GCSE Chemistry B (Twenty First Century Science)

J258/02 Depth in chemistry (Foundation Tier)

Question Set 11

1 About 150 years ago, Dimitri Mendeleev developed an early version of the Periodic Table.

His Periodic Table had eight groups. He put elements with similar properties into the same group.

The table shows some of the elements that Mendeleev grouped together.

Mendeleev's groups							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Li Na K Cu	Be Mg Zn	B A*l*	C Si	N P	O S Cr	F C*l* Br	Fe Co Ni

(a) Some of Mendeleev's groups contain similar elements to groups in the modern Periodic Table.

Which group in Mendeleev's table contains the elements now found in Group 14 of the modern Periodic Table?

[1]

(b) None of the elements from Group 18 of the modern Periodic Table are shown on Mendeleev's table.

Suggest a reason why. **[1]**

(c) Mendeleev put some of the transition metals into his Group 8.

He put some other transition metals into the other groups.

Give the symbols for **three** transition metals in Mendeleev's table that he did not put in Group 8.

[2]

(d) The transition metals are in the same block of the modern Periodic Table because their properties are similar to each other.

Which property do all the transition metals have?

Tick (✓) **one** box.

They act as catalysts in reactions. ☐

They have low melting points and boiling points. ☐

They react very quickly with cold water. ☐

They are coloured gases at room temperature. ☐

[1]

(e) Transition metal salts are acidic.

Sundip does an experiment to test the acidity of some solutions of transition metal salts.

She uses Universal Indicator and a colour chart to find the pH of each salt.

These are Sundip's results.

Name of salt	**pH**
copper sulfate	3
iron sulfate	3
zinc sulfate	4
nickel sulfate	4

(i) Describe how Sundip uses Universal Indicator to test the pH of the solutions of the salts. **[2]**

(ii) Explain why she needs to improve her precision and suggest how she can change her experiment to do this. **[2]**

Total Marks for Question Set 11 : 9

Resource Materials

The Periodic Table of the Elements