



CHEMISTRY

BOOKS - PEARSON IIT JEE FOUNDATION

ACIDS, BASES AND SALTS

Test Your Concepts

1. The acids which are obtained from the minerals are called_____.

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2. The oxides of _____ on hydrolysis give bases.

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3. Ammonium hydroxide on heating gives _____ and _____.

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4. Zinc on reaction with dilute sulphuric acid liberates _____ gas.

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5. Mineral acids react with metallic carbonate to form its respective metallic salt, _____ and _____.

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6. Methyl orange turns lime water _____.

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7. Chemical formula and chemical name of plaster of Paris are _____ and _____ respectively.

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8. The salt formed by removal of water of crystallization from hydrated salt is called _____ .

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9. Hydrated zinc sulphate is _____ in colour.

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10. _____ which is a hydrated salt is used as a fungicide in agriculture.

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11. Which among the following acids is present in lemons?

- A. Acetic acid
- B. Oleic acid
- C. Stearic acid
- D. Ascorbic acid

Answer: D



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12. Identify weak mineral acid among the following.

- A. Palmitic acid
- B. Acetic acid
- C. Carbonic acid
- D. Hydrochloric acid

Answer: C

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13. For the formation of normal salt from one molecule of H_2SO_4 , how many molecules of NaOH are required?

- A. One
- B. Two
- C. Four
- D. Three

Answer: B

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14. Which among the following pairs of bases do not decompose on heating?

- A. Calcium hydroxide, potassium hydroxide
- B. Sodium hydroxide, potassium hydroxide
- C. Copper hydroxide, calcium hydroxide
- D. Sodium hydroxide, copper hydroxide

Answer: B

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15. Which among the following is strong acid?

- A. Acetic acid
- B. Sulphurous acid
- C. Carbonic acid
- D. Nitric acid

Answer: D

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16. Among the following, which substance turns phenolphthalein to pink?

A. Soda water

B. Lime water

C. Common salt

D. Sugar solution

Answer: B



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17. Washing soda is _____

A. hydrated sodium carbonate

B. anhydrous sodium carbonate

C. hydrated magnesium sulphate

D. anhydrous magnesium sulphate

Answer: A

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18. A salt formed by the partial neutralization of hydroxyl ions of a base by an acid is called _____ salt.

A. normal

B. acidic

C. basic

D. None of these

Answer: C

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19. Which among the following is a hydrated salt?

- A. Marble
- B. Baking soda
- C. Green vitriol
- D. All of these

Answer: C



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20. Salt used in purification of water is.

- A. potash alum
- B. epsom salt
- C. green vitriol
- D. blue vitriol

Answer: A

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21. Monobasis weak acid among the following is

A. carbonic acid

B. oxalic acid

C. acetic acid

D. nitric acid

Answer: C

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22. _____ on hydrolysis gives a strong acid.

A. Sulphur dioxide

- B. Carbon dioxide
- C. Sulphur trioxide
- D. Nitrogen oxide

Answer: C

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23. Which among the following is the application of neutralization?

- A. Farmers add slaked lime to soil.
- B. Persons suffering from acidity are given antacid tablets.
- C. Usage of lithium hydroxide in submarines.
- D. All of above.

Answer: D

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24. Salt solutions are good conductors of electricity. This is due to the presence of _____ in solution state.

A. mobile electrons

B. mobile ions

C. molecules

D. both 1 and 3

Answer: B



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25. Which among the following is used to remove moisture from the surroundings?

A. Calcium chloride

B. Magnesium chloride

C. Zinc chloride

D. Calcium oxide

Answer: D



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26. "X" is a base which is soluble in water. Then the metal present in "X" may be

A. aluminum

B. copper

C. magnesium

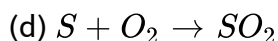
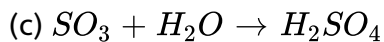
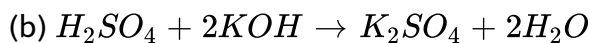
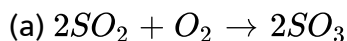
D. manganese

Answer: C



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27. A nonmetallic element is converted into a compound 'X' after a series of reactions. A little amount of 'X' when tested with blue litmus turns to red. 'X' on complete reaction with another compound 'Y' gave the product which did not respond to litmus test. Identify the correct sequence of the reactions.



A. acdb

B. dacb

C. bcad

D. dcba

Answer: B



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28. Arrange the pairs in sequence in decreasing order of basicity of an acid and acidity of a base followed by the normal salts formed by the given acid base pairs in the same order respectively.

- (a) Acetic acid, ammonium hydroxide
- (b) Oxalic acid, barium hydroxide
- (c) Phosphoric acid, aluminium hydroxide
- (d) Barium oxalate
- (e) Ammonium acetate
- (f) Aluminium phosphate

A. adcf

B. cbafde

C. adcebf

D. cdaebf

Answer: B



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- | | Column A | | Column B |
|-----|----------------------|-----|---------------------|
| 29. | A. Nitric acid | () | a. Weak acid |
| | B. Phosphoric acid | () | b. Strong acid |
| | C. Calcium hydroxide | () | c. Car batteries |
| | D. Sulphuric acid | () | d. Bleaching powder |
| | | () | e. Baking powder |

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30.

- | | Column A | | Column B |
|----|-----------------------------|-----|-------------------------|
| A. | Sodium dihydrogen phosphate | () | a. Basic salt |
| B. | Calcium hydroxy chloride | () | b. Gun powder |
| C. | Nitre | () | c. Manufacture of glass |
| D. | Ammonium carbonate | () | d. Acidic salt |
| | | () | e. Normal salt |
| | | | f. Smelling salt |

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- | | Column A | | Column B |
|-----|------------------|-----|---------------------|
| 31. | A. Efflorescent | () | a. Cobalt chloride |
| | B. Deliquescent | () | b. Sodium chloride |
| | C. Hygroscopic | () | c. Zinc chloride |
| | D. Food additive | () | d. Mercuric nitrate |
| | | () | e. Washing soda |



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Very Short Answer Type Question

1. Name the acid present in

(a) curd

(b) tamarind



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2. Name the acid which is produced by the sting of an ant.



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3. What is meant by alkali? Give two examples.



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4. Give common names of sodium hydroxide and potassium hydroxide.

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5. Name the substances formed by the dissolution of following oxides in water.

(a) CO_2

(b) MgO

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6. What is the action of litmus on acid and base?

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7. Name a natural indicator.

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8. Give the formulae of the following salts.

(a) Blue vitriol

(b) Green vitriol

(c) Potash alum



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9. Name the salt used for the manufacture of glass. Give its formula.



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10. Name the salts used for the following purposes.

(a) Purification of water

(b) Fire extinguisher



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11. Name the acid present in

(a) Lemon

(b) Vinegar

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12. What are neutral oxides? Give examples.

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13. Name the acid and base from which the following salts are formed.

(a) Sodium chloride

(b) Potassium sulphate

(c) Calcium nitrate

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14. What are the suffixes of salts formed from the following acids?

(a) Carbonic acid

(b) Nitrous acid

(c) Sulphuric acid

(d) Nitric acid

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15. Write the chemical formula of hypo.

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16. identify the basic radical and acidic radical in sodium nitrate.

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17. Why is KOH called caustic potash?



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18. Give two examples of hydrated salts.



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19. Define water of crystallization.



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20. What is the formula of plaster of Paris?



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Short Answer Type Question

1. Distinguish between organic acids and mineral acids. Give examples.

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2. Give an example of dibasic acid. How is it obtained from the corresponding nonmetal? Give balanced equations.

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3. What are active metals? Give examples with equations.

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4. Explain the corrosive action of acids and alkalies. Give examples.

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5. Distinguish between an acid and base with respect to definitions.

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6. Define the following and give an example each.

(a) Efflorescent substances

(b) Deliquescent salts

(c) Hygroscopic salts

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7. What are mineral acids? How can they be further classified on the basis of nature of the constituents?

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8. Distinguish between strong acids and weak acids. Give two examples each.

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9. Write a short note on naming of acids.

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10. What is meant by neutralisation? Give balanced equations showing neutralisation reactions of the following.

(a) Slaked lime and sulphuric acid

(b) Sodium bicarbonate and hydrochloric acid.

(c) Magnesium carbonate and sulphuric acid.

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11. What is the action of heat on the following?

(a) Ammonium hydroxide

(b) Aluminium hydroxide

(c) Sodium hydroxide

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12. What are indicators? Give examples.

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13. Distinguish between acidic salts and basic salts.

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14. Mention four important properties of salts.

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15. Mention two uses of the salts given below:

(a) Sodium chloride.

(b) Sodium bicarbonate

(c) Calcium sulphate hemihydrate.

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16. Mention two important uses of following acids and also mention the property exploited.

(a) Hydrochloric acid

(b) Nitric acid

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Essay Type Question

1. Define basicity of an acid and acidity of a base. On the basis of these, explain the classification of acids and bases. Give suitable examples.

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2. Write a short note on different types of salts.

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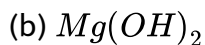
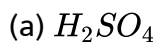
3. Give the chemical properties of acids and bases by giving balanced chemical equations.

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4. Describe the methods of preparation of acids and bases with the help of examples.

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5. Give equations for the dissociation of the following compounds in their solutions and write the formulae of the salts formed from them.



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6. Explain the naming of salts with examples.

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7. (1) By using moist blue litmus paper classify the following compounds given below as acids and bases

$Ca(OH)_2$, H_2SO_4 , CH_3COOH , $NaOH$, KOH , $Mg(OH)_2$, HNO_3 , NH_4Cl

(2) Mention the acidic or basic or neutral nature of solutions by using

(a) litmus

(b) methyl orange

(c) phenolphthalein indicators.

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8. Mention the uses of the following bases and mention the property exploited in those uses.

(a) Sodium hydroxide

(b) Calcium hydroxide

(c) Magnesium hydroxide

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Level 1

1. Hydrochloric acid is a monobasic acid.

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2. Carbonic acid is a strong acid.

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3. Sulphur dioxide on hydrolysis gives sulphuric acid.

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4. Acids turn methyl orange solution pink.

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5. Ammonium hydroxide is an alkali.

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6. Lead sulphid is a normal salt.

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7. Formula of washing soda is $Na_2CO_3 \cdot 7H_2O$.

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8. Nitre is the common name of sodium nitrate.



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9. Mercuric nitrate is a deliquescent salt.



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10. Chile salt petre is used in the manufacture of nitric acid.



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11. Hydrochloric acid is a _____ acid. (monobasic/ dibasic)



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12. Carbonic acid is a _____ acid. (strong/ weak)



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13. Sulphur dioxide on hydrolysis gives _____.

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14. Acids turns methyl orange solution _____.

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15. Ammonium hydroxide is an _____ (acid/ alkali)

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16. Sodium sulphate is a _____ salt.

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17. Formula of washing soda is _____.



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18. Nitre is the common name of _____.



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19. Mercuric nitrate is a _____ salt (deliquescent/ efflorescent)



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20. Chile salt petre is used in the manufacture of _____ (nitric acid/
nitrous acid)



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21. Identify the organic acid among the following given acids.

A. Hydrochloric acid

B. Nitrous acid

C. Carbonic acid

D. Stearic acid

Answer: D

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22. Identify the strong acid and weak base among the following respectively.

A. HCl and KOH

B. $Ca(OH)_2$ and $Al(OH)_3$

C. HNO_3 and $Al(OH)_3$

D. H_2CO_3 and NH_4OH

Answer: C

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23. H_3PO_4 is an example of

- A. monobasic acid
- B. dibasic acid
- C. tribasic acid
- D. strong acid

Answer: C

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24. $Ca(OH)_2$ is an example of

- A. monoacidic base
- B. diacidic base
- C. triacidic base

D. strong base

Answer: B



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25. $CaCl_2$ is an example of

A. normal salt

B. acidic salt

C. basic salt

D. complex salt

Answer: A



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26. Among the following, identify an extremely corrosive alkali.

A. Ammonium hydroxide

B. Calcium hydroxide

C. Potassium hydroxide

D. Magnesium hydroxide

Answer: C

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27. Generally, hydrolysis of metal oxides gives

A. acids

B. bases

C. salts

D. hydrogen gas

Answer: B

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28. Name of the salt formed by treating calcium oxide solution with nitric acid is _____ .

- A. calcium nitrate
- B. calcium nitrite
- C. calcium hydrogen nitrate
- D. calcium hydrogen nitrite

Answer: A



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29. Formula of potassium hydrogen sulphite is

- A. $KHSO_3$
- B. K_2SO_3
- C. K_2SO_4

D. $KHSO_4$

Answer: A

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30. Smelling salt is

A. sodium chloride

B. calcium carbonate

C. ammonium chloride

D. ammonium carbonate

Answer: D

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31. Dibasic weak mineral acid among the following is

A. acetic acid

B. sulphurous acid

C. phosphoric acid

D. sulphurous acid

Answer: D



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32. If a nonmetal forms only two oxides and one oxide on hydrolysis gives an acid, then the non-metal could be

A. sulphur

B. carbon

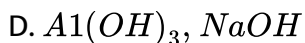
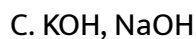
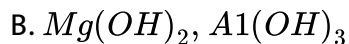
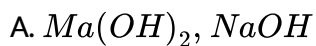
C. phosphorus

D. nitrogen

Answer: B

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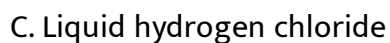
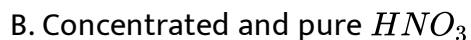
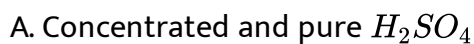
33. Antacid pair among the following is



Answer: B

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34. Which among the following is/are poor conductors of electricity?



D. All the above

Answer: D



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35. Hygroscopic substance among the following is

A. calcium oxide

B. sodium oxide

C. common salt

D. calcium chloride

Answer: A



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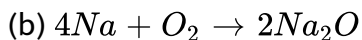
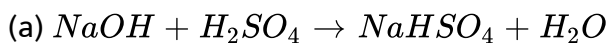
36. Identify the pair of water soluble bases.

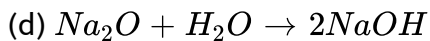
- A. Copper oxide, potassium oxide
- B. Copper oxide, calcium oxide
- C. Magnesium oxide, potassium oxide
- D. Aluminium oxide, magnesium oxide

Answer: C

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37. A metallic element is converted into a compound 'A' after a series of reactions. Compound 'A' turns red litmus blue. 'A' on reaction with another compound B which turns blue litmus red gave a compound 'C' which responded to litmus test like compound 'B'. 'C' on further reaction with 'A' gave a compound 'D' Which did not respond to litmus test. Identify the correct sequence of steps for the formation of A, B, C and D.





A. acbd

B. bcad

C. bdac

D. dbac

Answer: C



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38. Arrange the pairs in sequence in decreasing order of base and increasing order of basicity of an acid and the salts formed between an acid and base with equal basicity and acidity in their increasing order respectively.

(a) Sodium chloride

(b) Barium hydroxide, sulphuric acid

(c) Ferric phosphate

(d) Ferric hydroxide, hydrochloric acid

(e) Barium sulphate

(f) Sodium hydroxide, phosphoric acid

A. dbfaec

B. fbdaec

C. dbfcea

D. fbdcea

Answer: A



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- | | Column A | | Column B |
|-----|---------------------|--------------------------|----------------------------|
| 39. | A. Carbonic acid | <input type="checkbox"/> | a. Baking Powder |
| | B. Tartaric acid | <input type="checkbox"/> | b. Antacid |
| | C. Caustic soda | <input type="checkbox"/> | c. Soft drinks |
| | D. Milk of magnesia | <input type="checkbox"/> | d. Additive in food stuffs |
| | | <input type="checkbox"/> | e. Soap industry |



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- | | Column A | | Column B |
|-----|------------------|--------------------------|-----------------------------------|
| 40. | A. Green vitriol | <input type="checkbox"/> | a. $Na_2CO_3 \cdot 10H_2O$ |
| | B. Blue vitriol | <input type="checkbox"/> | b. $MgSO_4 \cdot 7H_2O$ |
| | C. Epsom salt | <input type="checkbox"/> | c. $FeSO_4 \cdot 7H_2O$ |
| | D. Washing soda | <input type="checkbox"/> | d. $CuSO_4 \cdot 5H_2O$ |
| | | <input type="checkbox"/> | e. $CaSO_4 \cdot \frac{1}{2}H_2O$ |

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- | | Column A | | Column B (Acidic) |
|-----|--------------------|--------------------------|--------------------------|
| 41. | A. Methyl orange | <input type="checkbox"/> | a. Red |
| | B. Phenolphthalein | <input type="checkbox"/> | b. Yellow |
| | C. Turmeric | <input type="checkbox"/> | c. Colourless |
| | D. Litmus | <input type="checkbox"/> | d. Blue |
| | | | <input type="checkbox"/> |

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Level 2

1. Odd one among the following with respect to the strength of acids is

A. phosphoric acid

B. carbonic acid

C. sulphuric acid

D. acetic acid

Answer: C



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2. One molecule of an 'ic' acid of a nonmetal having 5 electrons in valence shell reacts with a molecule of base to form a salt 'X'. The base corresponds to the metal with one electron in valence shell. If the salt so formed can react with the same base in 1 : 2 ratio, predict the formula of the salt 'X'.

A. K_2SO_4

B. Na_2HPO_4

C. KH_2PO_4

D. Na_3PO_4

Answer: C



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3. Three elements form their respective oxides A, B and C. A and C are gases and 'B' is a solid which on dissolution in water turns red litmus to blue. In presence of moisture, 'A' turns blue litmus red and 'C' is neutral to litmus. Then, A,B and C may be respectively

A. SO_3 , MgO , NO

B. SO_2 , CaO , CO_2

C. CO , Na_2O , SO_3

D. SO_2 , $Ca(OH)_2$, NO_2

Answer: A



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4. Two salts "X" and "Y" are taken in two test tubes "A" and "B" respectively and subjected to heating. Water is added to two test tubes, in case of "A" salt regains its original colour and in case of "B" water starts boiling. Then X and Y may be respectively

- A. Blue vitriol and limestone
- B. blue vitriol and baking soda
- C. nitre and limestone
- D. nitre and washing soda

Answer: A

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5. The salt formed by complete neutralization of calcium hydroxide with ic acid of sulphur having four oxygen atoms is

- A. calcium sulphite

B. calcium bisulphate

C. calcium sulphate

D. calcium bisulphite

Answer: C

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6. Role of nitre in the manufacture of gun powder is _____ .

A. to supply oxygen

B. to supply nitrogen

C. to decrease the rate of combustion

D. absorb temperature produced by combustion.

Answer: A

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7. Generally, pickles are stored in

- A. tin vessels or glass vessels.
- B. tin vessels or plastic vessels.
- C. glass vessels or plastic vessels.
- D. aluminium vessels or tin vessels.

Answer: C



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8. Pure HNO_3 is colourless, however, it gradually becomes yellow on standing due to _____ .

- A. the decomposition of HNO_3 and formation of NO.
- B. the decomposition of HNO_3 and formation of NO_2 .
- C. oxidation by atmospheric O_2 and formation NO.
- D. oxidation by atmospheric O_2 and formation of NO_2 .

Answer: B



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9. H_2SO_4 is used in the manufacture of fertilizers. The property exploited in H_2SO_4 is

- A. formation of soluble salts
- B. strong acid
- C. good electrolyte
- D. good dehydrating agent

Answer: A



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10. Weak acid among the following is

A. sulphuric acid

B. hydrochloric acid

C. nitric acid

D. carbonic acid

Answer: D

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11. A salt 'X' has a positive radical in which the metal has electronic configuration 2, 8, 8, 2. The negative radical is formed from acid used in soft drinks. One molecule of the salt 'x' reacts with one molecule of base. Predict the formula of the salt 'x'.

A. $Mg(HCO_3)_2$

B. $Ca(HCO_3)_2$

C. $CaCO_3$

D. $MgCO_3$

Answer: B

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12. Which among the following is true regarding aqueous solution of sulphur trioxide and sodium oxide?

- A. Both solutions turn blue litmus to red.
- B. Both solutions turn red litmus to blue.
- C. Aqueous solutions of SO_3 and Na_2O turn blue litmus to red and red litmus to blue respectively.
- D. Aqueous solutions of SO_3 and Na_2O turn red litmus to blue and blue litmus to red respectively.

Answer: C

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13. Blue coloured solid anhydrous cobalt chloride is exposed to atmosphere and forms pink coloured solid. From this, we can infer that cobalt chloride is

- A. hygroscopic
- B. deliquescent
- C. efflorescent
- D. None of these

Answer: A



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14. Name and formula of the salt formed by complete neutralization of aluminium hydroxide with ic acid of sulphur having four oxygen atoms is _____ and _____ respectively.

- A. aluminium sulphite, $Al_2(SO_3)_3$
- B. aluminium sulphate, $Al_2(SO_4)_3$

C. aluminium sulphate, $Al_2(SO_3)_3$

D. aluminium sulphite, $Al_2(SO_4)_3$

Answer: B

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15. Gaseous products formed when gun powder is subjected to heating are dissolved in water. Identify the products formed on dissolution.

A. H_2CO_3 , HNO_3

B. H_2SO_3 , H_2SO_4

C. H_2SO_4 , HNO_2

D. H_2SO_3 , H_2CO_3

Answer: D

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16. Generally, pickles are not stored in tin vessels because

- A. tin is costly metal.
- B. tin is having high reactivity towards food components.
- C. tin is denser metal.
- D. tin shows corrosive action.

Answer: B



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17. Pure nitric acid on long standing turns to yellow due to the formation of

- A. O_2 , NO and H_2O
- B. O_2 , NO_2 and H_2O
- C. NO , NO_2 and H_2O
- D. N_2O , O_2 and H_2O

Answer: B

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18. Identify the acid used in the purification of metals like gold and silver is

- A. sulphuric acid
- B. phosphoric acid
- C. hydrochloric acid
- D. nitric acid

Answer: D

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19. Though phosphorus acid contains three hydrogens, it is a dibasic acid. Give reasons.

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20. While showing some common compounds used in our daily life in the laboratory, the teacher showed sodium chloride compound and told that it is also called common salt. Next day, one of the students brought common salt from home to the laboratory and requested the teacher to show sodium chloride as well. He kept both common salt and sodium chloride in two different watch glasses and left. Next day, during lunch break the student went to the laboratory and saw that the common salt brought from home became sticky whereas the compound sodium chloride remained as it is. What would be the justification given by the teacher for the above observation?

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21. Two friends Neela and Leela went to a shop, brought mango and lemon pickle of 1kg each respectively. Neela stored the pickle in tin coated iron vessel whereas Leela stored her pickle in glass vessel. After

few days, Neela found that her pickle got spoiled whereas Leela's pickle did not. Explain the reason behind it.

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22. Hydrochloric acid is used to clean the metal surface before the metal surface is subjected to galvanisation. Explain.

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23. Why is nitric acid used in the purification of gold?

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24. Hydrated sodium sulphate and hydrated copper sulphate are taken in two air tight containers X and Y respectively. When blue coloured $CoCl_2$ is introduced into the two containers, there is colour change in one

container. Identify the container and give reasons in support of your answer.

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25. A teacher showed demonstration of action of acids on the metals in the laboratory. After the activity was over, one naughty student took an aluminium rod. He dipped it in a bottle containing concentrated nitric acid. Later, he dipped it in a beaker containing dilute H_2SO_4 . But, he did not find any bubbles coming out. He was surprised because he was able to see bubbles coming out when a metal rod is dipped in sulphuric acid when teacher did the experiment. He then approached the teacher and asked what is wrong with his activity. Predict the answer given by the teacher.

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26. In Chemistry practical examination, three friends DEAN, BEAN, and SEAN were given test tubes. A, B, and C filled with solutions respectively.

DEAN added blue litmus, BEAN added methyl orange and SEAN added the litmus solution to the given test tube respectively. DEAN found blue litmus turning red, BEAN observed methyl orange turning yellow but SEAN found no action in solution provided to him in the test tube. Comment on the nature of the three solutions given.

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27. One molecule of H_3PO_4 is treated with one molecule of NaOH, two molecules of NaOH and three molecules of NaOH separately. Comment on the nature of products formed and write their names.

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28. An element X on treatment with oxygen gives Y which on hydrolysis produces Z. Z on treatment with higher oxide of carbon 'A' gives milky white precipitate 'B'. Identify X, Y, Z, A and B?

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29. X is an atom of an element in which 4th shell is the valence shell and the number of electrons are in 1 : 1 ratio in 1st, 4th and 2nd, 3rd shells respectively. Its corresponding oxide Y on hydrolysis gives Z. Explain the changes that take place when phenolphthalein and methyl orange are added to Z separately.

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30. Calcium hydroxide on heating gives a solid product 'X' and on treatment with hydrochloric acid gives another solid product Y. What do you observe when X and Y are exposed to atmosphere? Explain.

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31. A non-metal "X" with electronic configuration 2, 8, 6 forms corresponding-ous and-ic acids. Identify both the acids and explain the method of dilution of corresponding-ic acid.

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32. Between H_2SO_4 and H_3PO_4 , which solution possesses greater number of H^+ ions in the given volume assuming that the number of molecules of both acids are equal? Give reasons.

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33. Sunny and Bunny are neighbours staying in the same apartment. In summer vacation, one day they wanted to prepare some snacks for eating. During that process, the food material fell on the floor and the beautiful marble flooring became dirty. Sunny was afraid that his mother would scold him and in a hurry, brought some acid to clean the floor. But, Bunny stopped him and said that it will spoil the flooring permanently. Why did Bunny say so? Give reason.

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1. Tartaric acid is one of the components in baking powder. What is its role?

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2. Calcium hydroxide is added to soils before applying fertilisers. Justify the purpose.

 [Watch Video Solution](#)

3. What is the role of calcium hydroxide used in making mortar and white washing?

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4. Why is Chile salt petre used in the manufacture of gunpowder?



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5. Write formulae and names of the various salts formed when magnesium hydroxide is treated with sulphurous acid.



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Assesment Test 1

1. Among the following strong acid is

- A. phosphoric acid
- B. carbonic acid
- C. sulphuric acid
- D. acetic acid

Answer: C



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2. The salt formed by complete neutralization of calcium hydroxide with ic acid of sulphur having four oxygen atoms is

- A. calcium sulphite
- B. calcium bisulphate
- C. calcium sulphate
- D. calcium bisulphite

Answer: C

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3. Chile salt petre and nitre are respectively

- A. sodium nitrate and potassium nitrate
- B. potassium nitrate and sodium nitrate

C. ferrous sulphate and copper sulphate

D. copper sulphate and ferrous sulphate

Answer: A

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4. Identify the salt which does not contain either replaceable hydrogen ions or hydroxyl ions.

A. Magnesium hydroxy chloride

B. Sodium bicarbonate

C. Disodium hydrogen phosphate

D. Calcium carbonate

Answer: D

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5. Monobasis weak acid among the following is

- A. carbonic acid
- B. oxalic acid
- C. acetic acid
- D. nitric acid

Answer: C



[Watch Video Solution](#)

6. _____ on hydrolysis gives a strong acid.

- A. Sulphur dioxide
- B. Carbon dioxide
- C. Sulphur trioxide
- D. Nitrogen dioxide

Answer: C

 [Watch Video Solution](#)

7. Salt solutions are good conductors of electricity. This is due to the presence of _____ in solution state.

A. mobile electrons

B. mobile ions

C. molecules

D. both 1 and 3

Answer: B

 [Watch Video Solution](#)

8. Assertion (A): Pickles are generally not stored in tin vessels.

Reason (R): Tin reacts with the acid components of pickles.

- A. Both A and R are true and R is correct explanation for A.
- B. Both A and R are true but R is not the correct for A.
- C. A is true and R is false.
- D. A is false and R is true.

Answer: A



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9. Certain statements which describe different types of salts are given below.

- (a) Two basic and one acidic radicals are present in one molecule of this salt.
- (b) This salt reacts further with a base.
- (c) This salt consists of one basic radical and one acidic radical and does not react further either with an acid or with a base.
- (d) This salt is a combination of two simple salts.
- (e) This salt reacts further with an acid.

Arrange the statements in the following order.

- (i) Acidic salt (ii) Basic salt
(iii) Normal salt (iv) Double salt
(v) Mixed salt

A. becda

B. bedac

C. becad

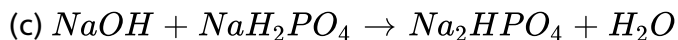
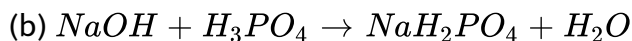
D. edcba

Answer: A



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10. Arrange the following equations in the correct sequence to obtain a normal salt.



A. bca

B. abc

C. cba

D. cab

Answer: A



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11. Assertion (A): Pure nitric acid on standing for long turns yellow.

Reason (R): HNO_3 undergoes decomposition and forms NO_2 .

A. Both A and R are true and R is correct explanation for A.

B. Both A and R are true but R is not correct explanation for A.

C. A is true and R is false.

D. A is false and R is true.

Answer: A

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12. Which among the following is the application of neutralization?

- A. Farmers add slaked lime to soil.
- B. Persons suffering from acidity are given antacid tablets.
- C. Usage of lithium hydroxide in submarines.
- D. All of above.

Answer: D

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13. Match the following

Column A

(A) $CuSO_4$

(B) $Na_2CO_3 \cdot 10H_2O$

(C) Concentrated H_2SO_4

(D) $ZnCl_2$

Column B

() (a) Hygroscopic

() (b) Deliquescent

() (c) Efflorescent

() (d) Anhydrous salt

A. $A \rightarrow b, B \rightarrow c, C \rightarrow d, D \rightarrow a$

B. $A \rightarrow d, B \rightarrow c, C \rightarrow a, D \rightarrow b$

C. $A \rightarrow c, B \rightarrow d, C \rightarrow b, D \rightarrow a$

D. $A \rightarrow c, B \rightarrow d, C \rightarrow a, D \rightarrow b$

Answer: B



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14. Role of nitre in the manufacture of gun powder is _____ .

A. to supply oxygen

B. to supply nitrogen

C. to decrease the rate of combustion

D. to absorb temperature produced by combustion

Answer: A



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15. X is a base which is soluble in water. Then the metal present in X may be

A. aluminium.

B. copper

C. sodium

D. manganese

Answer: C



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Assesment Test 2

1. Which among the following is a weak acid?

A. Sulphuric acid

B. Hydrochloric acid

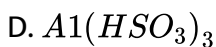
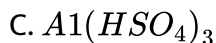
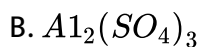
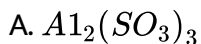
C. Nitric acid

D. Carbonic acid

Answer: D

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2. Name and formula of the salt formed by complete neutralization of aluminium hydroxide with ic acid of sulphur having four oxygen atoms is _____ and _____ respectively.



Answer: B



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3. Identify the common use(s) of both chile salt petre and nitre.

- A. Manufacture of gunpowder.
- B. Manufacture of fertilizer.
- C. Manufacture of glass.
- D. All the above

Answer: D



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4. Acidic and double salts among the following are respectively

- A. potash alum and sodium phosphate
- B. sodium dihydrogen phosphate and mohr's salt
- C. mohr's salt and calcium hydroxy chloride.

D. sodium phosphate and mohl's salt

Answer: B



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5. Which of the following is a dibasic weak mineral acid?

A. acetic acid

B. sulphurous acid

C. phosphoric acid

D. sulphurous acid

Answer: D



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6. If a nonmetal forms only two oxides and one oxide on hydrolysis gives an acid, then the non-metal could be

- A. sulphur
- B. carbon
- C. phosphorus
- D. nitrogen

Answer: B



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7. Which among the following is/are poor conductors of electricity?

- A. Pure H_2SO_4
- B. Pure HNO_3
- C. Liquid hydrogen chloride
- D. All the above

Answer: D

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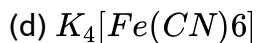
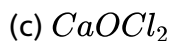
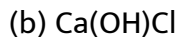
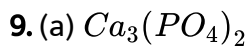
8. Assertion (A): Generally pickles are stored in glass vessels and plastic vessels.

Reason (R): The components of pickles are highly reactive towards glass/plastic.

- A. Both A and R are true and R is correct explanation for A.
- B. Both A and R are true but R is not the correct for A.
- C. A is true and R is false.
- D. Both A and R are false.

Answer: C

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Arrange the above salts in the order of complex salt, basic salt, normal salt and mixed salts respectively.

A. dbca

B. bdca

C. dbac

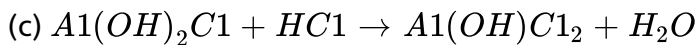
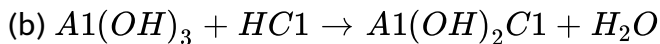
D. bdac

Answer: C



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10. Arrange the following equations in the correct sequence to obtain a normal salt.



A. cba

B. bca

C. abc

D. cab

Answer: B



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11. Assertion (A): Pure H_2SO_4 is colourless.

Reason (R): On long standing H_2SO_4 undergoes decomposition to form SO_2 .

A. Both A and R are true and R is correct explanation for A.

B. Both A and R are true but R is not the correct for A.

C. A is true and R is false.

D. Both A and R are false.

Answer: C

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12. Which among the following is an antacid pair?

A. $Mg(OH)_2$, $NaOH$

B. $Mg(OH)_2$, $Al(OH)_3$

C. KOH , $NaOH$

D. $Al(OH)_3$, $NaOH$

Answer: B

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13. Match the following.

Column A	Column B
(A) CaO	(a) Deliquescent
(B) $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$	(b) Hydrated salt, but not deliquescent
(C) $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$	(c) Anhydrous and deliquescent salt
(D) MgSO_4	(d) Hygroscopic

A. $A \rightarrow d, B \rightarrow a, C \rightarrow b, D \rightarrow c$

B. $A \rightarrow a, B \rightarrow d, C \rightarrow b, D \rightarrow c$

C. $A \rightarrow b, B \rightarrow c, C \rightarrow d, D \rightarrow a$

D. $A \rightarrow d, B \rightarrow c, C \rightarrow b, D \rightarrow a$

Answer: A

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14. Gaseous products formed when gun powder is subjected to heating are dissolved in water. Identify the products formed on dissolution.

A. $\text{H}_2\text{CO}_3, \text{HNO}_3$

B. H_2SO_3 , H_2SO_4

C. H_2SO_4 , HNO_2

D. H_2SO_3 , H_2CO_3

Answer: D

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15. Identify the pair of water soluble bases.

A. Copper oxide, potassium oxide

B. Copper oxide, sodium oxide

C. Sodium oxide, potassium oxide

D. Aluminium oxide, magnesium oxide

Answer: C

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1. Why is KOH called caustic potash?

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2. Give an example of dibasic acid. How is it obtained from the corresponding nonmetal? Give balanced equations.

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3. Why is nitric acid used in the purification of gold?

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4. What is meant by neutralisation? Give balanced equations showing neutralisation reactions of the following.

(a) Slaked lime and sulphuric acid

(b) Sodium bicarbonate and hydrochloric acid.

(c) Magnesium carbonate and sulphuric acid.

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Test Your Concepts Very Short Answer Type Questions

1. The acids which are obtained from the minerals are called _____.

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2. The oxides of _____ on hydrolysis give bases.

 [Watch Video Solution](#)

3. Ammonium hydroxide on heating gives _____ and _____.

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4. The gas produced when a piece of zinc is made to react with dilute sulphuric acid is

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5. Mineral acids react with metallic carbonate to form its respective metallic salt, _____ and _____ .

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6. Methyl orange turns lime water _____ .

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7. Chemical formula and chemical name of plaster of Paris are _____ and _____ respectively.

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8. The salt formed by removal of water of crystallization from hydrated salt is called _____ .

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9. Hydrated zinc sulphate is _____ in colour.

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10. _____ which is a hydrated salt is used as a fungicide in agriculture.

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11. Which among the following acids is present in lemons?

A. acetic acid

B. oleic acid

C. stearic acid

D. ascorbic acid

Answer: D

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12. Identify weak mineral acid among the following.

A. palmitic acid

B. acetic acid

C. carbonic acid

D. hydrochloric acid

Answer: C

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13. For the formation of normal salt from one molecule of H_2SO_4 , how many molecules of NaOH are required?

- A. one
- B. two
- C. four
- D. three

Answer: B



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14. Which among the following pairs of bases do not decompose on heating?

- A. calcium hydroxide, potassium hydroxide
- B. sodium hydroxide, potassium hydroxide
- C. copper hydroxide, calcium hydroxide

D. calcium hydroxide, copper hydroxide

Answer: B

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15. Which among the following is strong acid?

A. acetic acid

B. sulphurous acid

C. carbonic acid

D. nitric acid

Answer: D

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16. Among the following, which substance turns phenolphthalein to pink?

A. soda water

B. lime water

C. common salt

D. sugar solution

Answer: B

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17. Washing soda is _____ .

A. hydrated sodium carbonate

B. anhydrous sodium carbonate

C. hydrated magnesium sulphate

D. anhydrous magnesium sulphate

Answer: A

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18. A salt formed by the partial neutralization of hydroxyl ions of a base by an acid is called _____ salt.

- A. normal
- B. acidic
- C. basic
- D. none of these

Answer: C



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19. Which among the following is a hydrated salt?

- A. marble
- B. baking soda
- C. green vitriol

D. all the above

Answer: C



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20. Salt used in purification of water is.

A. potash alum

B. epsom salt

C. green vitriol

D. blue vitriol

Answer: A



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21. Monobasis weak acid among the following is

A. carbonic acid

B. oxalic acid

C. acetic acid

D. nitric acid

Answer: C

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22. _____ on hydrolysis gives a strong acid.

A. sulphur dioxide

B. carbon dioxide

C. sulphur trioxide

D. nitrogen oxide

Answer: C

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23. Which among the following is the application of neutralization?

- A. Farmers add slaked lime to soil.
- B. Persons suffering from acidity are given antacid tablets.
- C. Usage of lithium hydroxide in submarines.
- D. All the above.

Answer: D



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24. Salt solutions are good conductors of electricity. This is due to the presence of _____ in solution state.

- A. mobile electrons
- B. mobile ions
- C. molecules

D. both 1 and 3

Answer: B



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25. Which among the following is used to remove moisture from the surroundings?

A. calcium chloride

B. magnesium chloride

C. zinc chloride

D. calcium oxide

Answer: D



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26. "X" is a base which is soluble in water. Then the metal present in "X" may be

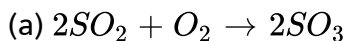
- A. aluminium
- B. copper
- C. magnesium
- D. manganese

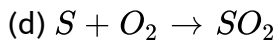
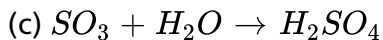
Answer: C



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27. A nonmetallic element is converted into a compound 'X' after a series of reactions. A little amount of 'X' when tested with blue litmus turns to red. 'X' on complete reaction with another compound 'Y' gave the product which did not respond to litmus test. Identify the correct sequence of the reactions.





A. 1342

B. 4132

C. 2314

D. 4321

Answer: B



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28. Arrange the pairs in sequence in decreasing order of basicity of an acid and acidity of a base followed by the normal salts formed by the given acid-base pairs in the same order, respectively.

(1) acetic acid and ammonium hydroxide

(2) oxalic acid and barium hydroxide

(3) phosphoric acid and aluminium hydroxide.

(4) barium oxalate

(5) ammonium acetate

(6) aluminium phosphate

A. 14365

B. 321645

C. 143526

D. 341526

Answer: B



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Column A

Column B

A. Nitric acid

a. Weak acid

B. Phosphoric acid

b. Strong acid

C. Calcium hydroxide

c. Car batteries

D. Sulphuric acid

d. Bleaching powder

e. Baking powder

29.



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Column A	Column B
A. Sodium dihydrogen phosphate	() a. Basic salt
B. Calcium hydroxy chloride	() b. Gunpowder
C. Nitre	() c. Manufacture of glass
D. Ammonium carbonate	() d. Acidic salt
	() e. Normal salt
	() f. Smelling salt

30.

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Column A	Column B
A. Efflorescent	() a. Cobalt chloride
B. Deliquescent	() b. Sodium chloride
C. Hygroscopic	() c. Zinc chloride
D. Food additive	() d. Mercuric nitrate
	() e. Washing soda

31.

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32. Name the acid present in

(a) curd

(b) tamarind

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33. Name the acid which is produced by the sting of an ant.

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34. What is meant by alkali? Give two examples.

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35. Give common names of sodium hydroxide and potassium hydroxide.

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36. Name the substances formed by the dissolution of following oxides in water.

(a) CO_2

(b) MgO

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37. What is the action of litmus on acid and base?

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38. Name a natural indicator.

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39. Give the formulae of the following salts.

(a) Blue vitriol

(b) Green vitriol

(c) Potash alum

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40. Name the salt used for the manufacture of glass. Give its formula.

 [Watch Video Solution](#)

41. Name the salts used for the following purposes.

(a) Purification of water

(b) Fire extinguisher

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42. Name the acid present in

(a) Lemon

(b) Vinegar

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43. What are neutral oxides? Give examples.

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44. Name the acid and base from which the following salts are formed.

(a) Sodium chloride

(b) Potassium sulphate

(c) Calcium nitrate

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45. What are the suffixes of salts formed from the following acids?

(a) Carbonic acid

(b) Nitrous acid

(c) Sulphuric acid

(d) Nitric acid

A. carbonic acid

B. nitrous acid

C. sulphuric acid

D. nitric acid

Answer:

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46. Write the chemical formula of hypo.

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47. identify the basic radical and acidic radical in sodium nitrate.

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48. Give two examples of hydrated salts.

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49. Define water of crystallisation. Give the chemical formula for two compounds as examples. how can it be proved that the water of crystallisation makes a difference in the state and colour of the compounds?

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50. What is the formula of plaster of Paris?

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Test Your Concepts Short Answer Type Questions

1. Distinguish between organic acids and mineral acids. Give examples.

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2. Give an example of dibasic acid. How is it obtained from the corresponding nonmetal? Give balanced equations.

 [Watch Video Solution](#)

3. What are active metals? Give examples with equations.

 [Watch Video Solution](#)

4. Explain the corrosive action of acids and alkalies. Give examples.

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5. Distinguish between an acid and base with respect to definitions.

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6. Define the following and give an example each.

(a) Efflorescent substances

(b) Deliquescent salts

(c) Hygroscopic salts

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7. What are mineral acids? How can they be further classified on the basis of nature of the constituents?

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8. Distinguish between strong acids and weak acids. Give two examples each.

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9. Write a short note on naming of acids.

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10. What is meant by neutralisation? Give balanced equations showing neutralisation reactions of the following.

(a) Slaked lime and sulphuric acid

(b) Sodium bicarbonate and hydrochloric acid.

(c) Magnesium carbonate and sulphuric acid.

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11. What is the action of heat on the following?

(a) Ammonium hydroxide

(b) Aluminium hydroxide

(c) Sodium hydroxide

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12. What are indicators? Give examples.

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13. Distinguish between acidic salts and basic salts.

 [Watch Video Solution](#)

14. Mention four important properties of salts.

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15. Mention two uses of the salts given below:

- (a) Sodium chloride.
- (b) Sodium bicarbonate
- (c) Calcium sulphate hemihydrate.

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16. Mention two important uses of following acids and also mention the property exploited.

- (a) Hydrochloric acid
- (b) Nitric acid

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17. Define basicity of an acid and acidity of a base. On the basis of these, explain the classification of acids and bases. Give suitable examples.

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18. Write a short note on different types of salts.

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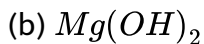
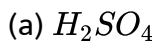
19. Give the chemical properties of acids and bases by giving balanced chemical equations.

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20. Describe the methods of preparation of acids and bases with the help of examples.

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21. Give equations for the dissociation of the following compounds in their solutions and write the formulae of the salts formed from them.

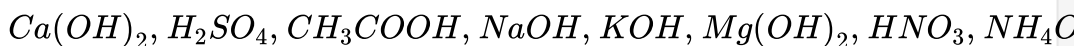


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22. Explain the naming of salts with examples.

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23. (1) By using moist blue litmus paper classify the following compounds given below as acids and bases



(2) Mention the acidic or basic or neutral nature of solutions by using

(a) litmus

(b) methyl orange

(c) phenolphthalein indicators.

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24. (1) By using moist blue litmus paper classify the following compounds given below as acids and bases

$Ca(OH)_2$, H_2SO_4 , CH_3COOH , $NaOH$, KOH , $Mg(OH)_2$, HNO_3 , NH_4Cl

(2) Mention the acidic or basic or neutral nature of solutions by using

(a) litmus

(b) methyl orange

(c) phenolphthalein indicators.



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25. Mention the uses of the following bases and mention the property exploited in those uses.

(a) Sodium hydroxide

(b) Calcium hydroxide

(c) Magnesium hydroxide



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26. Mention the uses of the following bases and mention the property exploited in those uses.

(a) Sodium hydroxide

(b) Calcium hydroxide

(c) Magnesium hydroxide



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27. Mention the uses of the following bases and mention the property exploited in those uses.

(a) Sodium hydroxide

(b) Calcium hydroxide

(c) Magnesium hydroxide



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Concept Application Level 1

1. Hydrochloric acid is a monobasic acid.

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2. Carbonic acid is a strong acid.

 [Watch Video Solution](#)

3. Sulphur dioxide on hydrolysis gives sulphuric acid.

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4. Acids turn methyl orange solution pink.

 [Watch Video Solution](#)

5. Ammonium hydroxide is an alkali.

 [Watch Video Solution](#)

Watch Video Solution

6. Lead sulphid is a normal salt.

 [Watch Video Solution](#)

7. Formula of washing soda is $Na_2CO_3 \cdot 7H_2O$.

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8. Nitre is the common name of sodium nitrate.

 [Watch Video Solution](#)

9. Mercuric nitrate is a deliquescent salt.

 [Watch Video Solution](#)

10. Chile salt petre is used in the manufacture of nitric acid.

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11. Hydrochloric acid is a _____ acid. (monobasic/ dibasic)

 [Watch Video Solution](#)

12. Carbonic acid is a _____ acid. (strong/ weak)

 [Watch Video Solution](#)

13. Sulphur dioxide on hydrolysis gives _____.

 [Watch Video Solution](#)

14. Acids turns methyl orange solution _____.

 [Watch Video Solution](#)

Watch Video Solution

15. Ammonium hydroxide is an _____ (acid/ alkali)

 [Watch Video Solution](#)

16. Sodium sulphate is a _____ salt.

 [Watch Video Solution](#)

17. Formula of washing soda is _____.

 [Watch Video Solution](#)

18. Nitre is the common name of _____.

 [Watch Video Solution](#)

19. Mercuric nitrate is a _____ salt (deliquescent/ efflorescent)

 [Watch Video Solution](#)

20. Chile salt petre is used in the manufacture of _____ (nitric acid/ nitrous acid)

 [Watch Video Solution](#)

21. Identify the organic acid among the following given acids.

A. hydroiodic acid

B. nitrous acid

C. carbonic acid

D. stearic acid

Answer: D

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22. Identify the strong acid and weak base among the following respectively.

A. HCl and KOH

B. $Ca(OH)_2$ and $Al(OH)_3$

C. HNO_3 and $Al(OH)_3$

D. H_2CO_3 and NH_4OH

Answer: C



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23. H_3PO_4 is an example of

A. monobasic acid

B. dibasic acid

C. tribasic acid

D. strong acid

Answer: C

 [Watch Video Solution](#)

24. $Ca(OH)_2$ is an example of

A. monoacidic base

B. diacidic base

C. triacidic base

D. strong base

Answer: B

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25. $CaCl_2$ is an example of

- A. normal salt
- B. acidic salt
- C. basic salt
- D. complex salt

Answer: A

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26. Among the following, identify an extremely corrosive alkali.

- A. ammonium hydroxide
- B. calcium hydroxide
- C. potassium hydroxide
- D. magnesium hydroxide

Answer: C

 [Watch Video Solution](#)

27. Generally, hydrolysis of metal oxides gives

- A. acids
- B. bases
- C. salts
- D. hydrogen gas

Answer: B



[Watch Video Solution](#)

28. Name of the salt formed by treating calcium oxide solution with nitric acid is _____ .

- A. calcium nitrate
- B. calcium nitrite
- C. calcium hydrogen nitrate

D. calcium hydrogen nitrite

Answer: A



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29. Formula of potassium hydrogen sulphite is

A. $KHSO_3$

B. K_2SO_3

C. K_2SO_4

D. $KHSO_4$

Answer: A



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30. Smelling salt is

- A. sodium chloride
- B. calcium carbonate
- C. ammonium chloride
- D. ammonium carbonate

Answer: D

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31. Dibasic weak mineral acid among the following is

- A. acetic acid
- B. sulphuric acid
- C. phosphoric acid
- D. sulphurous acid

Answer: D

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32. If a nonmetal forms only two oxides and one oxide on hydrolysis gives an acid, then the non-metal could be

- A. sulphur
- B. carbon
- C. phosphorus
- D. nitrogen

Answer: B



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33. Antacid pair among the following is

- A. $Mg(OH)_2$, $NaOH$
- B. $Mg(OH)_2$, $Al(OH)_3$
- C. KOH , $NaOH$

D. $Al(OH)_3$, NaOH

Answer: B

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34. Which among the following is/are poor conductors of electricity?

A. concentrated and pure H_2SO_4

B. concentrated and pure HNO_3

C. liquid hydrogen chloride

D. all the above

Answer: D

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35. Hygroscopic substance among the following is

- A. calcium oxide
- B. sodium oxide
- C. common salt
- D. calcium chloride

Answer: A

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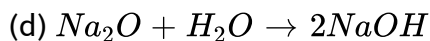
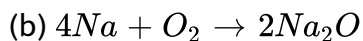
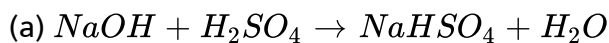
36. Identify the pair of water soluble bases.

- A. copper oxide and potassium oxide
- B. copper oxide and calcium oxide
- C. magnesium oxide and potassium oxide
- D. aluminium oxide and magnesium oxide

Answer: C

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37. A metallic element is converted into a compound 'A' after a series of reactions. Compound 'A' turns red litmus blue. 'A' on reaction with another compound B which turns blue litmus red gave a compound 'C' which responded to litmus test like compound 'B'. 'C' on further reaction with 'A' gave a compound 'D' Which did not respond to litmus test. Identify the correct sequence of steps for the formation of A, B, C and D.



A. 1324

B. 2314

C. 2413

D. 4213

Answer: C



38. Arrange the following pairs in a sequence of decreasing order of acidity of base and increasing order of basicity of an acid and the salts formed between an acid and base with equal basicity and acidity in their increasing order, respectively.

- (1) sodium chloride.
- (2) barium hydroxide and sulphuric acid
- (3) ferric phosphate
- (4) ferric hydroxide and hydrochloric acid
- (5) barium sulphate
- (6) sodium hydroxide and phosphoric acid

A. 426153

B. 624153

C. 426351

D. 624351

Answer: A



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39. Match the following Column A and Column B

Column A	Column B
A. Carbonic acid	() a. Baking powder
B. Tartaric acid	() b. Antacid
C. Caustic soda	() c. Soft drinks
D. Milk of magnesia	() d. Additive in food stuffs () e. Soap industry



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Column A

Column B

- | | |
|------------------|--|
| A. Green vitriol | () a. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ |
| B. Blue vitriol | () b. $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ |
| C. Epsom salt | () c. $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ |
| D. Washing soda | () d. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
() e. $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ |

40.



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Column A (indicator)	Column B (colour in acidic solution)
A. Methyl orange	() a. Red
B. Phenolphthalein	() b. Yellow
C. Turmeric	() c. Colourless
D. Litmus	() d. Blue () e. Pink

41.



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Concept Application Level 2

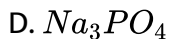
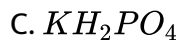
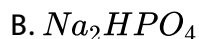
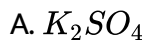
1. Odd one among the following with respect to the strength of acids is

- A. phosphoric acid
- B. carbonic acid
- C. sulphuric acid
- D. acetic acid

Answer: C

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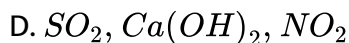
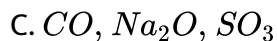
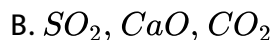
2. One molecule of an 'ic' acid of a nonmetal having 5 electrons in valence shell reacts with a molecule of base to form a salt 'X'. The base corresponds to the metal with one electron in valence shell. If the salt so formed can react with the same base in 1 : 2 ratio, predict the formula of the salt 'X'.



Answer: C

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3. Three elements form their respective oxides A, B and C. A and C are gases and 'B' is a solid which on dissolution in water turns red litmus to blue. In presence of moisture, 'A' turns blue litmus red and 'C' is neutral to litmus. Then, A,B and C may be respectively



Answer: A



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4. Two salts "X" and "Y" are taken in two test tubes "A" and "B" respectively and subjected to heating. Water is added to two test tubes, in case of "A" salt regains its original colour and in case of "B" water starts boiling. Then X and Y may be respectively

- A. blue vitriol and limestone
- B. blue vitriol and baking soda
- C. nitre and limestone
- D. nitre and washing soda

Answer: A

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5. The salt formed by complete neutralisation of calcium hydroxide with ic acid of sulphur having four oxygen atoms is.

- A. calcium sulphite
- B. calcium bisulphate
- C. calcium sulphate
- D. calcium bisulphite

Answer: C

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6. Role of nitre in the manufacture of gun powder is _____ .

- A. to supply oxygen
- B. to supply nitrogen
- C. to decrease the rate of combustion
- D. absorb temperature produced by combustion

Answer: A

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7. Generally, pickles are stored in

- A. tin vessels or glass vessels
- B. tin vessels or plastic vessels
- C. glass vessels or plastic vessels

D. aluminium vessels or tin vessels

Answer: C

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8. Pure HNO_3 is colourless, however, it gradually becomes yellow on standing due to _____ .

- A. the decomposition of HNO_3 and formation of NO
- B. the decomposition of HNO_3 and formation of NO_2
- C. oxidation by atmospheric O_2 and formation of NO_2
- D. oxidation by atmospheric O_2 and formation of NO_2

Answer: B

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9. H_2SO_4 is used in the manufacture of fertilizers. The property exploited in H_2SO_4 is

- A. formation of soluble salts
- B. strong acid
- C. good electrolyte
- D. good dehydrating agent

Answer: A



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10. Weak acid among the following is

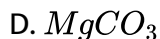
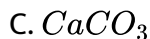
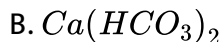
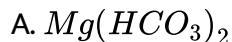
- A. sulphuric acid
- B. hydrochloric acid
- C. nitric acid
- D. carbonic acid

Answer: D



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11. A salt 'X' has a positive radical in which the metal has electronic configuration 2, 8, 8, 2. The negative radical is formed from acid used in soft drinks. One molecule of the salt 'x' reacts with one molecule of base. Predict the formula of the salt 'x'.



Answer: B



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12. Which among the following is true regarding aqueous solution of sulphur trioxide and sodium oxide?

A. both solutions turn blue litmus to red.

B. Both solutions turn red litmus to blue.

C. Aqueous solutions of SO_3 and Na_2O turn blue litmus to red and red litmus to blue, respectively.

D. Aqueous solutions of SO_2 and Na_2O turn red litmus to blue and blue litmus to red, respectively.

Answer: C



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13. Blue coloured solid anhydrous cobalt chloride is exposed to atmosphere and forms pink coloured solid. From this, we can infer that cobalt chloride is

- A. hygroscopic
- B. deliquescent
- C. efflorescent
- D. none of these

Answer: A

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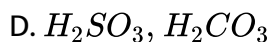
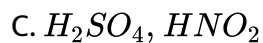
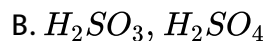
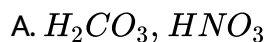
14. Name and formula of the salt formed by complete neutralization of aluminium hydroxide with ic acid of sulphur having four oxygen atoms is _____ and _____ respectively.

- A. aluminium sulphite, $Al_2(SO_3)_3$
- B. aluminium sulphate, $Al_2(SO_4)_3$
- C. aluminium sulphate, $Al_2(SO_3)_3$
- D. aluminium sulphite, $Al_2(SO_4)_3$

Answer: B

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15. Gaseous products formed when gun powder is subjected to heating are dissolved in water. Identify the products formed on dissolution.



Answer: D

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16. Generally, pickles are not stored in tin vessels because

A. tin is a costly metal.

B. tin is having high reactivity towards food components.

C. tin is a denser metal.

D. tin shows corrosive action.

Answer: B

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17. Pure nitric acid on longstanding turns to yellow due to the formation of

A. O_2NO and H_2O

B. O_2 , NO_2 and H_2O

C. NO , NO_2 and H_2O

D. N_2O , O_2 and H_2O

Answer: B

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18. Identify the acid used in the purification of metals like gold and silver is

- A. sulphuric acid
- B. phosphoric acid
- C. hydrochloric acid
- D. nitric acid

Answer: B

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19. Though phosphorus acid contains three hydrogen molecules, it is a dibasic acid. Give reasons.

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20. While showing some common compounds used in our daily life in the laboratory, the teacher showed sodium chloride compound and told that it is also called common salt. Next day, one of the students brought common salt from home to the laboratory and requested the teacher to show sodium chloride as well. He kept both common salt and sodium chloride in two different watch glasses and left. Next day, during lunch break the student went to the laboratory and saw that the common salt brought from home became sticky whereas the compound sodium chloride remained as it is. What would be the justification given by the teacher for the above observation?



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21. Two friends Neela and Leela went to a shop, brought mango and lemon pickle of 1kg each respectively. Neela stored the pickle in tin coated iron vessel whereas Leela stored her pickle in glass vessel. After few days, Neela found that her pickle got spoiled whereas Leela's pickle did not. Explain the reason behind it.

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22. Hydrochloric acid is used to clean the metal surface before the metal surface is subjected to galvanisation. Explain.

 [Watch Video Solution](#)

23. Why is nitric acid used in the purification of gold?

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24. Hydrated sodium sulphate and hydrated copper sulphate are taken in two air tight containers X and Y respectively. When blue coloured $CoCl_2$ is introduced into the two containers, there is colour change in one container. Identify the container and give reasons in support of your answer.

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25. A teacher showed demonstration of action of acids on the metals in the laboratory. After the activity was over, one naughty student took an aluminium rod. He dipped it in a bottle containing concentrated nitric acid. Later, he dipped it in a beaker containing dilute H_2SO_4 . But, he did not find any bubbles coming out. He was surprised because he was able to see bubbles coming out when a metal rod is dipped in sulphuric acid when teacher did the experiment. He then approached the teacher and asked what is wrong with his activity. Predict the answer given by the teacher.



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26. In Chemistry practical examination, three friends DEAN, BEAN, and SEAN were given test tubes. A, B, and C filled with solutions respectively. DEAN added blue litmus, BEAN added methyl orange and SEAN added the litmus solution to the given test tube respectively. DEAN found blue litmus turning red, BEAN observed methyl orange turning yellow but

SEAN found no action in solution provided to him in the test tube.

Comment on the nature of the three solutions given.

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27. One molecule of H_3PO_4 is treated with one molecule of NaOH, two molecules of NaOH and three molecules of NaOH separately. Comment on the nature of products formed and write their names.

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28. An element X on treatment with oxygen gives Y which on hydrolysis produces Z. Z on treatment with higher oxide of carbon 'A' gives milky white precipitate 'B'. Identify X, Y, Z, A and B?

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29. X is an atom of an element in which 4th shell is the valence shell and the number of electrons are in 1 : 1 ratio in 1st, 4th and 2nd, 3rd shells respectively. Its corresponding oxide Y on hydrolysis gives Z. Explain the changes that take place when phenolphthalein and methyl orange are added to Z separately.

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30. Calcium hydroxide on heating gives a solid product 'X' and on treatment with hydrochloric acid gives another solid product Y. What do you observe when X and Y are exposed to atmosphere? Explain.

 [Watch Video Solution](#)

31. A non-metal "X" with electronic configuration 2, 8, 6 forms corresponding-ous and-ic acids. Identify both the acids and explain the method of dilution of corresponding-ic acid.

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32. Between H_2SO_4 and H_3PO_4 , which solution possesses greater number of H^+ ions in the given volume assuming that the number of molecules of both acids are equal? Give reasons.

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33. Sunny and Bunny are neighbours staying in the same apartment. In summer vacation, one day they wanted to prepare some snacks for eating. During that process, the food material fell on the floor and the beautiful marble flooring became dirty. Sunny was afraid that his mother would scold him and in a hurry, brought some acid to clean the floor. But, Bunny stopped him and said that it will spoil the flooring permanently. Why did Bunny say so? Give reason.

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1. Tartaric acid is one of the components in baking powder. What is its role?

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2. Calcium hydroxide is added to soils before applying fertilisers. Justify the purpose.

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3. What is the role of calcium hydroxide used in making mortar and white washing?

 [Watch Video Solution](#)

4. Why is Chile salt petre used in the manufacture of gunpowder?

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5. Write formulae and names of the various salts formed when magnesium hydroxide is treated with sulphurous acid.



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Assesment Test Test 1

1. Among the following strong acid is

A. phosphoric acid

B. carbonic acid

C. sulphuric acid

D. acetic acid

Answer: C



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2. The salt formed by complete neutralization of calcium hydroxide with ic acid of sulphur having four oxygen atoms is

- A. calcium sulphite
- B. calcium bisulphate
- C. calcium sulphate
- D. calcium bisulphite

Answer: C



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3. Chile salt petre and nitre are respectively

- A. sodium nitrate and potassium nitrate
- B. potassium nitrate and sodium nitrate
- C. ferrous sulphate and copper sulphate

D. copper sulphate and ferrous sulphate

Answer: A

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4. Identify the salt which does not contain either replaceable hydrogen ions or hydroxyl ions.

A. magnesium hydroxy chloride

B. sodium bicarbonate

C. disodium hydrogen phosphate

D. calcium carbonate

Answer: D

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5. Monobasis weak acid among the following is

A. carbonic acid

B. oxalic acid

C. acetic acid

D. nitric acid

Answer: C



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6. _____ on hydrolysis gives a strong acid.

A. sulphur dioxide

B. carbon dioxide

C. sulphur trioxide

D. nitrogen dioxide

Answer: C

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7. Salt solutions are good conductors of electricity. This is due to the presence of _____ in solution state.

- A. mobile electrons
- B. mobile ions
- C. molecules
- D. both (a) and (c)

Answer: B

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8. Assertion (A): Pickles are generally not stored in tin vessels.

Reason (R): Tin reacts with the acid components of pickles.

- A. Both A and R are true and R is the correct explanation for A.
- B. Both A and R are true but R is not the correct explanation for A.
- C. A is true and R is false.
- D. A is false and R is true.

Answer: A

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9. Certain statements which describe different types of salts are given below:

- (1) Two basic and one acidic radicals are present in one molecule of this salt.
- (2) This salt reacts further with a base.
- (3) This salt consists of one basic radical and one acidic radical and does not react further either with an acid or with a base.
- (4) This salt is a combination of two simple salts.
- (5) This salt reacts further with an acid. Arrange the statements in the

following order.

Arrange the statements in the following order .

(i) acidic salt (ii) basic salt .

(iii) normal salt (iv) double salt.

(v) mixed salt .

A. 25341

B. 25413

C. 25314

D. 54321

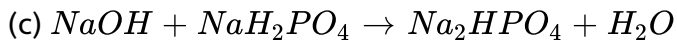
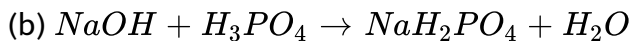
Answer: A



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10. Arrange the following equations in the correct sequence to obtain a normal salt.





A. 231

B. 123

C. 321

D. 312

Answer: A



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11. Assertion (A): Pure nitric acid on standing for long turns yellow.

Reason (R): HNO_3 undergoes decomposition and forms NO_2 .

A. Both A and R is true and R is the correct explanation for A.

B. Both A and R are true but R is not the correct explanation for A.

C. A is true and R is false.

D. A is false and R is true.

Answer: A

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12. Which among the following is the application of neutralization?

- A. Farmers add slaked lime to soil.
- B. People suffering from acidity are given antacid tablets.
- C. Usage of lithium hydroxide in submarines.
- D. All the above

Answer: D

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13. Match the following columns

Column A	Column B
A. CuSO_4	() a. Hygroscopic
B. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$	() b. Deliquescent
C. Concentrated H_2SO_4	() c. Efflorescent
D. ZnCl_2	() d. Anhydrous salt

A. $A \rightarrow b, B \rightarrow c, C \rightarrow d, D \rightarrow a$

B. $A \rightarrow d, B \rightarrow c, C \rightarrow a, D \rightarrow b$

C. $A \rightarrow c, B \rightarrow d, C \rightarrow b, D \rightarrow a$

D. $A \rightarrow c, B \rightarrow d, C \rightarrow a, D \rightarrow a$

Answer: B



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14. Role of nitre in the manufacture of gun powder is _____ .

A. to supply oxygen

B. to supply nitrogen

C. to decrease the rate of combustion

D. to absorb temperature produced by combustion .

Answer: A

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15. X is a base which is soluble in water. Then the metal present in X may be

A. aluminum

B. copper

C. sodium

D. manganese

Answer: C

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Assesment Test Test 2

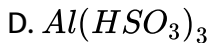
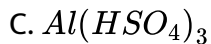
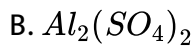
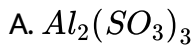
1. Which among the following is a weak acid?

- A. sulphuric acid
- B. hydrochloric acid
- C. Nitric acid
- D. carbonic acid

Answer: D

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2. Name and formula of the salt formed by complete neutralization of aluminium hydroxide with ic acid of sulphur having four oxygen atoms is _____ and _____ respectively.



Answer: B

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3. Identify the common use(s) of both chile salt petre and nitre.

A. manufacture of gunpowder

B. manufacture of fertiliser

C. manufacture of glass

D. all the above

Answer: D

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4. Acidic and double salts among the following are respectively

- A. potash alum and sodium phosphate
- B. sodium dihydrogen phosphate and Mohr's salt
- C. Mohr's salt and calcium hydroxy chloride .
- D. sodium

Answer: B



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5. Which of the following is a dibasic weak mineral acid?

- A. acetic acid
- B. sulphuric acid
- C. phosphoric acid

D. sulphurous acid

Answer: D



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6. If a nonmetal forms only two oxides and one oxide on hydrolysis gives an acid, then the non-metal could be

A. sulphur

B. carbon

C. phosphorus

D. nitrogen

Answer: B



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7. Which among the following is/are poor conductors of electricity?

A. pure H_2SO_4

B. pure HNO_3

C. liquefied hydrogen chloride

D. all the above

Answer: D



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8. Assertion (A): Generally pickles are stored in glass vessels and plastic vessels.

Reason (R): The components of pickles are highly reactive towards glass/plastic.

A. Both A and R are true and R is the correct explanation for A .

B. Both A and R are true and R is not the correct explanation for A .

C. A is true and R is false

D. Both A and R are false .

Answer: C



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9. (a) $Ca_3(PO_4)_2$

(b) $Ca(OH)Cl$

(c) $CaOCl_2$

(d) $K_4[Fe(CN)_6]$

Arrange the above salts in the order of complex salt, basic salt, normal salt and mixed salts respectively.

A. 4231

B. 2431

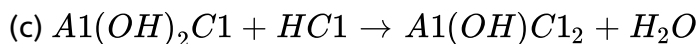
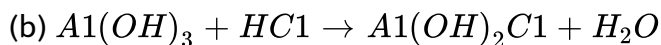
C. 4213

D. 1234

Answer: C

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10. Arrange the following equations in the correct sequence to obtain a normal salt.



A. 321

B. 231

C. 123

D. 312

Answer: B

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11. Assertion (A): Pure H_2SO_4 is colourless.

Reason (R): On long standing H_2SO_4 undergoes decomposition to form SO_2 .

- A. Both A and R are true and R is the correct explanation for A .
- B. Both A and R are true and R is not the correct explanation for A .
- C. A is true and R is false.
- D. Both A and R are false .

Answer: C



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12. Which among the following is an antacid pair?

A. $Mg(OH)_2$, $NaOH$

B. $Mg(OH)_2$, $Al(OH)_3$

C. KOH , $NaOH$

D. $Al(OH)_3$, $NaOH$

Answer: B

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13. Match the following.

Column A	Column B
A. CaO	() a. Deliquescent
B. $MgCl_2 \cdot 6H_2O$	() b. Hydrated salt, but not deliquescent
C. $FeSO_4 \cdot 7H_2O$	() c. Anhydrous and deliquescent salt
D. $MgSO_4$	() d. Hygroscopic

A. $A \rightarrow d, B \rightarrow a, C \rightarrow b, D \rightarrow c$

B. $A \rightarrow a, B \rightarrow d, C \rightarrow b, D \rightarrow c$

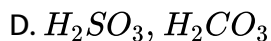
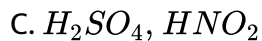
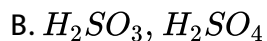
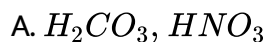
C. $A \rightarrow b, B \rightarrow c, C \rightarrow d, D \rightarrow a$

D. $A \rightarrow d, B \rightarrow c, C \rightarrow b, D \rightarrow a$

Answer: A

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14. Gaseous products formed when gun powder is subjected to heating are dissolved in water. Identify the products formed on dissolution.



Answer: D

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15. Identify the pair of water soluble bases.

A. copper oxide and potassium oxide

B. copper oxide and sodium oxide

C. sodium , oxide and potassium oxide

D. aluminium oxide and magnesium oxide .

Answer: C



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