INDIAN SCHOOL NIZWA - WORKSHEET

CHEMISTRY

CH 3: CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES

Name: _____ Date: 31.08.2024 Class: XI Sec: A

Answer the following

1. What is the basic difference in approach between the Mendeleev's Periodic Law and the Modern Periodic Law?
2. Write the atomic number of the element present in the third period and seventeenth group of the periodic table.
3. Consider the following species: **N^{3-}, O^{2-}, F^{-}, Na^{+}, Mg^{2+}, and Al^{3+}**
   (i) What is common in them?
   (ii) Arrange them in the order of increasing ionic radii.
4. Use the periodic table to answer the following questions.
   (i) Identify an element with five electrons in the outer subshell.
   (ii) Identify an element that would tend to lose two electrons
   (iii) Identify an element that would tend to gain two electrons.
5. Write the general electronic configuration of s, p, d and f-block elements.
6. Considering the elements B, Al, Mg and K, arrange them in the correct order of their metallic character.
7. Arrange in increasing order of
   (i) Atomic size I, F, Cl, Br
   (ii) Oxidizing power, I, F, Cl, Br.
8. Write the name of the elements having atomic number 106, 119 and 131 using IUPAC rules.
9. What is the correct order of screening effect of electrons of s, p, d and f orbitals of a given shell of an atom on its outer shell electron?

10. The first ionization enthalpies of Na, Mg, Al and Si are in the order:

(i) Na < Mg > Al < Si (iii) Na > Mg > Al > Si

(ii) Na < Mg < Al < Si (iv) Na > Mg > Al < Si

11. Which is the smallest among Na^+, Mg^{2+}, Al^{3+} and why?

12. Write the outer shell electronic configuration of element with atomic number 31.

13. Out of O and S, which has higher negative electron gain enthalpy and why?

14. Among the elements of second period Lithium (Li) to Neon (Ne), pick out element:

(i) With the highest first ionization energy

(ii) With highest electronegativity

(iii) With largest atomic radius

(iv) Which is most reactive non-metal?

(v) Which is most reactive metal?

(vi) With valency equal to 4

15. Consider the element N, P, O and S and arrange them in order of:

(i) Increasing first ionization energy

(ii) Increasing negative electron gain enthalpy

(iii) Increasing non-metallic character

16. Name the group of the elements in which electrons are progressively filled in 4f-orbital and 5f-orbital.

17. Arrange the following species in their correct order of size.

I, I^+, I^-

18. Arrange S, Cl, F and O in correct order of electron gain enthalpy.

19. Arrange C, N, Si and P in their correct order of electronegativity.

20. How would you explain the fact that the first ionization enthalpy of sodium is lower than that of magnesium but its second ionization enthalpy is higher than that of magnesium?
