

01 A small piece of sodium was dropped into water. A vigorous reaction occurred and a colourless solution was formed.

- (a) Write a balanced equation to represent the reaction between sodium and water.
- (b) Name the colourless solution.
- (c) Describe what would happen when each of the following was added to the colourless solution.
 - (i) Litmus
 - (ii) Ammonium chloride and then the mixture was heated.

Your solution here:

02 Magnesium dissolves with effervescence when dropped into dilute hydrochloric acid. On evaporating the resulting solution, a white solid compound P is obtained. Magnesium burns in oxygen to produce a white powder. This white powder also dissolves in dilute hydrochloric acid to produce the same compound P.

- (a) Why does magnesium dissolve in dilute acid ?
- (b) Write a balanced equation for the reaction between
 - (i) magnesium and hydrochloric acid.
 - (ii) magnesium and oxygen.
- (c) Name the white powder.
- (d) What type of reaction takes place between the white powder and hydrochloric acid ?
- (e) Name the compound P.

Your solution here:

03

- (a) It is a set of numbers which ranges from 1 to 14 in different solutions. Name this set of numbers.
- (b) What is a pH indicator ?
- (c) The table given below shows the examples of common pH indicators used in the laboratory. Complete the table to name the type of indicators that correspond to each colour observation.

	Types of indicator	Colour observation		
		Acid	Neutral	Alkali
(i)		Red (pH < 3)	Orange (pH 4 – 7)	Yellow (pH > 7)
(ii)		Red	–	Blue
(iii)		Colourless	Colourless	Pink

- (d) The diagram given below shows the colour change of an indicator.

pH scale	0 – 2	3 – 4	4 – 6	7	8 – 11	12 – 14
Colour	Red	Orange	Yellow	Green	Blue	Violet

- (i) Name this type of indicator.
- (ii) Explain how this type of indicator works.

Your solution here:

04 The table given below shows the colours of two indicators, methyl orange and methyl red, commonly used in the laboratory at different pH values.

pH	2	3	4	5	6
Methyl orange	Red		Yellow		
Methyl red	Red				Yellow

Four solutions of different pH values are given below.

Solution	P	Q	R	S
pH	2	3	5	6

In which solution(s) will both indicators be red ?

Your solution here:

05 Complete the table given below and write the type of oxide formed based on the given descriptions.

Type of oxide	How they form	Can react with acids/bases	Three examples
	Metals combine with oxygen	Acids	
		Bases	
		Acids and bases	
		None	