Acids & Bases

1. Use the following terms and symbols to complete the sentences below. Some terms and symbols will be used more than once, and some not at all.

|  |  |  |  |
| --- | --- | --- | --- |
| H+ | OH–  | conduct | lower |
| sour | bitter | NH4+ | sweet |
| red | blue | greater than | less than |
| turns pink | remains colourless | orange | higher |
|  | do not conduct |  |  |

(a) Acids are substances that dissolve in water to release \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions. Acids are characterized by a pH value \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the pH value, the more acidic a solution is. When an acid is added, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ litmus turns a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ colour and phenolphthalein \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
Acidic solutions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electricity. Acids are responsible for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ taste in foods.

(b) Bases are substances that dissolve in water to release \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions. Bases are characterized by a pH value \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the pH value, the more basic a solution is. When a base is added, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ litmus turns a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ colour and phenolphthalein \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
Basic solutions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electricity. Bases are responsible for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ taste in foods.

2. Complete the following table about acids and bases. The first row has been completed as an example.

|  |  |  |
| --- | --- | --- |
| Name of Substance | Chemical Formula of Aqueous Solution | Name of Acid or Base |
| hydrogen sulphide | H2S | hydrosulphuric acid |
|  | H2CO3 |  |
|  |  | phosphoric acid |
| magnesium hydroxide |  |  |
|  | NH4OH |  |
| hydrogen chlorate |  |  |
|  | CH3COOH |  |
|  |  | sulphurous acid |

ANSWER KEY

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1. (a) H+; less than; lower; blue; red; turns pink; conduct; sour

(b) OH– ; greater than; higher; red; blue; remains colourless; conduct; bitter

2. Answers are in boldface.

|  |  |  |
| --- | --- | --- |
| Name of Substance | Chemical Formula of Aqueous Solution | Name of Acid or Base |
| hydrogen sulphide | H2S  | hydrosulphuric acid |
| hydrogen carbonate | H2CO3  | carbonic acid |
| hydrogen phosphate | H3PO4  | phosphoric acid |
| magnesium hydroxide | Mg(OH)2  | magnesium hydroxide solution |
| ammonium hydroxide | NH4OH  | ammonium hydroxide solution |
| hydrogen chlorate | HClO3 | chloric acid |
| hydrogen acetate | CH3COOH | acetic acid or ethanoic acid |
| hydrogen sulphite | H2SO3 | sulphurous acid |