(The Periodic Table: development and modern layout)

Q1.a) (2019)

This question is about the periodic table.

In the 19th century, some scientists tried to classify the elements by arranging them in order of their atomic weights.

Figure 11 shows the periodic table Mendeleev produced in 1869.

His periodic table was more widely accepted than previous versions.

Figure 11

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Period 1	H						
Period 2	Li	Be	B	C	N	O	F
Period 3	Na	Mg	Al	Si	P	S	Cl
Period 4	K Cu	Ca Zn	* *	Ti *	V As	Cr Se	Mn Br
Period 5	Rb Ag	Sr Cd	Y In	Zr Sn	Nb Sb	Mo Te	* I

The atomic weight of tellurium (Te) is 128 and that of iodine (I) is 127

Why did Mendeleev reverse the order of these two elements?

[1 mark]

Q1.b) (2019)

Mendeleev left spaces marked with an asterisk *

He left these spaces because he thought missing elements belonged there.

Why did Mendeleev's periodic table become more widely accepted than previous versions?

[3 marks]

Q1.c) (2019)

Mendeleev arranged the elements in order of their atomic weight.

What is the modern name for atomic weight?

[1 mark]

Tick (✓) **one** box.

Atomic number ☐

Mass number ☐

Relative atomic mass ☐

Relative formula mass ☐

Q1.d) (2019)

Complete the sentence.

[1 mark]

In the modern periodic table, the elements are arranged in order of

_____.

Q2.a)(2022)

This question is about the periodic table.

Figure 6 shows an early version of the periodic table published by a scientist.

Figure 6

H							
Li	Be	B	C	N	O	F	
Na	Mg	Al	Si	P	S	Cl	
K Cu	Ca Zn	? ?	Ti ?	V As	Cr Se	Mn Br	Fe Co Ni
Rb Ag	Sr Cd	Y In	Zr Sn	Nb Sb	Mo Te	? I	Ru Rh Pd

The scientist left gaps in the periodic table in **Figure 6**.

Each gap is represented by a question mark (**?**).

Give **one** reason why the scientist left gaps in this periodic table.

[1 mark]

_____

_____

Q2.b)(2022)

Which scientist published the periodic table in **Figure 6**?

[1 mark]

Tick (✓) **one** box.

Bohr ☐

Chadwick ☐

Mendeleev ☐

Q2.c)(2022)

The modern periodic table is different from the periodic table in **Figure 6**.

One extra group of elements has been added.

What is the name of the extra group of elements in the modern periodic table?

[1 mark]

Tick (✓) **one** box.

Alkali metals ☐

Halogens ☐

Noble gases ☐

Q3.(2023)

Tennessine was first identified by a small group of scientists in 2010.

Suggest **one** reason why tennessine was **not** accepted as a new element by other scientists until 2015.

[1 mark]

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