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Marks: **0**
Duration: **30min**

I - Answer in Writing (Short)

Attempt all questions. Each question carries 2 marks.

1. *Why did Dobereiner's triads fail to include all known elements?*

2. *Did Mendeleev see the gaps in his table as errors or as predictions?*
3. *Is the *total* number of electrons or the *outer shell* most important in the modern periodic law?*

II - Answer in Writing (Long)

Attempt all questions. Each question carries 4 marks.

4. *Before Mendeleev, describe the thought process for creating a better element classification system.*
5. *How did Moseley resolve Mendeleev's 'anomalous pairs' and provide a more fundamental ordering?*
6. *Explain s, p, d, and f blocks, linking them to electron subshells, and give an example of each.*

III - Multiple Choice Questions

Attempt all questions. Each question carries 1 mark.

7. *Robert Boyle defined an element as a substance that cannot be further broken down by what means?*
   - **A.** Heating it to extremely high temperatures.
   - **B.** Only by using very strong acids.
   - **C.** Physical or chemical changes.
   - **D.** Only by nuclear reactions.
8. *Döbereiner's law of triads grouped elements based on what?*
   - **A.** Similar color
   - **B.** Similar physical state
   - **C.** Similar chemical properties
   - **D.** Similar melting points
9. *The modern periodic law states that the properties of elements are a periodic function of their what?*
   - **A.** Atomic weights
   - **B.** Atomic numbers
   - **C.** Densities
   - **D.** Melting points

IV - Fill in the Blanks

Complete all sentences. Each blank carries 1 mark.

10. *Robert Boyle defined an element as any substance that cannot be _____ into a further simple substance by a physical or chemical change.*
11. *Döbereiner stated that the atomic weight of the _____ element is the average of the atomic weights of the first and third elements in a triad.*
12. *Mendeleev arranged elements in increasing order of their _____ weights.*

V - Match the Following

Match the items in Column A with those in Column B. Each correct match carries 1 mark.

13. *Match the Scientists with their contributions to periodic classification:*

Column A	Column B
A. Dobereiner	**1.** Atomic Number
B. Mendeleev	**2.** Law of Triads
C. Moseley	**3.** Atomic Weights

14. *Match the term with the correct description:*

Column A	Column B
A. Triads	**1.** Vertical columns
B. Groups	**2.** Horizontal rows
C. Periods	**3.** Three similar elements

15. *Match the 'eka-' named elements with their later discovered names:*

Column A	Column B
A. Eka-aluminium	**1.** Germanium
B. Eka-boron	**2.** Gallium
C. Eka-silicon	**3.** Scandium

* * * * **END** * * * *