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Question 1:
How could the Modern Periodic Table remove various anomalies of Mendeleev's Periodic Table?

Answer 1:
Mendeleev was unable to give fixed position to hydrogen and isotopes in the periodic table. In Mendeleev's periodic table, the increasing manner of atomic mass of the elements is not always regular from one to its next. It was believed that a more fundamental property than atomic mass could explain periodic properties in a better manner.

It was **Henry Moseley** who demonstrated that atomic number of an element could explain periodic properties in a better way than atomic mass of an element and arranged the elements in increasing order of their atomic numbers. Then it was found that the various anomalies of Mendeleev's periodic table were removed by the modern periodic table.

Question 2:
Name two elements you would expect to show chemical reactions similar to magnesium. What is the basis for your choice?

Answer 2:
Calcium (Ca) and strontium (Sr) are expected to show chemical reactions similar to magnesium (Mg). This is because the number of valence electrons (2) is same in all these three elements. And since chemical properties are due to valence electrons, they show same chemical reactions.

Question 3:
Name

(a) three elements that have a single electron in their outermost shells.

(b) two elements that have two electrons in their outermost shells.

(c) three elements with filled outermost shells.

Answer 3:
(a) Lithium (Li), sodium (Na), and potassium (K) have a single electron in their outermost shells.

(b) Magnesium (Mg) and calcium (Ca) have two electrons in their outermost shells.

(c) Neon (Ne), argon (Ar), and xenon (Xe) have filled outermost shells.

Question 4:

(a) Lithium, sodium, potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements?

(b) Helium is an unreactive gas and neon is a gas of extremely low reactivity. What, if anything, do their atoms have in common?

Answer 4:

(a) Yes. The atoms of all the three elements lithium, sodium, and potassium have one electron in their outermost shells.

(b) Both helium (He) and neon (Ne) have filled outermost shells. Helium has a duplet in its K shell, while neon has an octet in its L shell.

Question 5:

In the Modern Periodic Table, which are the metals among the first ten elements?

Answer 5:

Among the first ten elements, lithium (Li) and beryllium (Be) are metals.

Question 6:

By considering their position in the Periodic Table, which one of the following elements would you expect to have maximum metallic characteristic?

Ga, Ge, As, Se, Be

Answer 6:

Since **Be** lies to the extreme left hand side of the periodic table, Be is the most metallic among the given elements.