**Chapter 3**

**Chemical Substances and Processes**

1. The student should look around his house and make a list of 5 pure things easily available in the kitchen and classify them into element and compound
2. Differentiate a compound from a mixture.
3. Both mixture and compound are made up of two or more elements but mixture is not a pure substance whereas compound is a pure substance why?
4. How were the elements represented earlier and how are they represented now?
5. What is a chemical equation?
6. Define the following terms
7. Element
8. Mixture
9. Displacement reaction
10. Combination reaction
11. Pure substances
12. Fill in the blanks
13. A chemical reaction between an acid and a base is called a\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
14. A reaction where more than one product is obtained from a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is known as decomposition reaction.
15. Combination of hydrogen and oxygen to yield water is an example of \_\_\_\_\_\_\_\_\_\_\_\_.
16. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the one in which the number of atoms of each element.
17. A physical change is when a substance may undergo change in \_\_\_\_\_\_\_\_\_\_\_\_, shape, size or colour but does not change in another substance.
18. The representation of a chemical symbols and formulae of substances involved in the reaction is called \_\_\_\_\_\_\_\_\_\_\_\_\_.
19. The chemical formula of Calcium carbonate is \_\_\_\_\_\_\_\_\_\_\_\_\_.
20. The chemical symbol of iron is \_\_\_\_\_\_\_\_ and copper is \_\_\_\_\_\_\_\_.
21. Many substances are made up of positively and negatively charged particles called \_\_\_\_\_.
22. Correct the given statements
23. The chemical formula of sodium chloride is ClNa.
24. Matter exists in two states solid and gases.
25. A molecule of water consists of one molecule of hydrogen and a molecule of oxygen.
26. The symbol Na+ is for sodium element.
27. When two or substances react to form a new substance than the reaction is known as the decomposition reaction.
28. Balance the given equations
29. H2 (g)+O2(g)-----🡪 H2O
30. N2 (g)+ H2(g) ----🡪 NH3(g)
31. Na + Cl2 ----🡪 NaCl
32. H2SO4 + NaOH --🡪 Na2SO4 + H2O
33. Mg(OH)2(aq) + H2SO4(aq ) -----🡪 MgSO4 (aq) +H2O
34. Cu (s) + AgNO3(aq) ----🡪 Cu(NO3)2(aq) + Ag(s)
35. What do you understand by balancing of chemical equation?
36. Write the symbols or chemical formulae for the elements and compounds given in the table below

|  |  |  |
| --- | --- | --- |
| S.N | Name of the element/compound | Symbol of element/formulae of compound |
| 1 | Iodine |  |
| 2 | Copper sulphate |  |
| 3 | Sodium hydroxide |  |
| 4 | Aluminium |  |
| 5 | Barium Chloride |  |
| 6 | Oxygen |  |
| 7 | Nitric acid |  |

1. Write down chemical reactions for the given reactions
2. Hydrogen gas reacts with oxygen gas to give water
3. On strong heating calcium carbonate decomposes calcium oxide and carbon dioxide.
4. Sodium hydroxide reacts with hydrochloric acid gives Sodium chloride and water.
5. Iron reacts with copper sulphate to give Iron sulphate and copper.
6. Sulphuric acid reacts with sodium hydroxide to give sodium sulphate and water.
7. How is a combination reaction different from decomposition reaction?
8. What happens when an acid reacts with a base? Give an example of such a reaction.
9. How do you write a chemical formula using the symbols of elements?
10. You are given following substances –Copper, Silver, lemonade, coconut water, common salt, glucose, sand and iron nails. Classify the given substance into element, compound and mixture.
11. Differentiate reactants from products.
12. How is a physical change different from a chemical change?
13. Give reasons for the following
14. Iron gets rusted when exposed to air and water
15. Mixture is not pure substance
16. Element is a pure substance.
17. Copper gets coated with green substance when exposed to moist air.
18. In balancing of equation the chemical formula is not changed.
19. What is a displacement reaction? Give an example of displacement reaction.
20. On what basis are the chemical reaction classified?
21. Geeta had blue colour solution and she puts an iron nail in the solution and keeps it there for about 10 minutes. After 10 minutes sees that blue colour of the solution changes to light green and a brown coating is seen on the nail.
22. Why does the solution turn light green in colour?
23. Why does a brown coating appear on the iron nail?
24. What type of reaction takes place?
25. Name the different type of chemical reactions.
26. How is an element different from a compound?

**Chapter 4**

**Acids**, **Bases and Salts**

1. The students should make list of 6 commonly used materials at home and classify them as acid and base.
2. Differentiate mineral acid from organic acids.
3. Why is the sulphuric acid known as the King of Chemicals?
4. Fill in the blanks
5. Salts formed by the reaction of strong acid and weak base is \_\_\_\_\_\_\_\_\_ salt.
6. \_\_\_\_\_\_\_\_\_ is an example of a neutral salt
7. Some materials taste due to presence of chemicals called\_\_\_\_\_\_\_\_\_\_.
8. Bases that are soluble in water are called \_\_\_\_\_\_\_\_\_\_\_.
9. Citric acid fond in lemon is an \_\_\_\_\_\_\_\_\_\_\_acid.
10. \_\_\_\_\_\_\_\_\_\_\_ is an indicator in the kitchen that turns red in basic medium.
11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an example of weak base.
12. Acids having low concentration are known as \_\_\_\_\_\_\_\_\_\_.
13. \_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_ are well known mineral acids.
14. Guava contains \_\_\_\_\_\_\_\_\_\_\_\_\_.
15. The acid present in the sour milk is \_\_\_\_\_\_\_\_\_\_\_\_\_.
16. Give reasons for the following
17. Sting of the bees and ant cause shooting pain.
18. Lemon juice is sour in taste.
19. The cloth with turmeric stain turns red when soap is applied on it.
20. We have antacids when we have uneasiness and pain in the stomach.
21. Sodium chloride is a neutral salt.
22. Correct the given statements
23. Aluminium chloride is a neutral salt.
24. The red litmus turns blue with acid.
25. During neutralisation the base enhances the strength of an acid.
26. Juice of china rose turns green when added to acid
27. The symbol for chlorine ion is Ca+1
28. Give 2 examples of the following
29. Organic acids found in fruits
30. Mineral acids
31. Alkali
32. Neutral salts
33. Acidic salts
34. What are indicators? Name 2 natural indicators
35. What are dilute acids? How can they be prepared?
36. Ram has two bottles A and B containing liquid. In order to find out what is there in the bottle he uses litmus solution. When he puts the liquid from A in litmus solution red colour appears. When he puts liquid from B in litmus solution blue colour appears
37. What is present in bottle A?
38. What is present in bottle B?
39. What kind of reaction will occur when chemical in A reacts with B?
40. State 3 properties of salt.
41. Complete the given equations
42. NaOH +HCl ------🡪
43. 2KOH + H2SO4----🡪
44. Write chemical equations for given reactions
45. Calcium hydroxide reacts with sulphuric acid
46. Sodium hydroxide reacts with acetic acid
47. Magnesium hydroxide reacts with nitric acid
48. Potassium hydroxide reacts with hydrochloric acid
49. Aluminium hydroxide reacts with hydrochloric acid
50. You are given few acids –hydrochloric acid, sulphuric acid, acetic acid, oxalic acid, carbonic acid, citric acid, nitric acid.
51. Classify the acids into mineral acid and organic acid.
52. Classify the acids as strong and weak acids.
53. All bases are not alkali, why?
54. Complete the given table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.N | Name of substance | Litmus solution | Turmeric | Juice of china Rose |
| 1 | Water |  |  |  |
| 2 | Hydrochloric acid |  |  |  |
| 3 | Sodium hydroxide |  |  |  |
| 4 | Vinegar |  |  |  |
| 5 | Soap |  |  |  |

1. How is acidic salt formed? Explain with help of an example?
2. Why is the marble of Taj Mahal turning yellow?
3. What are the salts of hydrochloride acid known as?
4. Device a small activity to show that solution of salts can conduct electricity.
5. Why are sulphuric acid known as mineral acids?
6. What is the taste of acid and a base?