containers.

f) A turmeric stain turns red when soap solution is applied to it.

Answer

FILL IN THE BLANKS

1. ph meter
2. Carbonic Acid
3. Salt, Water & Heat
4. Curd
5. Weak
6. neutral
7. Sulphuric
8. tartaric

MULTIPLE CHOICE QUESTIONS

1. add acid to water
2. a salt and water
3. Yellow in acid and red in base
4. colorless and pink
5. Organic matter
6. chemical and reversible change
7. either neutral or acidic
8. Grapes, lime water
9. Curd, Vinegar
10. Either acidic or neutral
11. Turmeric
12. Digene
13. Nitric Acid
14. Baking Soda
15. Blue litmus red
16. None of the above
17. have all these properties
18. are soluble in water
19. curd
20. weak acids
21. tomato juice
22. orange
23. Magnesium hydroxide
24. diluted acid

TRUE OR FALSE

1. False
2. False, not always
3. True
4. False. It does not change the colour of litmus at all
5. True
6. False. It is acidic in nature
7. False
8. False
9. True
10. False
11. True

QUESTION ANSWER

1. False, No As even orange juice is acidic.
2. As a wasp's sting is basic. Lemon juice being acidic, neutralizes its effect, thus making us feel relieved.
3. A - No Change B – Turns Blue C – No Change D - No Change
4. The effect of an ant bite is neutralized by rubbing moist baking soda.
5. Because
Solution A → Was Acidic Solution
Solution B → Was Basic Solution
Solution C → Was Neutral Solution
6. Use both red and blue litmus to test.
 - Sugar solution, would change neither → Neutral
 - Baking soda, would change red to blue, with no change in blue → Basic
 - Tamarind solution, would change red → Acid
 - Salt solution, if acidic salt, would turn blue to red, without change in red, if neutral would remain same in both and if basic would be blue
- 7.

Test tube	Effect on Blue Litmus	Effect on Red litmus	Effect on Phenolphthalein Solution
A	Turns Red	Remains Red	Colourless
B	Remains Blue	Turns Blue	Pink Colour
C	Remains Blue	Remains Red	Colourless

8. It turns Red because soap is basic in nature & hence the turmeric on reaction with a base turns Red in colour.

NOTE: Acids contain more hydrogen ion and bases contain more hydroxyl ion.

9. Evaporation.

10. A is an acidic solution, B is a basic solution, C is a neutral solution

11. If the soil is too acidic, it is treated with bases such as quick lime (calcium oxide) or slaked lime (calcium hydroxide). If the soil is too basic, organic matter is added to it. Organic matter releases acids which neutralizes the basic nature of the soil.

12. a) Since factory waste may contain acids or bases, it can kill the fish.

b) If the factory waste is acidic in nature, it can be neutralized by adding basic substances.

13. Weak acids are completely different from dilute acids. Weak acids are non-corrosive in nature even in their highly concentrated state. Generally, all organic acids like citric acid, lactic acid, oxalic acid, etc., are weak acids. However, dilute acids are also non-corrosive in nature but are formed by mixing concentrated acids with a large amount of water. For example, dilute hydrochloric acid, dilute sulphuric acid, etc. Dilute acids can include both strong and weak acids.

14. Acids are extremely corrosive in nature; therefore, they can cause extensive damage to the living organisms present in water. Also, if the wastes are allowed to flow into the water bodies without treatment, they can pollute the water, making it unfit for drinking. Hence, the wastes should be neutralised by bases before releasing them into water bodies. The base calcium hydroxide ($\text{Ca}(\text{OH})_2$) is widely used to treat wastes, containing acids, from the industries.

15.

a) Lactic acid

b) Citric acid

c) Formic acid

d) Sulphuric acid

e) Carbonic acid

16.

a) **Lime** is a valuable soil amendment that helps plants and lawns flourish by **raising soil pH**. A low soil pH, or acidic soil, is often the underlying problem when it comes to many common lawn and garden problems. But even with a healthy lawn or garden, liming can improve soil quality, helping plants and grass to flourish.

Liming, or adding lime to soil, has many benefits. Because liming improves the quality of the soil, plants and grass can reap all the benefits of a healthy soil environment. At a neutral pH, existing soil nutrients are unlocked, and readily available for plant uptake. Neutral soil pH allows microbes and worms to prosper, organic matter to break down, and soil to truly become the living environment it desires to be. In addition, fertilizer is more effective at a neutral pH. When acidic soil is corrected, plants and lawns are greener, stronger, use less water, and are more able to resist diseases.

Lime is also an important source of calcium for plants. Just as humans need calcium for healthy teeth and bones, plants need calcium for healthy growth.

Liming your lawn or garden is a great way to improve your soil, and the overall health of your grass, flowers, or vegetable plants.

- b) Neutralization is used to reduce the pain of insect stings. When an ant or a bee stings, baking soda (contains Sodium bicarbonate) is applied on the skin for relief. Ant Sting is acidic (due to formic acid) and baking soda is basic (due to Sodium bicarbonate), so neutralization takes place.
- c) As the grapes are generally Acidic in nature it is said to brush the teeth because of the slightly basic nature of the toothpaste which neutralises the acid present in the grapes there by reducing the risks of tooth degradation.
- d) Copper vessels are tarnished due to the layer of oxide formed on the surface. The oxides are basic in nature while, lemon exhibits acidic nature. When we rub it on the surface of tarnished vessel, basic copper oxide reacts with acidic lemon to form salt, which is then washed away while cleaning the vessel with water.
- e) Acids are corrosive in nature. They react with metals and even cut through their surface. That is why they are never stored in metal or plastic containers. You will find the acids kept in glass containers in your chemistry lab.
- f) It is because turmeric contains an acid (tartaric acid), while the soap contains a base (sodium hydroxide). When an acid reacts with a base, neutralization reaction takes place and the stain becomes neutral. Therefore, due to this reaction the stain turns red.