WORKSHEET 2

CHAPTER 5 – THE PERIODIC TABLE

A. Tick (✓) the correct option.

1. If an element has one electron in its outermost shell, it is likely to be
   a. metallic. b. non-metallic. c. inert gas. d. metalloid.
2. On moving along a period, the non-metallic character of the elements
   a. decreases. b. increases. c. remains the same. d. depends on the period.
3. Among the period 2 elements, the one which has smallest atomic size is
   a. lithium. b. carbon. c. fluorine. d. nitrogen.
4. Among the group 13 elements, the one which is most metallic is
   a. beryllium. b. magnesium. c. calcium. d. barium.
5. The element having electronic configuration 2, 8, 6 belongs to
   a. group 6 and period 3. b. group 3 and period 6.
   c. group 16 and period 3. d. group 13 and period 6.

B. Fill in the blanks from the given options within the brackets.

(decreases, increases, remains same, electropositive, increases by one, electronegative)

1. Across a period from left to right in the Modern Periodic Table, number of electron shells _____, number of valence electrons _____, chemical reactivity first _____ and then _____, character of elements changes from _____ to _____
2. Down a group in the Modern Periodic Table, number of electron shells _____, number of valence electrons _____, chemical reactivity of metals _____, metallic character of elements _____ and non-metallic character of elements _____

C. Answer the following questions as per the list of some elements of the Periodic Table given below.

(Chlorine, Helium, Lithium, Magnesium and Iron)

1. Which element belongs to period 1?
2. Which element is a transition element?
3. Which element has two valence electrons?
4. Which element is an alkali metal?
5. Which of these elements are in the same period of the Periodic Table?

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D. Match the following.

1.	A halogen in period 3	Fluorine
2.	A noble gas having electronic configuration 2, 8	Caesium
3.	The most non-metallic element of period 2	Sodium
4.	The element having largest atomic size amongst the elements of period 3	Chlorine
5.	The most metallic element of group 1	Neon

E. Answer the following questions.

1. What do you understand by Modern Periodic Table?
2. What was the similarity observed by Newland, when he arranged the elements in the order of their increasing atomic weights with the musical scale?
3. a. What are the basis of classification of elements in Mendeleev's Periodic Table?

   b. Write the name and symbol of the elements which occupy each of the following positions in the Periodic Table?

   i. Period 2, group 13

   ii. Period 3, group 2
4. a. What are transition elements?

   b. Which amongst the following are transition elements?

   K, Mn, Ca, Cr, Cu, Cs, Fe, Pt
5. An element X belongs to group 13 and another element E belongs to group 17 of the Periodic Table. Answer the following questions.

   a. How many valence electrons are in X and E?

   b. Which amongst X and E is a metal?

   c. What is the formula of the compound of X and E?

   d. What kind of bonding is between X and E?

ANSWERS

WORKSHEET 2

A. Tick (✓) the correct option.

1. a 2. b 3. c 4. d 5. c

B. Fill in the blanks from the given options within the brackets.

1. remains same, increases, increases, decreases, electropositive, electronegative
2. increases by one, remains same, increases, increases, decreases

C. Answer the following questions as per the list of some elements of the Periodic Table given below.

1. Helium 2. Iron 3. Magnesium 4. Lithium
5. Magnesium and chlorine

D. Match the following.

1. A halogen in period 3	Chlorine
2. A noble gas having electronic configuration 2, 8	Neon
3. The most non-metallic element of period 2	Fluorine
4. The element having largest atomic size amongst the elements of period 3	Sodium
5. The most metallic element of group 1	Caesium

E. Answer the following questions.

1. Modern Periodic Table is a chart of elements in which the elements are arranged in the increasing order of their atomic numbers, such that the elements in any vertical column have similar, but graded chemical properties.
2. Newland observed that the properties of the first and eighth elements were similar just like the similarity in the first and eighth note of the octave of the musical scale.
3. a. Basis of Mendeleev's classification:
   i. similarities in the chemical properties of the elements.
   ii. increasing order of atomic weights of the elements.
   b. i. Boron, ii. Magnesium, Mg
4. a. The elements of group 3 to 12 are called **transition elements.** All these elements are metals.
   b. Mn, Cr, Cu, Fe and Pt.
5. a. In X there are three valence electrons and in E there are seven valence electrons.
   b. X is a metal.
   c. In X, there are three valence electrons, therefore, its valency is three. But in E, there are seven valence electrons, therefore, its valency is one. Hence, the formula of the compound of X and E is XE_3.
   d. As, X is a metal and E is a non-metal, therefore, the bonding between X and E will be ionic.