



CHEMISTRY

BOOKS - KUMAR PRAKASHAN

ACID , BASES AND SALT

Question And Answers

1. State the common characteristics of acids and bases



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2. What is meant by an indicator?

Mention the indicators used for testing the acids and bases.



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3. You have been provided with three test tubes. One of them contains distilled water and the other two contain an acidic solution and a basic solution respectively. If you are

given only red litmus paper, how will you identify the contents of each test tube?



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4. What is meant by olfactory indicator? Give examples.



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5. How will you test acid and base using olfactory indicator? Explain it with an example,

OR

State the effect of an acid and a base on an olfactory indicator. Explain it.



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6. When zinc metal is treated with dilute HCl and dilute H_2SO_4 , hydrogen gas is evolved but with dilute HNO_3 hydrogen gas is not evolved. Explain.



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7. Write the balanced chemical equation for the reaction of zinc metal with dilute hydrochloric acid sodium hydroxide.



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8. Which metals react with dilute acid and liberate H_2 gas and which metals do not release H_2 gas with dilute acid?



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9. Write the balanced chemical equation of reaction of sodium carbonate and sodium hydrogencarbonate with dilute hydrochloric acid



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10. Which products are obtained, when carbon dioxide gas in less proportion and excess proportion is passed through the solution of calcium hydroxide? State the solubility of product in water.



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11. How does calcium carbonate occur in nature?

In which forms does calcium carbonate available in nature?



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12. What product is obtained by passing excess carbon dioxide gas through an aqueous solution of sodium carbonate? What

is the solubility of the product obtained in water? Write the equation for the reaction?



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13. What is a neutralisation reaction ?Give examples.



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14. What change in colour takes place on adding dilute HCl in the mixture of NaOH and

phenolphthalein? Mention the reason for this colour change.



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15. What is formed by the reaction of copper oxide with dilute hydrochloric acid? What change in the solution takes place? Write the balanced chemical equation.



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16. What is meant by basic oxide? What are the types of metal oxide? Give example.



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17. What are called acidic oxides? What are the types of non-metallic oxide? Give examples.



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18. Why should curd and sour substances not to be kept in brass and copper vessels?

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19. Which gas is usually liberated when an acid reacts with a metal ? Illustrate with an example. How will you test for the presence of this gas?

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20. A metal compound 'A' reacts with dilute hydrochloric acid to produce effervescence. The gas evolved extinguishes a burning candle. Write a balanced chemical equation for the reaction, if one of the compounds formed is calcium chloride.



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21. Compounds such as alcohol and glucose hydrogen but they are not categorised as acids, Describe an activity to prove it.



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22. Distilled water does not conduct electricity, while rain water conducts electricity. Why?



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23. Why do acids not exhibit acidic behaviour in the absence of water?



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24. State the ions responsible for acidic and basic behaviour. Explain the acidic and basic behaviour. Explain the acidic and basic behaviour by reaction with water.



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25. (i) Are all bases soluble in water?

(ii) By which name water soluble bases are known ?

(iii) Illustrate the properties of bases with examples.



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26. What is called dilution reaction (process)?

Explain.



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27. Why an acid should be added to water for dilution?



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28. Draw the warning sign displayed on bottles of concentrated acids and bases kept in laboratory



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29. Why do HCl, HNO₃, etc. show acidic characters in aqueous solutions while solutions of compounds like alcohol and glucose do not show acidic character?



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30. Why does an aqueous solution of an acid conduct electricity?



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31. Why does dry HCl gas not change the colour of the dry litmus paper ?



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32. How is the concentration of hydronium ion (H_3O^+) affected when a solution of an acid is diluted ?



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33. How is the concentration of hydroxide ions (OH^-) affected when excess base is dissolved in a solution of sodium hydroxide?



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34. Write a note on pH scale.



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35. What is meant by universal indicator ?

Voits uses.



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36. How is the strength of acids and bases determined?

OR

What is meant by strong and weak acids: and weak and strong bases?



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37. Explain importance of pH in everyday life.



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38. Enlist the natural sources of acids.



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39. You have two solutions, A and B. The pH of solution A is 6 and pH of solution B is 8. Which solution has more hydrogen ion concentration? Which of this is acidic and which one is basic?



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40. What effect does the concentration of $H^+(aq)$ ions have on the nature of the solution?



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41. Do basic solutions also have $H^+ (aq)$ ions?

if yes ,then wht are these basic?



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42. Under what soil condition do you think a farmer would treat a farmer would treat the soil of his fields with wuick lime (calcium oxide) or slaked lime (calcium hydroxide)or chalk (calcium carbonate)?



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43. What is meant by family of salt? Write two examples of sodium salt, chloride salt and magnesium salt.



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44. State the values of pH of acidic basic and neutral salts.



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45. State the name of salt obtained by the combination of hydrochloric acid and sodium hydroxide. Mention its molecular formula, use and nature.



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46. Mention the salts dissolved (soluble) in sea water.



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47. What is meant by rock salt?

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48. Write a note a sodium hudroxide (NaOH).

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49. Enlist the uses of H_2 and Cl_2

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50. State the uses of all three products formed in chlor-alkali in the form of chart.



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51. Write a short note on bleaching powder

OR

Explain the preparation and uses of bleaching powder.



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52. Write a short note on baking soda
($NaHCO_3$)



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53. Write a short note on washing soda
($Na_2CO_3 \cdot 10H_2O$)



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54. What does water of crystallisation indicate? Give examples.



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55. Why does the crystals of copper sulphate turn colourless on heating in dry boiling tube?



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56. Write a short note on plaster of paris (POP)



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57. What is the common name of the 52nd $CaOCl_2$?



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58. Name the substance which on treatment with chlorine yields bleaching powder.



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59. Name the sodium compound which is used for softening hard water.



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60. What will happen if a solution of sodium hydrogencarbonate is heated ? Give the equation of the reaction involved.



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61. Write an equation to show the reaction between plaster of paris and water.



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Textual Exercise

1. 10 mL of a solution of NaOH is found to be completely neutralised by 8mL of given solution of HCl.If we take 20 mL of the same solution (the same solution as before)

required to neutralise it will be.....

(a)4mL (b)8mL (c)12 mL (d)16mL



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2. Write word equations and then balanced equations for the reaction taking place when.....

(a)Dilute sulphuric acid reacts with zinc granules.

(b)Dilute hydrochloric acid reacts with magnesium ribbon .

(c) Dilute sulphuric acid reacts with aluminium powder.

(d) Dilute hydrochloric acid reacts with iron filings.



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3. Compounds such as alcohol and glucose also contain hydrogen but are not categorised as acids. Describe an activity to prove it.



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4. Why does distilled water not conduct electricity whereas rain water does?

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5. Why do acids not show acidic behaviour in the absence of water?

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6. Five solutions A,B,C,D and E,when tested with universal indicator showed pH as 4,1,11,7 and 9 respectively.Which solution is

(a)neutral ? (b)strongly alkaline ?(c)Strongly acidic? (d)Weakly acidic? (e)Weakly alkaline ?

Arrange the pH in increasing order of hydrogen-ion concentration.



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7. Equal lengths of magnesium ribbons are taken in test tubes A and B .hydrochloric acid(HCl) is added to test tube A:While acetic acid (CH_3COOH) is added to test tube B.amount and concentration taken for both the acids are same.In which test tube will the fizzing occur more vigorously and why?



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8. A milk man adds a very small amount of baking soda to fresh milk.

(a) Why does he shift the pH of the fresh milk from 6 to slightly alkaline ?

(b) Why does this milk take a long time to set as curd ?

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9. Plaster of paris should be stored in a moisture-proof container. Explain why?





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10. What is a neutralisation reaction? Give two examples.



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11. Give two important uses of washing soda and baking soda



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Additional Questions And Answers 1 Answer The Following Questions

1. How are acids and bases formed and from what ?

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2. Explain :Strong acid and weak acid

 [View Text Solution](#)

3. Explain: Strong acid and weak base



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4. Explain the chemical properties of acid.



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5. Explain chemical properties of base



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6. The aqueous solution of the salt produced by neutralisation of weak acid and strong base possesses basic nature ,while aqueous solution of salt produced by neutralisation of weak base and strong acid possesses acidic nature:Explain.



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7. What is meant chemically by baking soda and baking powder?What happens if baking

soda instead of baking powder is added, in making cake?



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Additional Questions And Answers 1 Answer The Following Questions

1. Compare the acidity of two different acidic solutions A and B having different pH values.



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Additional Questions And Answers 2 Give Scientific Reasons For The Following Statement

1. Give scientific reasons for the following statements :

(1) An aqueous solution of $FeCl_3$, is acidic.



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2. An aqueous solution of CH_3COONa is basic.



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3. An aqueous solution of NaCl is neutral.



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4. Curd and sour substances should not be kept in brass and copper vessels.



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5. Distilled water does not conduct electricity, while rain water does it. Explain.



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Additional Questions And Answers 3 Solve The Following Numericals

1. Solve the following numericals:

(1) Calculate the concentration of OH^- ion in a dust solution having pH value 8.



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2. Calculate the molarity of an aqueous solution prepared by dissolving 2 mol of HCl in water to form 500 ml solution.



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3. Calculate the pH of 0.01 M HCl solution.



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4. 50 mL KOH solution neutralise completely 5 mL HNO_3 , solution. What volume of HNO_3 , is required for complete neutralisation of 15 mL of KOH solution ?



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5. How many times would be an aqueous solution of $pH = 2$ be more acidic than aqueous solution of $pH = 4$?



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6. How many times would be concentrated aqueous solution having $\text{pH} = 11.9$ be more basic as compared to aqueous solution having $\text{pH} = 8$?



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Objective Questions And Answers Answer The Following Questions In Short

1. What is the difference of water molecules between gypsum and plaster of paris?



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2. What is soda lime? State the importance of lime in it.



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3. How does the soda-acid fire-extinguisher extinguish the fire ?



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4. Write a balanced chemical equation for the reaction that occurs during chlor-alkali reaction.



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5. Arrange the water, hydrochloric acid and acetic acid in descending order of their acidity.

Ans. Descending order of acidity:



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6. What is meant by dilution?



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7. Write the name and molecular formula of product obtained by the reaction of zinc with sodium hydroxide.



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8. What are properties of the oxides of metal and non-metal usually?



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9. Which acid is formed when milk turns into curd ?



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10. Which ions are responsible for acidic and basic properties of the solution?



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11. Does the solution of urea conduct electricity? Why?



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12. Give two examples of strong alkali (base).



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13. State the nature of saliva before and after the meal.



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14. What is an acid rain?



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15. What pH range is required to a soll for healthy growth and development of plants?



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16. Why does red ant bite (sting) cause pain and irritation ?



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17. Two solutions have pH value of 5 and 9 respectively. Which solution will be more basic in nature? Why?



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1. Olfactory indicator



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2. Neutralisation reaction



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3. Dilution process



[View Text Solution](#)

4. pH scale



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5. Family of salts



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6. Rock salt



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Objective Questions And Answers Fill In The Blanks

1. Neutralisation reaction occur between acid and base forms and



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2. Milk of magnesia is used as



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3. Molecular formula of gypsum is ...



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4. The farmers add .. . to the acidic soil to neutralise it.



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5. Generally..... paper is used with universal Indicator to measure the pH value of the

solution



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6. The stinging hair of nettle leaves injects
into the skin causing burning pain



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**Objective Questions And Answers Choose The
Correct Option From Those Given Below Each
Question**

1. When does tooth decay occur?

A. When the pH of Inner part of mouth is lower than 5.5.

B. When the pH of inner part of mouth is higher than 5.5.

C. When the pH of Inner part of mouth is 5.5.

D. When the pH of inner part of mouth is 7.0.

Answer:



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2. Which of the following solution is most basic?

A. pH = 8.2

B. pH = 9.3

C. pH = 11.5

D. pH = 10.6

Answer:



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3. What is the pH value of an aqueous solution of NH_4Cl ?

A. pH=7

B. pH > 7

C. pH < 7

D. pH=0

Answer:



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4. Which of the following is a strong acid?

A. Acetic acid

B. Citric acid

C. Oxalic acid

D. Nitric acid

Answer:



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5. The pH values of aqueous solutions A, B, C and D are 1.9, 2.5, 2.1 and 3.0 respectively: then what will be the correct order of their acidic strength ?

A. $A < C < B < D$

B. $D < C < B < A$

C. $D < B < C < A$

D. $D > C > B > A$

Answer:



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6. Which of the following solutions is neutral ?

A. Juice of citrus fruits

B. Lemon juice

C. Solution of washing soda

D. An aqueous solution of salt - NaCl

Answer:



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7. What will be the value of pH, if blue paper turns red in aqueous solution?

- A. Between 0 to 7
- B. Between 7 to 14
- C. 14
- D. 0

Answer:



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8. The outer layer of the teeth is made up of ...

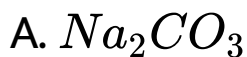
- A. Calcium phosphate
- B. Calcium phosphate
- C. Potassium phosphate
- D. Sodium phosphate

Answer:



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9. The pH of aqueous solution(s) of which salt is 7?

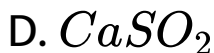
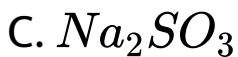
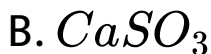
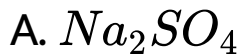


Answer:



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10. $CaCl_2 + X \rightarrow CaSO_4 + 2NaCl$, what is X?



Answer:



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11. Which of the following pair is not appropriate?

A. Citrus fruits - citric acid

B. Curd - lactic acid

C. Sting of red ant-methanoic acid

D. Tomatoes - tartaric acid

Answer:



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12. Which of the following aqueous solutions contains higher proportion of OH^- ions ?

A. NaCl

B. Na_2SO_4

C. CH_3COONa

D. Equal in all

Answer:



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Objective Questions And Answers Mathc The Following

1.

Column I	Column II
1. Strong acid	p. NaOH
2. Strong base	q. HNO ₃
3. Salt	r. NaCl
4. Amphoteric	s. H ₂ O



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2.

Column I	Column II
1. Sodium carbonate	p. NaNO ₃
2. Sodium bicarbonate	q. NaNO ₂
3. Sodium nitrate	r. Na ₂ CO ₃
4. Sodium nitrite	s. NaHCO ₃





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Column I	Column II
1. Melittin	p. Alkaline soil
2. Calcium phosphate	q. Baking soda
3. The value of pH is more than 7.3	r. A polypeptide containing 26 amino acids
4. Antacid	s. Outer layer of teeth

3.



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Objective Questions And Answers Answer The Following Questions In One Word

1. Write the composition of aqua regia.



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2. Write the molecular formula of soda ash.



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3. Which substance reacts with chlorine to form bleaching powder ?



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4. Which acid is present in orange?



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5. State the pH value of human blood



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6. At normal temperature, substance kept in atmosphere loses the water of crystallisation.

By which name the substance is known?



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7. Name the reaction in which base is added in acid



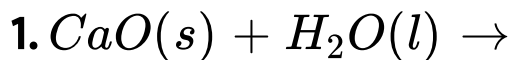
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8. State the chemical name of salt which is useful and important raw material of food.

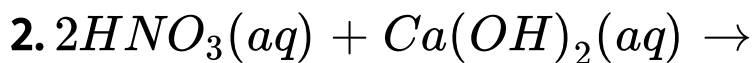


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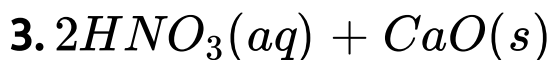
Objective Questions And Answers Complete The Following Reaction



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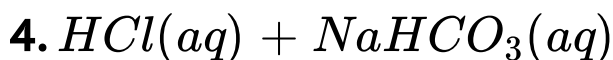


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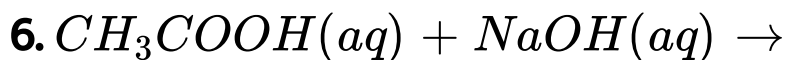
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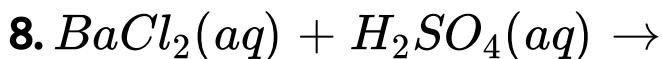




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Valkue Based Questions With Answers

1. Ramesh's father is a farmer and he is disappointed as he cannot grow any crop on his farmland, because the land has become highly basic in nature. It happens due to paper industry nearby dumping its waste water into canals that supply water to the farmland.

Ramesh and other youth in the village told the owner of the paper industry about the pollution caused by the paper industry.

(1) What type of land is suitable for the growth of crops ?

(2) Use of fertilizers also causes change in the

pH of soil. How do farmers overcome this problem?

(3) What values of Ramesh are reflected in the above case?



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2. Rita's mother had severe pain when a honeybee stung her on hand. Rita's grandmother tried to relieve the pain by rubbing a iron metal on the affected area. But, Rita took the baking powder from the kitchen

and applied on her mother's hand which quickly relieved the pain.

(1) Why do honeybee stinging causes pain?

(2) How does baking powder relieve the bee sting pain?

(3) What values of Rita is seen in the above act?



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3. Bharat's friend Jaydeep is very fond of coffee. He drinks two cups of coffee everyday

in the school and complain the problem of stomach pain very often. Bharat advised him not to drink coffee in the morning

(1) What was the cause of stomach pain?

(2) What would be the pH of stomach Juices after consuming coffee?

(3) What values of Bharat are reflected in the above act?



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4. Ashish noticed that his friend always brought sweets in his lunch-box, due to which his tooth decayed. Ashish suggested his friend to eat less sweets in school hours to avoid tooth decay. (1) Why do tooth decay on eating sweets?

(2) What is the pH of mouth after eating sweets?

(3) What value of Ashish is seen in the above act?



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Practical Skill Based Questions With Answers

1. In the laboratory, a test tube rack is placed with test tubes containing some acids in it. How will you classify these acids?

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2. What is the pH of water? Does it change on heating the water? Why?

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3. A test was conducted in the laboratory to find the pH of different cold drinks. Draw the observation table to collect the data for this experiment and predict the result for the same



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Activity

1. State the function of an indicator.



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2. What is meant by olfactory indicators ?



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3. What type of substances are CH_3COOH
and NH_4OH ?



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4. Which among the vanilla extract, onion and clove oil can be used as olfactory indicator ?

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5. What change in odour do you observe when vanilla extract, onion and clove oil are mixed with dilute HCl and dilute NaOH solutions separately?

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6. What do you observe around the surface of zinc granules ?



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7. Why are bubbles formed in the soap solution?



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8. What happens, when a burning candle is brought near the hydrogen gas?

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9. Does zinc metal liberate hydrogen gas with dilute HCl, dilute HNO_3 and CH_3COOH solution ? Mention it with equations of chemical reactions.

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10. Write the balanced chemical equation of reaction of zinc metal with dilute H_2SO_4



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11. Which gas is liberated when zinc acid zincate



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12. State the molecular formula of sodium zincate



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13. Give the balanced chemical equation for the reaction of zinc with sodium hydroxide solution.



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14. Which gas is evolved when sodium carbonate and sodium hydrogencarbonate are treated with HCl?



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15. Write the genral word equation for the above activity



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16. What is the common name of $Ca(OH)_2$?



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17. What is the solubility of $Ca(HCO_3)_2$ in water?



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18. What happens when an indicator phenolphthalein is added to NaOH solution?



[View Text Solution](#)

19. What happens when few drops of HCl are added in the solution of NaOH and phenolphthalein indicator?



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20. Write only the name of the reaction occurring between acid and base.



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21. Write an equation for a neutralisation reaction .



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22. State the colour of powder of copper oxide.



[View Text Solution](#)

23. What would be the colour of solution when dilute hydrochloric acid is added to copper oxide?



View Text Solution

24. State the reason of blue-green colour of the solution



View Text Solution

25. Write the molecular formula of copper (II) chloride



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26. State the general equation of reaction that occurs between a metal oxide and an acid.



View Text Solution

27. What does the glowing of bulb indicate?



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28. By whom is the electric current carried through the solution?



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29. Mention the ions responsible for acidic and basic character of the compound.



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30. How are the hydrogen ions always represented?



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31. Which ion is responsible to represent the basic character of an aqueous solution?



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32. Mention the solubility of alkali (base) in water



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33. Alkalis (base) are soluble in water



View Text Solution

34. State the properties of alkali (base).



View Text Solution

35. State the general equation for neutralisation reaction.



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36. Name the process of dissolving an acid or a base in water.



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37. What change occurs in concentration of solution by adding water to an acid or a base?



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38. Filtrate in a test tube turns red litmus to blue. What does it indicate about sample of soil?



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39. What would be the property of soil having pH value less than 5.6 ?



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40. How will you neutralise the acidic and basic soil ?



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41. What should be the pH value of soil for healthy growth and development of plants ?

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42. What is called family of salt?

 [View Text Solution](#)

43. Give examples of family of sodium salts.

 [View Text Solution](#)

44. State the examples of family of chloride salts.



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45. State the colour of copper sulphate after heating.



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46. Do you notice the water droplets in the boiling tube?



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47. What is the chemical formula of hydrated copper sulphate?



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