



CHEMISTRY

BOOKS - CAMBRIDGE CHEMISTRY (KANNADA ENGLISH)

ACIDS, BASES AND SALTS

Questions

1. 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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2. Why should curd and sour substances not be kept in brass and copper vessels ?



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3. 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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4. 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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5. Why do HCl , HNO_3 , etc., show acidic characters in aqueous solutions while solution of compounds like alcohol and glucose do not show acidic character ?



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



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7. Why does dry HCl gas not change the colour of the dry litmus.



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8. While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid ?



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



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



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



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13. Do basic solutions also have H^+ aq ion ? If yes, then why are these basic ?



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



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15. What is the common name of the compound $CaOCl_2$?



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



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



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18. What will happen if a solution of sodium hydro carbonate is heated ? Give the equation of the reaction involved.



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19. Write an equation to show the reaction between Plaster of Paris and water.



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1. A solution turns red litmus blue, its pH is likely to be

A. 1

B. 4

C. 5

D. 10

Answer: D



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2. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky.

The solution contains

A. NaCl

B. HCl

C. LiCl

D. KCl

Answer: B



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3. 10 mL of a solution of NaOH is found to be completely neutralised by 8 mL of a given solution of HCl. If we take 20 mL of the same solution of NaOH, the amount HCl solution (the same solution as before) required to neutralise it will be

A. 4 ml

B. 8 ml

C. 12 ml

D. 16 ml

Answer: D



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4. Which one of the following types of medicines is used for treating indigestion ?

A. Antibiotic

B. Analgesic

C. Antacid

D. Antiseptic

Answer: C



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5. Write word equations and then balance 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 react with aluminium powder

(d) dilute hydrochloric acid reacts with iron fillings.



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6. Compounds such as alcohols and glucose also contain hydrogen but are not categorised as acids. Describe an Activity to prove it.



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7. Why does distilled water not conduct electricity, whereas rain water does ?



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



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9. Five solutions A, B, C, D and E when tested with universal indicator show 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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10. 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 of concentration taken for both acids are same. In which test tube will the fizzing occur more vigorously and why ?



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11. Fresh milk has a pH of 6. How do you think the pH will change as it turns into curd ?

Explain your answer.



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12. A milkman 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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13. Plaster of Paris should be stored in a moisture-proof container. Explain why ?



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14. What is a neutralization reaction ? Give two examples.



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15. Give two important uses to washing soda and baking soda.



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Additional Questions Choose The Correct Answer

1. Who proposed ionic theory of acid and bases.

A. Arrhenius

B. Bronsted

C. Lewis

D. Lowry

Answer: A



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2. Which of the following solution is the most basic.

A. pH= 8.2

B. pH= 9.3

C. pH= 11.2

D. pH= 10.5

Answer: C



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3. Which of the following is strong acid.

A. Acetic acid

B. Nitric acid

C. Citric acid

D. Oxalic acid

Answer: B



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4. Which of the following substance is antacid

A. NaCl

B. $Mg(OH_2)$

C. HCl

D. H_2SO_4

Answer: B



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5. The most commonly used indicator in laboratory is

A. Methyl orange

B. Litmus

C. Phenolphthalein

D. Universal indicator

Answer: D



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6. Olfactory indicators are

A. Clove

B. Turmeric

C. Soap

D. rose petals

Answer: A



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7. An element common to all acid is

A. Chlorine

B. Nitrogen

C. Oxygen

D. Hydrogen

Answer: D



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8. Metal carbonate on reaction with dilute acid release

A. CO_2

B. Co

C. H_2O

D. H_2

Answer: A



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9. Dissolution of acid or base in water is

- A. Exothermic
- B. Endothermic
- C. Violent
- D. None of these

Answer: A



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10. Name the organic acid present in tomato

A. Tartaric acid

B. Malic acid

C. Lactic acid

D. Oxalic acid

Answer: D



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11. Acid + Metal - Oxide` gives ?

A. Base + Water

B. Salt+ water

C. Base + Salt

D. Metal+ Salt

Answer: B



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12. Which gas is produced by reaction of base with metal?

A. Carbon dioxide

B. Dioxygen

C. Dihydrogen

D. Dinitrogen

Answer: C



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13. A solution turns red litmus blue, its pH is likely to be

A. 4

B. 7

C. 9

D. 12

Answer: A



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14. Which of the following is a property of an acid.

A. Slippery

B. Non-reactive

C. Sour taste

D. Strong colour

Answer: C



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15. On passing excess of CO_2 gas in an aqueous solution of calcium carbonate milkiness of the solution

A. Persists

B. Fades

C. Deepens

D. disappears

Answer: B



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Additional Questions Fill In The Blanks

1. The term pH was coined by _____



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2. Turmeric, clove, rose petals are _____



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3. Acids __ bases to form __ and water.





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4. Turmeric turns _____ in basic medium.



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5. Acid contain the hydrogen (H^+) as the only _____



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



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Additional Questions

1. List the organic acid present in the following objects.

a) Citrus fruits (Lemon, orange)

b) Sting of bee and ants.

- c) Rancid butter
- d) Tamarind, grapes, apples
- e) Gastric juice
- f) Vinegar
- g) Fats
- h) Urine
- i) Sour milk, curd



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Additional Questions Answer The Following Questions

1. What are amphoteric substances? Illustrates with an example.



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2. On the basis of origin, how acids are classified?



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3. Why vinegar is used in pickling?



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4. Define dilution.



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5. (a) Write the common name of $CaOCl_2$

How it is prepared? Write the chemical equation of the reaction involved in the process. Give any two uses of it.

(ii) Write the chemical name of washing soda.

How is it prepared? Give the relevant chemical equations.



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6. What are organic acids? Give two examples.



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7. How does a strong acid differ from a concentrated acid?



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



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9. Why should acids be handled with care?



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10. While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid ?



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11. 15 ml of water and 10 ml of Sulphuric acid are mixed in a beaker.

(i) State the method that should be followed with reason.

(ii) What is the process called ?





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12. A white coloured powder is used by doctors for supporting fractured bones.

(a) Write chemical name and formula of the powder.

(b) When this white powder is mixed with water a hard solid mass is obtained. Write balanced chemical equation for the change.



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13. (i) Write the name given to bases that are highly soluble in water. Give an example.

(ii) How is tooth decay related to pH? How can it be prevented?

(iii) Why does bee-sting cause pain and irritation? Rubbing of baking soda on the sting area gives relief. How?



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14. (i) Give the constituents of baking powder.

(ii) Why cake or bread swells on adding baking powder. Write chemical equation.



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15. How will you test for the gas which is liberated when hydrochloric acid reacts with an active metal ?



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16. Sodium hydrogen carbonate is a basic salt. Justify the statement how is it converted into washing soda? Explain.



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17. Mention the colour of $FeSO_4 \cdot 7H_2O$ crystals . How does this colour change upon heating ? Give balanced chemical equation for the change.



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18. What happens when chlorine is passed over slacked lime at 313k? Write chemical equation of the reaction involved and state two uses of the product obtained.



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19. What is meant by water of Crystallisation ?
How do you show that copper sulphate crystal contains water of crystallisation ?



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20. Why does 1 m HCl solution have a higher concentration of H^+ ions than 1 m CH_3COOH Solution?



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Unit Test Fill In The Blanks

1. The term pH was coined by _____



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2. Define olfactory indicators.



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3. The organic acid present in tamarind is



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Unit Test Answer The Following

1. Why vinegar is used in pickling?



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2. What are organic acids? Give two examples.



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Unit Test Answer The Following Questions

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