

Multiple Choice Questions

DIRECTIONS : The following questions has four choices (a), (b), (c) and (d) out of which only one is correct. You have to choose the correct alternative.

- A blue litmus paper was first dipped in dilute hydrochloric acid and then in dilute sodium hydroxide solution. It was observed that the colour of the litmus paper: [Tricky]
 - changed to red
 - changed first to red and then to blue
 - changed blue to colourless
 - remained blue in both solutions.
- If you perform an experiment bare handed and you realise that your palm has become slippery and slimy. The most probable reason for this is that you have dropped : [Tricky]
 - sodium hydroxide on your hands.
 - hydrochloric acid on your hands.
 - sodium chloride on your hands.
 - None of these
- To test a solution in container 'A.' You dipped the filter paper in this solution and then in lime water. The colour of filter paper after dipping in lime water becomes brownish red. It shows that the solution in container 'A' was [2015, Tricky]
 - red litmus solution
 - methyl red solution
 - turmeric solution
 - phenolphthalein solution
- Which is responsible for the damaging effects caused by acid rain ?
 - Carbonic acid
 - Sulphuric acid
 - Nitric acid
 - All of these
- You dissolved a sample, in distilled water and then added a drop of this solution to a test-tube containing blue litmus solution which changes to red. It shows that the sample given to you is of [Tricky]
 - soap
 - tomato juice
 - baking soda
 - sugar
- When few drops of phenolphthalein are added to sample 'A' it turned pink. To this pink coloured solution we added a few drops of sample 'B'. With continuous stirring the pink colour disappears. Samples 'A' and 'B' are : [Critical Thinking]
 - sample 'A' is acidic and sample 'B' is basic.
 - sample 'A' is basic and sample 'B' is acidic.
 - sample 'A' is basic and sample 'B' is neutral.
 - sample 'A' is acidic and sample 'B' is neutral.
- You are provided with two solutions 'X' and 'Y'. The colour of turmeric stains on your cloths on coming in contact with solution 'X' changes to brick red and when in contact with solution 'Y' changes to yellow. The solution 'X' and 'Y' provided to you are respectively : [Critical Thinking]
 - Soap solution and lemon juice
 - Lemon juice and soap solution
 - Lemon juice and vinegar
 - Soap solution and sugar solution
- Following observation were recorded upon performing experiments with sample 'A' and sample 'B'. [2012, Tricky]
 - When 2-3 drops of phenolphthalein are added to sample 'A' it becomes pink.
 - When equal quantities of two samples are added in a test-tube, the test-tube becomes hot.
 - sample 'A' is basic
 - sample 'B' is acidic
 - (ii) observation confirms neutralisation
 - All the above are correct
- is an acid-base indicator, its colour is yellow in basic medium and pink in acidic medium. [2013, Tricky]
 - Phenolphthalien
 - Methyl orange
 - Litmus
 - Both (a) and (b) are correct

10. is used to neutralise the acidic effect of ant bite by rubbing it at the point of ant bite. [Tricky]
- Moist baking soda
 - Calamine solution
 - Both (a) and (b)
 - Calcium carbonate
11. is used to treat a soil that is acidic and in which plants do not grow well. [2014]
- Quick lime
 - Slaked lime
 - Calcium oxide
 - Any one of (a), (b) or (c)
12. Salts are compounds : [Tricky]
- having a bitter taste
 - having a sour taste
 - obtained as a result of neutralisation reaction between acid and base.
 - All the above are correct
13. Many salts absorb water (moisture) from the atmosphere. This property is called
- hydration
 - dehydration
 - crystallisation
 - decantation
14. The substances which form hydronium ions (H_3O^+) in water are called [Critical Thinking]
- acids
 - bases
 - alkalies
 - None of these
15. The compounds which produce hydroxyl ions (OH^-) in water are called
- alkalies
 - bases
 - acids
 - None of these
16. Metallic oxides dissolve in water to form
- acidic solution
 - neutral solution
 - basic solution
 - None of these
17. Non-metallic oxides react with water to form [Critical Thinking]
- alkaline solution
 - acidic solution
 - neutral solution
 - None of these
18. A solution turns red litmus blue, its pH is likely to be
- 1
 - 4
 - 5
 - 10
19. The acid present in tea is :
- tannic
 - lactic
 - tartaric
 - citric
20. Acid reacts with metal to form : [Tricky]
- salt + CO_2
 - salt + water
 - salt + O_2
 - salt + H_2
21. Manisha took a little bit of soil from her garden and mixed it with water. When she dipped a blue litmus in it, the litmus turned red. By adding which of the following to her garden will she get better plant growth? [Tricky]
- Hydrochloric acid
 - Slaked lime
 - Water
 - Salt
22. Common name of H_2SO_4 is :
- oil of vitriol
 - muriatic acid
 - blue vitriol
 - green vitriol
23. Common name of copper sulphate is :
- chalk
 - quicklime
 - nitre
 - blue vitriol
24. The waste from a paper factory contains high amount of hydrochloric acid. How should we treat the waste, before disposal to make it safe? [Critical Thinking]
- Treat it with chemicals containing sodium hydroxide
 - Treat it with chemicals containing sulphuric acid
 - Treat it with chemicals containing sodium chloride
 - Treat it with pure hydrochloric acid
25. Read the following statements :
- It is a reaction between an acid and a base.
 - Salt and water are produced in this reaction.
 - It is an exothermic reaction.
- Which reaction is being referred to? [Tricky]
- Displacement reaction
 - Neutralization reaction
 - Redox reaction
 - Decomposition reaction.
26. Study the table carefully [Critical Thinking]
- | | Sample | Blue litmus to red | Red litmus to blue |
|-------|----------------|--------------------|--------------------|
| (i) | Tamarind juice | ✓ | × |
| (ii) | Sugar syrup | × | ✓ |
| (iii) | Lime water | × | ✓ |
| (iv) | Soap solution | ✓ | × |
- Which of the above are correctly matched?
- (i) & (iii)
 - (ii) & (iv)
 - (i), (ii) & (iii)
 - (i), (iii) & (iv)

27. The two types of litmus paper are:
 (a) blue and red (b) blue and yellow
 (c) red and green (d) yellow and red
28. In acids, methyl orange turns :
 (a) yellow (b) green
 (c) red (d) white
29. In bases, methyl orange turns :
 (a) green (b) black
 (c) red (d) yellow
30. Phenolphthalein turns _____ in acidic and neutral solutions.
 (a) colourless (b) pink
 (c) red (d) green
31. Lime water is a solution of: [Tricky]
 (a) $\text{Ca}(\text{OH})_2$ in water
 (b) CaCl_2 in water
 (c) NaOH in water
 (d) NaCl in water
32. Silver and gold are purified with :
 (a) nitric acid (b) HCl
 (c) acetic acid (d) sulphuric acid
33. Soluble bases are called :
 (a) salts (b) acids
 (c) alkalies (d) All the three
34. Caustic soda is the common name for :
 (a) $\text{Mg}(\text{OH})_2$ (b) KOH
 (c) $\text{Ca}(\text{OH})_2$ (d) NaOH
35. Calcium hydroxide (slaked lime) is used in :
 (a) plastics and dyes
 (b) fertilizers
 (c) antacid
 (d) whitewashing
36. What is called water of crystallization ? [2015, Tricky]
 (a) Salt water
 (b) Water consumed while crystallization of salts
 (c) Water molecules present in salt crystals
 (d) Minimum amount of water which is required for crystallization of salts.
37. Ritika has a paper blotted with solution 'X'. When she kept some drops of sodium hydroxide over it, it turns red or pink [2017]
 (I) China rose solution
 (II) Turmeric solution
 (III) Phenolphthalein
 (iv) Blue litmus
 Choose the correct option for solution 'X'.
 (a) I and II (b) II and III
 (c) III and IV (d) I and IV

Match the Column

DIRECTIONS : Match Column-I with Column-II and select the correct answer using the codes given below the columns.

- | 38. Column-I (Common name) | Column-II (Chemical name/Chemical present) |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| A. Slaked lime | (p) Zinc carbonate |
| B. Baking soda | (q) Calcium hydroxide |
| C. Calamine solution | (r) Sodium bicarbonate |
| D. Milk of Magnesia | (s) Magnesium hydroxide |
| (a) $A \rightarrow (p); B \rightarrow (q); C \rightarrow (r); D \rightarrow (s)$ | (b) $A \rightarrow (q); B \rightarrow (r); C \rightarrow (p); D \rightarrow (s)$ |
| (c) $A \rightarrow (r); B \rightarrow (s); C \rightarrow (q); D \rightarrow (p)$ | (d) $A \rightarrow (s); B \rightarrow (p); C \rightarrow (q); D \rightarrow (r)$ |
- [2013]
- | 39. Column I (Acid) | Column II (Use) |
|---------------------|-------------------------------------------------------|
| A. Oxalic acid | (p) As an eye-wash, antiseptic and grain preservation |
| B. Nitric acid | (q) For making explosives |
| C. Boric acid | (r) In food preservation |
| D. Benzoic acid | (s) As a constituent of ink stain remover |

(a) $A \rightarrow (s), B \rightarrow (q), C \rightarrow (r), D \rightarrow (p)$ (c) $A \rightarrow (r), B \rightarrow (q), C \rightarrow (p), D \rightarrow (s)$

40.

Column I

- A. Fertilizer
 B. Sulphuric acid
 C. Lime water
 D. Milk of magnesia

(a) $A \rightarrow (s), B \rightarrow (p), C \rightarrow (q), D \rightarrow (r)$ (c) $A \rightarrow (s), B \rightarrow (q), C \rightarrow (p), D \rightarrow (r)$ (b) $A \rightarrow (q), B \rightarrow (s), C \rightarrow (p), D \rightarrow (r)$ (d) $A \rightarrow (s), B \rightarrow (q), C \rightarrow (p), D \rightarrow (r)$ **Column II**

- (p) King of chemicals
 (q) Basic
 (r) Magnesium hydroxide
 (s) Potassium nitrate

(b) $A \rightarrow (r), B \rightarrow (p), C \rightarrow (q), D \rightarrow (s)$ (d) $A \rightarrow (s), B \rightarrow (p), C \rightarrow (r), D \rightarrow (q)$ **Statement Based Questions**

DIRECTIONS : Read the following three statements and choose the correct answer.

- (a) Statement (1) and (3) are incorrect but (2) is correct
 (b) Statement (1) and (2) are incorrect but (3) is correct
 (c) All statements are correct
 (d) All statements are incorrect

41. **Statement 1 :** The salt formed by the neutralization of NaOH with HCl is basic in nature.

Statement 2 : Milk of magnesia contains magnesium hydroxide.

Statement 3 : Bases have pH from 1 to 7.

42. **Statement 1 :** Phenolphthalein is a natural indicator.

Statement 2 : Sodium carbonate is commonly known as caustic soda.

Statement 3 : Universal indicator is made up of a mixture of different dyes.

43. **Statement 1 :** If the soil is basic then compost is added to it to neutralize the basic nature of soil.

Statement 2 : China rose indicator changes colour to dark pink in acidic media and green in basic media.

Statement 3 : Tomato contains acetic acid.

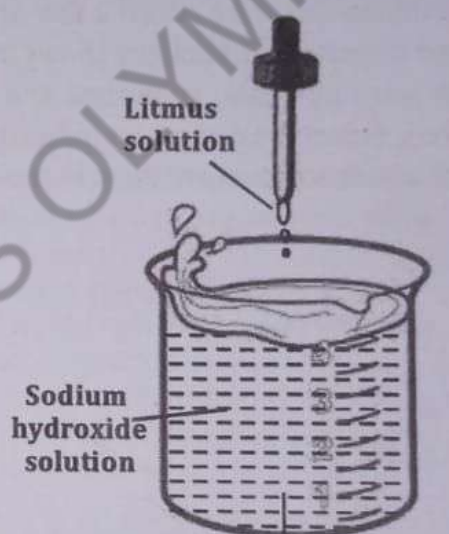
Figure Based Questions

DIRECTIONS : On the basis of following diagram/picture answer the questions given below :

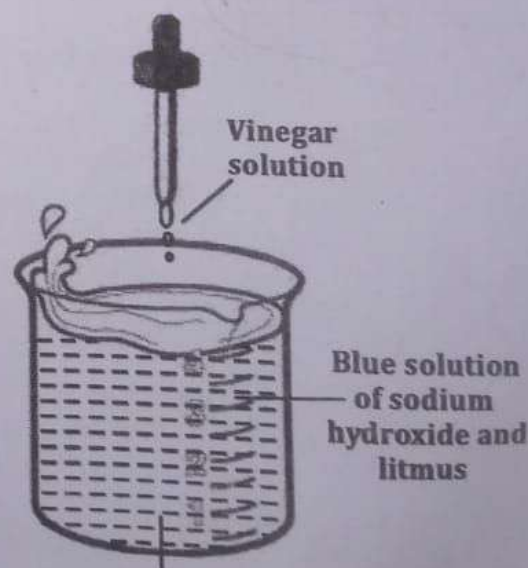
44. In an experiment about 10 ml of sodium hydroxide solution was taken in a beaker 'A'. To it was added a few drops of red litmus solution which turned blue. This solution was then taken in beaker 'B' and vinegar was added to it drop by

drop with continuous stirring. It was observed that the colour of solution in beaker 'B' has changed to red. This experiment shows :

[2014]



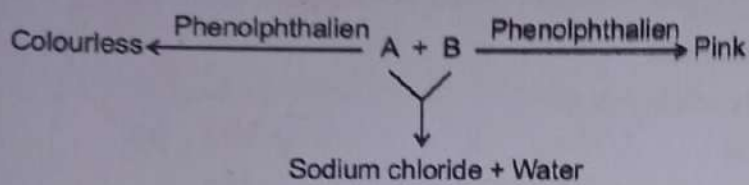
Colour becomes blue
Beaker A



Colour becomes red
Beaker B

- (a) Saponification (b) Acidification
 (c) Neutralisation (d) Both (b) and (c)

45. Study the following chart and Identify 'A' and 'B'.

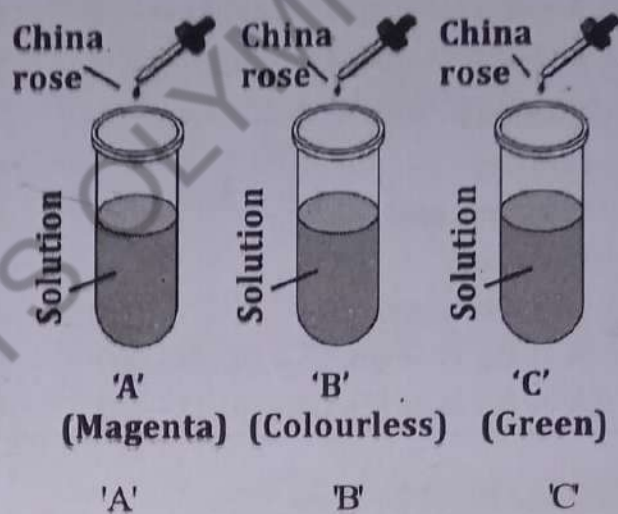


A

B

- | | |
|---------------------------|---------------------|
| (a) Sodium hydroxide | Sodium chloride |
| (b) Hydrochloric acid | Sodium hydroxide |
| (c) Sodium hydroxide acid | Aluminium hydroxide |
| (d) Hydrochloric acid | Sodium chloride |

46. In three test-tubes 'A', 'B', 'C' with solutions of different substances were added a few drops of China rose indicator. The colours shows in these test-tubes were magenta, colourless and green respectively. Select the correct set indicating the substance whose solution are there in these test-tubes.



- | | | |
|--------------------|----------------|------------|
| (a) Sugar solution | Lime water | Lime juice |
| (b) Sugar solution | Lime juice | Lime water |
| (c) Lime water | Sugar solution | Lime juice |
| (d) Lime juice | Sugar solution | Lime water |

55. (a)
56. (c)

Figure Based Questions

57. (a) Tamarind is a source of tartaric acid.
58. (d) Both antacid and soap are basic in nature and therefore change red litmus paper to blue while table salt (sodium chloride) is a neutral salt. It does not give any colour change with litmus paper.

LEVEL 2

Multiple Choice Questions

- (b) When blue litmus paper is dipped in dilute hydrochloric acid it becomes red. If red litmus paper is dipped in dilute sodium hydroxide solution it becomes blue.
- (a) Sodium hydroxide is a base and is slippery to touch.
- (c) Turmeric turns red in lime water (basic).
- (d) These acids are present in acid rain and are responsible for the damaging effects of acid rains.
- (b) Since the blue litmus changes to red, the sample is acidic in nature. Both soap and baking soda are basic whereas sugar is neutral.
- (b) Phenolphthalein shows pink colour in basic solution and is colourless in acidic solution.
- (a) Turmeric gives red colour with a base (soap solution) and yellow colour with acid.
- (d) Phenolphthalein gives a pink colour with basic solution so sample 'A' is basic. Sample 'A' and 'B' react to give neutralisation reaction which is exothermic (evolution of heat) so solution 'B' is acidic.
- (b) Methyl orange shows yellow colour in basic medium and pink colour in acidic medium.
- (c) 11. (d) 12. (c)
- (a) The salts containing water molecules are called hydrated salts e.g. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$.
- (a) $\text{HCl} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{Cl}^-$
- (b)
- (c) e.g., Sodium oxide + Water \longrightarrow

$$\begin{array}{ccc} \text{Na}_2\text{O} & + & \text{H}_2\text{O} \\ & & \text{Sodium hydroxide (base)} \\ & & (2\text{NaOH}) \end{array}$$
- (b) e.g., Carbon dioxide + Water \longrightarrow

$$\text{CO}_2 + \text{H}_2\text{O} \longrightarrow \text{H}_2\text{CO}_3$$

Carbonic acid
- (d) Since, it turns red litmus blue, so it is a base therefore, pH should be > 7 .
- (a)

20. (d) $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2 \uparrow$
21. (b) The soil is acidic and should be neutralised by adding slaked lime (calcium hydroxide) which is a base.

22. (a) 23. (d)
24. (a) Sodium hydroxide is a base which can neutralise the acids present in the waste and make it safe.
25. (b) $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O} + \text{Heat}$

$$\begin{array}{ccc} & & \text{Salt} \quad \text{Water} \end{array}$$
26. (a) Tamarind juice is acidic whereas lime water is basic in nature.
27. (a) Blue litmus paper is used to detect presence of acids. Red litmus paper is used to detect presence of bases.
28. (c)
29. (d) In a solution becoming less acidic, methyl orange moves from red to orange finally to yellow.
30. (a) 31. (a) 32. (a)
33. (c) Alkalies are those bases which are soluble in water.
34. (d) Sodium hydroxide is also called caustic soda.
35. (d)
36. (c) Water molecules present in salt crystals.
37. (b) II and III

Match the Column

38. (b) 39. (d) 40. (a)

Statement Based Questions

41. (a) NaCl (sodium chloride) is formed by neutralization of NaOH with HCl which is a neutral salt. Bases have pH greater than 7.
42. (b) Phenolphthalein is a synthetic indicator. Caustic soda is sodium hydroxide. Sodium carbonate is called washing soda.
43. (c) All the statements are correct.

Figure Based Questions

44. (d) When the acid present in vinegar has been completely neutralised sodium hydroxide (base), excess of acid (vinegar) gives a red colour to litmus solution.
45. (b) Phenolphthalein is colourless in acidic medium (hydrochloric acid) and shows pink colour in basic medium (sodium hydroxide).
46. (d) Lime juice (A) is acidic and china rose shows magenta colour in acidic media. Sugar solution (B) is neutral and China rose remains colourless. Lime water (C) is basic and China rose shows green colour in basic media.