AQA, OCR, Edexcel

GCSE Science

GCSE Chemistry

The Periodic Table

Answers

Includes:

The periodic table

Development of the periodic table

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Total Marks: /25

Q1: What is the periodic table?

A= Arrangement of elements (1) by atomic number/groups/ periods (1)

(2 marks)

Q2: How is the modern day periodic table arranged?

A= In order of atomic number (1) and element with similar properties are in columns, known as groups (1).

(2 marks)

Q3: Why is it called the periodic table?

A= Similar properties occur at regular intervals (1).

(1 mark)

Q4: How and why are elements placed in groups?

A= Elements in the same group have the same number of electrons in their outer shell (1). This means they have similar chemical properties (1).

(2 marks)

Q5: John Dalton proposed one of the early periodic table suggestions, before the discovery of protons, neutrons and electrons. Describe how he arranged the elements.

A= Atomic weights (1)

(1 mark)

Q6: Which scientist proposed the 'law of octaves'? Circle one.

John Newlands John Dalton Dmitri Mendeleev

(1 mark)

Q7: Describe the 'law of octaves' and explain why fellow scientists rejected the theory.

A= Award 1 mark for each of the following points:

- Elements arranged by mass
- Every 8th element similar
- Assumed all elements found
- Placed in octaves even if were not similar
- Only worked to calcium

(5 marks)

Q8: Who devised the original version of today's periodic table.

A= Dmitri Mendeleev
Also accept just Mendeleev

(1 mark)

Q9: Explain how Mendeleev's structured his table?

A= 1 mark for each of the following points:

- Order of atomic weight
- In periods (arranged by properties)

(2 marks)

Q10: How did Mendeleev approach his table differently from other scientists?

A= Left gaps for undiscovered elements

(1 mark)

Q11: Arrangements by atomic weight provided Mendeleev with some elements that didn't fit the pattern, such as Argon. Explain how this problem was eventually overcome.

A= 1 mark for each of the following:

- Table actually arranged by atomic number
- Discovery of isotopes

(2 marks)

Q12: Argon didn't fit Mendeleev's periods, explain why.

A= Accept one of the following:

- Noble gas
- Unreactive

(1 mark)

Q13: Using your periodic table give 2 examples of elements other than Argon that didn't fit Mendeleev's pattern.

A= Accept 2 of the following:

- Potassium
- Hassium (Hs)
- Meitnerium (Mt)
- Any element that has a higher atomic number than the next element in the row.

(2 marks)

Q14: Explain why Mendeleev's table is useful in understanding new elements.

A= 1 mark for each of the following:

- Idea of atomic number of undiscovered elements
- Idea of properties of undiscovered elements

(2 marks)