SOLUTION OF CBSE TEST PAPER -1 X PERIODIC CLASSIFICATION

Ans1. K, Na, Mg

Ans2. Sodium (Na) (2, 8, 1)

Ans3. All the elements have two electrons in their valence shell.

Ans4. Na(Na has three shells but Na+ has two shells)

Ans5. Arsenic (As), Antimony (Sb), Germanium (Ge)

Ans6. Alkali metals present in Group 1 so it has only one valence electron. By loosing one e- They acquire the configuration of the noble gas element and hence positive ions.

Ans7. Non-metals are called electronegative elements since their atoms form negative ions by accepting electrons.

Ans8. All the isotopes have same atomic numbers in modern periodic table the elements have been allotted places based on their atomic numbers. Therefore all the isotopes of an element have been assigned the same position in the modern periodic table.

Ans9. Hydrogen is regarded as a rogue element in the periodic table because till today its position is not satisfactory. Although it has been placed on the top of alkali metals on the basis of electronic configuration, but it is non-metal and also resembles halogens of group 17

Ans 10. Dobereiner tried to arrange elements with similar properties into groups of 3 elements each. He called these as triads. He showed that when the 3 elements into a triad were arranged in the order of increasing atomic masses, the atomic mass of the middle element was roughly the average of the masses of the other two elements.

e.g.	Li	Na	K
Atomic mass	6.9	23	39
		(39+6.9)/2	
		22.9 = 23	

Ans11. Z = 20 is 2, 8, 8, 2

(i) It is a metal which has two valence electrons it is present in group 2

(ii) Both potassium (K) and calcium (Ca) are present in fourth period. Since atomic size decreases along a period calcium is smaller in size.

(iii) The valency of calcium is 2 and its formula.

Ans12 (a) The elements are Na Mg Al Si P S Cl Ar (b) The metals are placed mostly on the left side of the table. (c) The non-metals are placed on the right side of the table.

Ans13. (a) Both Li and Na are active elements since their atoms have only one electron in their valence shells. They readily lose this electron to have the configuration of the nearest noble gas element. (b) Mg is placed after Na is the same period (third). As the atomic size decreases along a period, the size decreases along a period. The size of Mg is less than that of Na.

(c) Both F and Cl belong to Group 17. Since fluorine is more electronegative than chlorine, it is therefore more reactive also.

Ans14. The two major short comings of Mendeleev's periodic table were (i) It could not justify the position of hydrogen is the periodic table (ii) It could not assign proper position to the different isotopes of the same element The main reason for these short comings was the basis of the Mendeleev's periodic table. It regarded atomic masses of the elements as the basis of classification. The modern periodic table regards atomic numbers of the elements as the basis of classifying the elements. It removed both the short comings from the table.

15. The distance between the nucleus and the outermost orbit of the atom is called the atomic radius of the atom of an element.

Variation along the period: - The atomic radius decreases as we move left to right along the period. This is due to an increase in nuclear charge which tends to pull the electrons closer to the nucleus and reduces the size of the atom.

Variation along the group: - The atomic radius increases down the group. This is because new shells are being added as we go down the group. This increases the distance between the outermost electrons and the nucleus so that the atomic size increases in spite of the increase in nuclear charge.