

Acids, Bases and Salts



Objective Section

(1 marks each)

Q. 1. An aqueous solution 'A' turns phenolphthalein solution pink. On addition of an aqueous solution 'B' to 'A' and 'B'.

- (a) A is strongly basic and B is a weak base.
- (b) A is strongly acidic and B is a weak acid.
- (c) A has pH greater than 7 and B has pH less than 7.
- (d) A has pH less than 7 and B has pH greater than 7.

[CBSE OD, Set 1, 2020]

Ans. (d) A has pH greater than 7 and B has pH less than 7.

Q. 2. Baking soda is a mixture of:

- (a) Sodium carbonate and acetic acid
- (b) Sodium carbonate and tartaric acid
- (c) Sodium hydrogen carbonate and tartaric acid
- (d) Sodium hydrogen carbonate and acetic acid [CBSE Delhi, Set 1, 2020]

Ans. (c) Sodium hydrogen carbonate and tartaric acid.

Q. 3. The chemical formula for plaster of Paris is:

- (a) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- (b) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$
- (c) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$
- (d) $2\text{CaSO}_4 \cdot \text{H}_2\text{O}$

[CBSE Delhi, Set 1, 2020]

Ans. (c) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$

Q. 4. When sodium hydrogen carbonate is added to ethanoic acid a gas evolves. Consider the following statements about the gas evolved?

- (A) It turns lime water milky.
- (B) It is evolved with a brisk effervescence.
- (C) It has a smell of burning sulphur.
- (D) It is also a by-product of respiration.

The correct statements are:

- (a) (A) and (B) only
- (b) (B) and (D) only
- (c) (A), (C) and (D)
- (d) (A), (B) and (D)

[CBSE Delhi, Set 3, 2020]

Ans. (d) (A), (B) and (D)

Q. 5. When a small amount of acid is added to water, the phenomena which occur are:

- (A) Dilution
- (B) Neutralisation
- (C) Formation of H_3O^+ ions
- (D) Salt formation

The correct statements are:

- (a) (A) and (C)
- (b) (B) and (D)
- (c) (A) and (B)
- (d) (C) and (D)

[CBSE Delhi, Set 3, 2020]

Ans. (a) (A) and (C)



Very Short Answer Type Questions

(1 marks each)

Q. 1. When you add a few drops of acetic acid to a test-tube containing sodium bicarbonate powder, which one of the following is your observation?

- (a) No reaction takes place.
- (b) A colourless gas with pungent smell is released with brisk effervescence.
- (c) A brown coloured gas is released with brisk effervescence.
- (d) Formation of bubbles of a colourless and odourless gas.

[CBSE OD, Term 2, Set 1, 2017]

Ans. (d) Formation of bubbles of a colourless and odourless gas.

Q. 2. You have four test tubes, A, B, C and D containing sodium carbonate, sodium chloride, lime water and blue litmus solutions respectively. Out of these the material of which test tube/test tubes would be suitable for the correct test of acetic/ethanoic acid?

- (a) Only A
- (b) A and B
- (c) B and C
- (d) A and D

[CBSE, Term 2, Set 1, 2017]

Ans. (d) A and D

- Q. 3. The two colours seen at the extreme ends of the pH chart are:
 (a) Red and blue
 (b) Red and green
 (c) Green and blue
 (d) Orange and green

[CBSE, Term 1, Set 1, 2016]

Ans. (a) Red and blue

- Q. 4. Four students A, B, C and D determine the pH of water, lemon juice and dil. sodium bicarbonate solution. They recorded their observations and arranged them in descending order of pH values as follows:

Student	Solutions
(A)	water, lemon juice, sodium bicarbonate solution
(B)	water, sodium bicarbonate solution, lemon juice
(C)	lemon juice, water, sodium bicarbonate solution
(D)	sodium bicarbonate solution, water, lemon juice

The correct sequence is of the student:

- (a) (A) (b) (B)
 (c) (C) (d) (D)

[CBSE, Term 1, Set 1, 2016]

Ans. (d) D.

- Q. 5. Zinc metal is added to dilute hydrochloric acid. The gas evolved is:
 (a) Oxygen (b) Hydrogen
 (c) Chlorine (d) Carbon dioxide

[CBSE, Term 1, Set 1, 2016]

Ans. (b) Hydrogen.

- Q. 6. A solution of FeSO_4 in water is:

- (a) colourless (b) blue
 (c) light green (d) brown

[CBSE, Term 1, Set 1, 2016]

Ans. (c) Light green

- Q. 7. The pH value of a sample of hydrochloric acid is 2. pH value of this sample when diluted by adding water will be:

- (a) less than 2 but more than 0
 (b) more than 2 but less than 7
 (c) more than 7
 (d) no change in pH.

[CBSE, Term 1, Set 1, 2015]

Ans. (b) more than 2 but less than 7

- Q. 8. A student added a drop of universal indicator to one ml of the given solution and found that a green colour is produced. pH value of the solution will be in the range of:

- (a) 0–3 (b) 4–6
 (c) 7–9 (d) 10–12

[CBSE, Term 1, Set 1, 2015]

Ans. (c) 7–9.

- Q. 9. A student takes about 4 mL of distilled water in four test tubes marked P, Q, R and S. He then dissolves in each test tube an equal amount of one salt in one test tube, in namely sodium sulphate in P, potassium sulphate in Q, calcium sulphate in R and magnesium sulphate in S. After that he adds an equal amount of soap solution in each test tube. On shaking each of these test tubes well, he observes a good amount of lather (foam) in the test tubes marked.

- (a) P and Q (b) Q and R
 (c) P, Q and S (d) P, R and S

[CBSE OD, Term 2, Set 2, 2015]

Ans. (a) P and Q.

- Q. 10. In the neighbourhood of your school, hard water required for an experiment is not available. Select from the following groups of salts available in your school, a group each member of which, if dissolved in distilled water, will make it hard:

- (a) Sodium chloride, calcium chloride
 (b) Potassium chloride, sodium chloride
 (c) Sodium chloride, magnesium chloride
 (d) Calcium chloride, magnesium chloride

[CBSE OD, Term 2, Set 1, 2016]

Ans. (d) Calcium chloride, magnesium chloride

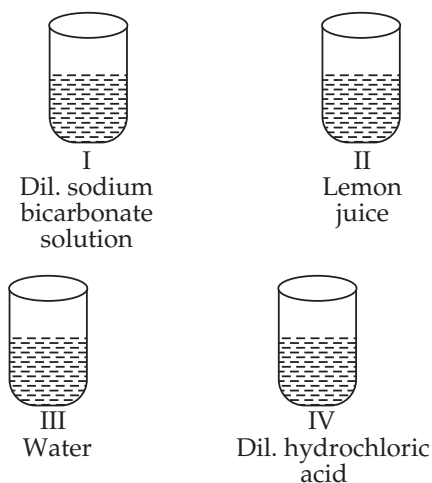
- Q. 11. A student was given a solution to find its pH. His teacher declared his recorded pH as wrong. Student explained to his teacher, all the steps done by him while finding pH of sample. Mark the step taken by student in which he committed mistake.

- (a) collection of apparatus.
 (b) clearing of all apparatus
 (c) making pH paper wet and then dip it in sample.
 (d) recording observation.

[CBSE, Term 1, Set 2, 2015]

Ans. (c) making pH paper wet and then dip it in sample.

Q. 12. A student was provided with four samples of solutions as shown in figures (I), (II), (III), and (IV). He determined pH value of each solution by using pH paper. The correct sequence of colour change of pH paper observed by the student will be:



- (a) indigo light red green red
- (b) red indigo green light red
- (c) indigo red green yellow
- (d) green red yellow indigo

[CBSE, Term 1, Set 2, 2015]

Ans. (a) indigo light red green red

Q. 13. What do we observe on pouring acetic acid on red blue litmus papers?

- (a) Red litmus remains red and blue litmus turns red.
- (b) Red litmus turns blue and blue litmus remains blue.

(c) Red litmus turns blue and blue litmus turns red.

(d) Red litmus becomes colourless and blue litmus remains blue.

[CBSE OD, Term 2, Set 1, 2015]

Ans. (a) Red litmus remains red and blue litmus turns red.

Q. 14. A student takes about 4 mL of distilled water in four test tubes marked P, Q, R and S. He then dissolves in each test tube an equal amount of one salt in one test tube, in namely sodium sulphate in P, potassium sulphate in Q, calcium sulphate in R and magnesium sulphate in S. After that he adds an equal amount of soap solution in each test tube. On shaking each of these test tubes well, he observes a good amount of lather (foam) in the test tubes marked

- (a) P and Q (b) Q and R
- (c) P, Q and S (d) P, R and S

[CBSE OD, Term 2, Set 1, 2015]

Ans. (a) P and Q

Q. 15. A student adds 2 mL of acetic acid to a test tube containing 2 mL of distilled water. He then shakes the test tube well and leaves it to settle for some time. After about 5 minutes he observes that in the test tube there is:

- (a) a clear transparent colourless solution
- (b) a clear transparent pink solution
- (c) a precipitate settling at the bottom of the test tube
- (d) a layer of water over the layer of acetic acid.

[CBSE Delhi, Term 2, Set 1, 2015]

Ans. (a) a clear transparent colourless solution



Short Answer Type Questions-I _____ (2 marks each)

Q. 1. A teacher provided acetic acid, water, lemon juice, aqueous solution of sodium hydrogen carbonate and sodium hydroxide to students in the school laboratory to determine the pH values of these substances using pH papers. One of the students reported the pH values of the given substances as 3, 12, 4, 8 and 14 respectively. Which one of these values is not correct? Write its correct value stating the reason.

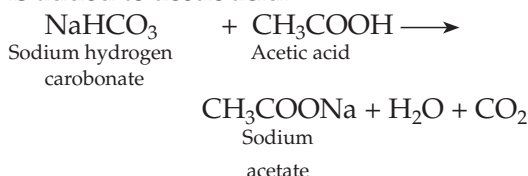
[CBSE OD, Set 1, 2019]

Ans. The value of pH for water is not correct. The correct value of pH of water is 7 because it has almost equal concentration of H^+ and OH^- due to which it is neutral.

Q. 2. What is observed when a pinch of sodium hydrogen carbonate is added to 2 mL of acetic acid taken in a test tube? Write chemical equation for the reaction involved in this case.

[CBSE OD, Set 1, 2019]

Ans. CO₂ gas is evolved with brisk effervescence when sodium hydrogen carbonate is added to acetic acid.



Q. 3. Blue litmus solution is added to two test tubes A and B containing dilute HCl and NaOH solution respectively. In which test tube a colour change will be observed? State the colour change and give its reason. [CBSE Delhi, Set 1, 2019]

Ans. Test tube A will show colour change because acids turn blue litmus to red. So the final colour of test tube would be red.

Q. 4. What is observed when 2 mL of dilute hydrochloric acid is added to 1 g of sodium carbonate taken in a clean and dry test tube? Write chemical equation for the reaction involved.

[CBSE Delhi, Set 1, 2019]

Ans. A brisk effervescence would be observed if HCl is added to Na₂CO₃ due to the evolution of CO₂ gas.

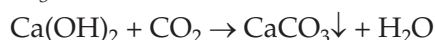


Q. 5. A gas is liberated immediately with a brisk effervescence, when you add acetic acid to sodium hydrogen carbonate powder in a test tube. Name the gas and describe the test that confirms the identity of the gas.

[CBSE Delhi, Term 2, Set 1, 2017]

Ans. $\text{CH}_3\text{COOH} + \text{NaHCO}_3 \rightarrow \text{CH}_3\text{COONa} + \text{CO}_2 + \text{H}_2\text{O}$

Gas evolved is Carbon dioxide (CO₂). It is tested by passing CO₂ in lime water which turns milky due to formation of insoluble CaCO₃.



Q. 6. Two solutions A and B have pH values of 3.0 and 10.5 respectively. Which of these will turn:

- (i) Blue litmus solution to red and
- (ii) Phenolphthalein from colourless to pink?

Justify your answer in each case.

[CBSE, Term 1, Set 1, 2016]

- Ans.** (i) Solution A will turn blue litmus red as it has pH 3 which is acidic in nature.
(ii) Solution B will turn phenolphthalein from colourless to pink as it is basic in nature having pH 10.5.

Q. 7. While demonstrating decomposition reaction in laboratory the teacher heated ferrous sulphate crystals in a hard glass dry boiling tube.

- (i) What change in the colour of ferrous sulphate crystals you will observe?
- (ii) What type of smell of the gases coming out of the boiling tube would you feel?

[CBSE, Term 1, Set 1, 2016]

Ans. (i) Light green crystal will become white.
(ii) No smell.

Q. 8. What do you observe when you drop a few drops of acetic acid to a test-tube containing:

- (i) phenolphthalein
- (ii) distilled water
- (iii) universal indicator
- (iv) sodium hydrogen carbonate powder

[CBSE Delhi, Term 2, Set 1, 2016]

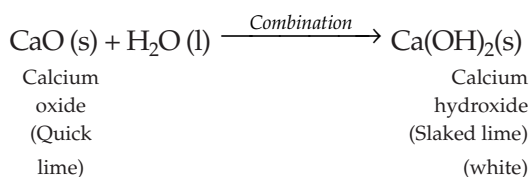
Ans. (i) No colour change
(ii) No change
(iii) Turns pink
(iv) Colourless, odourless gas with brisk effervescence is evolved.

Q. 9. (i) While studying the combination reaction on adding water to quick lime, name the product formed and write its colour.

- (ii) While studying the decomposition reaction by heating ferrous sulphate crystals in a test-tube, a product is formed in the test-tube. Name the product and write its colour.

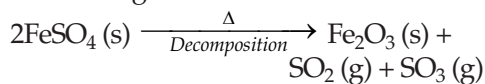
[CBSE, Term 1, Set 2, 2015]

Ans. (i) Quicklime (CaO) reacts vigorously with water to form slaked lime [Ca(OH)₂] which is white in colour.



- (ii) When ferrous sulphate is heated strongly, it decomposes to form

brown coloured ferric oxide and sulphur dioxide gas and sulphur trioxide gas.



Ferrous
sulphate
(green colour)

Ferric
oxide
(brown)

Q. 10. When you add sodium hydrogen carbonate to acetic acid in a test tube, a gas liberates immediately with a brisk effervescence. Name this gas. Describe the method of testing this gas.

[CBSE OD, Term 2, Set 1, 2015]

Ans. Carbon dioxide, turns lime water milky.

Q. 11. List two observations which you make when you add a pinch of sodium hydrogen carbonate to acetic acid in a test tube. Write chemical equation for the reaction that occurs.

[CBSE Delhi, Term 2, Set 1, 2015]

Ans. Two observations observed are:

- Brisk effervescence are evolved.
- Evolution of a colourless and odourless gas.



Short Answer Type Questions-II _____ (3 marks each)

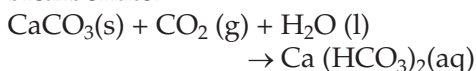
Q. 1. Complete and balance the following chemical equations:

[CBSE OD, Set 1, 2020]

- $\text{NaOH}(\text{aq}) + \text{Zn}(\text{s}) \rightarrow$
- $\text{CaCO}_3(\text{s}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g}) \rightarrow$
- $\text{HCl}(\text{aq}) + \text{H}_2\text{O}(\text{l}) \rightarrow$

Ans. (i) $2\text{NaOH} + \text{Zn} \xrightarrow{550^\circ\text{C}} \text{Na}_2\text{ZnO}_2 + \text{H}_2$

- Calcium carbonate will react with water that is saturated with carbon dioxide to form the soluble calcium bicarbonate.



- $\text{HCl} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{Cl}^-$

Q. 2. List the important products of the Chlor-alkali process. Write one important use of each. [CBSE Delhi, Set 1, 2020]

Ans. The three products of the chlor-alkali process are sodium hydroxide (NaOH), chlorine (Cl) and hydrogen (H).

- Sodium hydroxide is used in the manufacturing of paper, soap and detergents.
- Chlorine is used in the manufacturing of bleaching powder, production of HCl, paints etc.
- Hydrogen is used as a fuel for rockets and in hydrogenation of oils to obtain vegetable ghee.

Q. 3. (a) While diluting an acid, why is it recommended that the acid should

be added to water and not water to the acid?

- Dry hydrogen chloride gas does not change the colour of dry litmus paper why? [CBSE OD, Set 1, 2019]

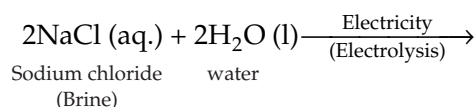
Ans. (a) The process of mixing the concentrated acid with water is highly exothermic. So, when a concentrated acid is added to water then heat is easily absorbed by the large amount of water. Thus it is recommended to add acid to water and not water to the acid.

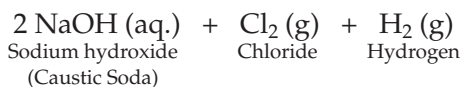
- Dry hydrogen chloride does not contain any hydrogen ions in it, so it does not show acidic behaviour and thus does not change the colour of dry litmus paper.

Q. 4. How is sodium hydroxide manufactured in industries? Name the process. In this process a gas X is formed as by-product. This gas reacts with lime water to give a compound Y, which is used as a bleaching agent in the chemical industry. Identify X and Y and write the chemical equation of the reaction involved.

[CBSE OD, Set 1, 2019]

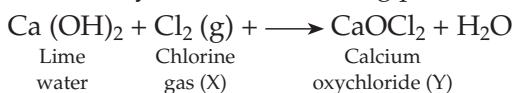
Ans. Sodium hydroxide is manufactured by the electrolysis of concentrated aqueous solution of sodium chloride.





The process of manufacturing sodium hydroxide by electrolysis process is called chloro-alkali process.

Gas X is chlorine gas and compound Y is calcium oxychloride (Bleaching powder).



Q. 5. Identify the acid and the base from which sodium chloride is obtained. Which type of salt is it? When is it called rock salt? How is rock salt formed?

[CBSE Delhi, Set 1, 2019]

Ans. NaCl is made by reacting an acid and a base. The base is NaOH (Sodium hydroxide).



So, it is a Neutralisation Reaction.

It is known as rock salt in crystalline form.

It is the result of the evaporation of ancient

oceans millions of years ago. Sometimes pressure from deep inside the earth forces up large masses of rocks to form salt like domes.

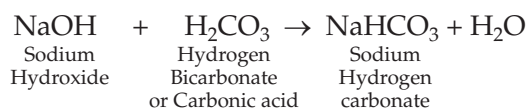
Q. 6. Identify the acid and base which form sodium hydrogen carbonate. Write chemical equation in support of your answer. State whether this compound is acidic, basic or neutral. Also write its pH value. [CBSE, Delhi Set 2, 2019]

Ans. The acid and base that forms sodium hydrogen carbonate are as follows:

Acid – H_2CO_3

Base – NaOH

The chemical equation for its formation will be



The compound will be basic and its pH value will be around 8 or in the range between 7 and 10.

Q. 7. An ore on treatment with dil. HCl gives the smell of rotten egg. Name the type of this ore. How can the metal be obtained from its concentrated ore? [CBSE, 2019]



Topper's Answers

8. Smell of rotten eggs is usually produced by Sulphur.

∴ It must be a sulphide ore.

Let us suppose that the ore is Zinc blende (ZnS).

Concentration of ore

First of all, the ore is concentrated by the method of Froth floatation.

Conversion into metal oxide

Then it is ~~roasted~~ converted into its metal oxide via Roasting in supply of excess air.

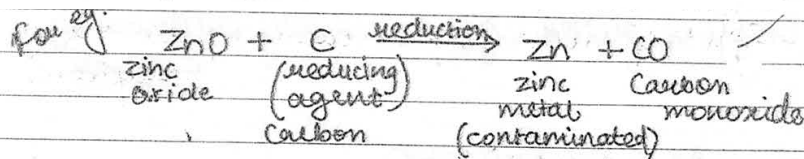
Roasting

$$\text{ZnO} + \text{SO}_2 \uparrow$$

Zinc Sulphur dioxide
Oxide (pungent smell)

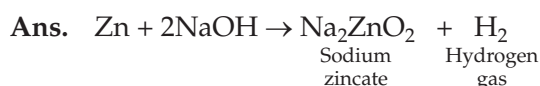
Conversion into metal

It is then converted into its metal form by using a reducing agent like Carbon, Aluminium etc.



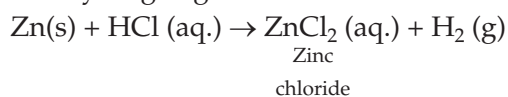
It is further refined to get it in its pure form.

- Q. 8. 2 ml of sodium hydroxide solution is added to a few pieces of granulated zinc metal taken in a test tube. When the contents are warmed a gas evolves which is bubbled through a soap solution before testing. Write the equation of the chemical reaction involved and the test to detect the gas. Name the gas which will be evolved when the same metal reacts with dilute solution of a strong acid? [CBSE, 2018]



When a burning candle is brought towards the hydrogen gas, it burns with the pop sound and the candle goes off.

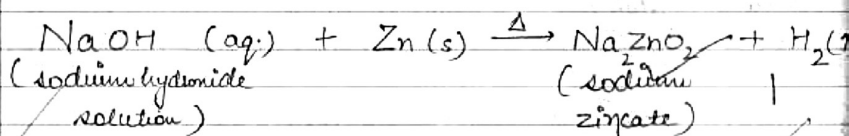
When zinc metal reacts with dilute solution of strong acid then zinc chloride and hydrogen gas will be formed.



- Q. 9. The pH of a salt used to make tasty and crispy pakoras is 14. Identify the salt and write a chemical equation for its formation. List its two uses. [CBSE, 2018]



Topper's Answers



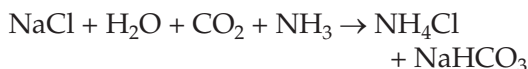
Thus, in this reaction, hydrogen gas is evolved.

As the gas is passed through soap solution, bubbles filled with hydrogen gas come out. Bring a candle near the bubbles evolved, the bubble bursts & the gas inside it starts burning with a pop sound & extinguishes the candle. This tests the presence of H_2 gas in them.

Even if the zinc metal reacts with a solution of strong acid, hydrogen gas is produced / evolved.
[Eq. $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$]

Ans. The salt commonly used to make tasty and crispy pakoras is baking soda *i.e.*, sodium hydrogen carbonate (NaHCO_3).

Chemical equation for its formation:



Uses of Baking soda:

- (i) It is used in fire extinguisher.
- (ii) It is also used as ingredient of antacid.

Q. 10. Write one point of difference between each of the following:

- (i) A hydrated salt and an anhydrous salt
- (ii) Washing soda and soda ash
- (iii) Baking soda and Baking powder
[CBSE, Term 1, Set 1, 2016]

Ans. (i) Hydrated salt is a salt with water as water of crystallisation whereas Anhydrous salt is the salt which gives away its water of crystallisation.

(ii) Washing soda is sodium carbonate having ten molecules of water of crystallisation ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) whereas soda ash is sodium carbonate decahydrate ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) when it loses its 9 units of crystallisation it is called soda ash ($\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$).

(iii) Baking soda is sodium bicarbonate (NaHCO_3) whereas baking powder is a mixture of baking soda (NaHCO_3) and tartaric acid ($\text{C}_4\text{H}_6\text{O}_6$).

Q. 11. You are provided with three test tubes A, B and C which contain distilled water, acidic solution and basic solution respectively. If you are given blue litmus paper only, how will you identify the contents of each test tube?

[CBSE, Term 1, Set 2, 2015]

Ans. (i) First take three strips of blue litmus paper and dip one in each test tube.

(ii) The liquid in test tube A turns blue litmus to red. It means test tube A contains acid because (acid turns blue litmus to red).

(iii) If other two test tubes do not change the colour of blue litmus paper, it shows that one of them contains a base and the other contains distilled water.

(iv) Now put the blue litmus paper which is turned red by the acid of test tube A in the remaining two test tubes.

(v) If the liquid of test tube B turns that red litmus paper to blue again, it shows that it is a base.

(vi) The liquid in test tube C does not turn the colour of either blue litmus or red litmus thus is distilled water.

Step I: Put blue litmus paper

Test tube A	Test tube B	Test tube C
↓	↓	↓
turns red	remains blue	remains blue
↓	↓	↓
Acid	Either base or distilled water	

Step II: Put red litmus paper

(red turned by acid)	
Test tube B	Test tube C
↓	↓
turns blue	remains red
↓	↓
Base	Distilled water

Long Answer Type Questions (5 marks each)

Q. 1. (a) Define indicator. Name two indicators obtained from plants.

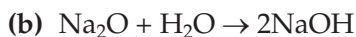
(b) Write balanced chemical equation for the reaction that takes place when sodium oxide reacts with water. How will this solution behave towards phenolphthalein and red litmus paper?

(c) State what happens when sodium hydroxide solution reacts with

dilute hydrochloric acid. What is this reaction called?

[CBSE, Term 1, Set 1, 2016]

Ans. (a) Indicator is any substance that gives visible sign usually by colour change for the presence or absence of a chemical species. Two indicators are litmus and turmeric.



NaOH in phenolphthalein shows pink colour and turns red litmus blue.



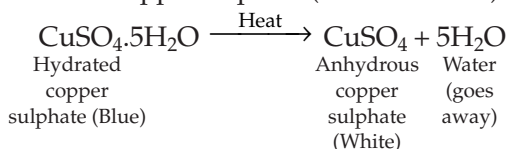
This is a neutralisation reaction where acid and base react to give salt and water.

Q. 2. (a) The blue colour of crystals of a substance changed on heating in a closed test tube but the colour was regained after sometime on cooling. Name the substance and write its chemical formula. Explain the phenomenon involved.

(b) Write name and chemical formula of two such compounds whose one formula unit is associated with 10 and 2 water molecules respectively.

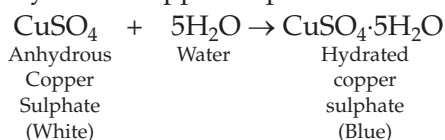
[CBSE, Term 1, Set 2, 2015]

Ans. (a) The substance is copper sulphate crystals ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) which are blue in colour. When copper sulphate crystals are heated strongly, they lose all the water of crystallisation and forms anhydrous copper sulphate (which is white):



Thus, on strong heating blue copper sulphate crystals turn white due to the loss of water of crystallisation.

The dehydration of copper sulphate crystals is a reversible process. So when water is added to anhydrous copper sulphate, it gets hydrated and turns blue due to the formation of hydrated copper sulphate.



(b) Chemical formula of two such compounds whose one formula unit is associated with 10 and 2 water molecules respectively are:

(i) Washing soda — $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
(Sodium carbonate decahydrate)

(ii) Gypsum — $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
(Calcium sulphate dihydrate)

Q. 3. (a) Define a universal indicator. Mention its one use.

(b) Solution A gives pink colour when a drop of phenolphthalein indicator is added to it. Solution B gives red colour when a drop of methyl orange is added to it. What type of solutions are A and B and which one of the solutions A and B will have a higher pH value?

(c) Name one salt whose solution has pH more than 7 and one salt whose solution has pH less than 7.

[CBSE, Term 1, Set 1, 2015]

Ans. (a) Universal indicator is a mixture of many different indicators which gives different colours at different pH values of the entire pH scale.

It shows different colours at different concentrations of hydrogen ions in a solution.

(b) Solution A gives pink colour when a drop of phenolphthalein indicator is added, therefore A is a base.

Solution B gives red colour when a drop of methyl orange is added to it, therefore B is an acid.

Hence, solution A will have less concentration of hydrogen ion than B. Thus, A will have pH more than 7 because pH value of:

(i) an acid solution < 7

(ii) a base solution > 7

(iii) a neutral solution $= 7$

(c) (i) The salts of strong acids and weak bases give acidic solution having pH less than 7. Example, NH_4Cl , Ammonium chloride will have pH less than 7.

(ii) The salts of weak acids and strong bases give basic solution having pH more than 7. Example, Na_2CO_3 Sodium carbonate will have pH more than 7.