

## Class 11 Chemistry Chapter 3 Classification of Elements and Periodicity in Properties MCQs

1. The vertical columns in the periodic table are termed as -----.

- (a) periods                      (b) groups                      (c) series                      (d) none of these

**Answer:** (b)

**Explanation:** The vertical columns in the periodic table are termed as groups.

2. The element with atomic number 26 will be found in group :

- (a) 2                      (b) 8                      (c) 6                      (d) 10

**Answer:** (b)

**Explanation:** The valence shell configuration of  $Z = 26$  is  $[\text{Ar}] 3d^6 4s^2$ . That for the group of element is  $6 + 2 = 8$

3. The elements with atomic numbers 9, 17, 35, 53, 85 are all -----

- (a) halogens                      (b) noble gases                      (c) alkali earth metals                      (d) transition metals

**Answer:** (a)

**Explanation:** The elements of atomic numbers 9, 17, 35, 53, 85 are respectively F, Cl, Br, I, At etc are called halogen.

4. Which of the following electronic configurations of an atom has the lowest ionisation enthalpy?

- (a)  $1s^2 2s^2 2p^3$                       (b)  $1s^2 2s^2 2p^6 3s^1$                       (c)  $1s^2 2s^2 2p^6$                       (d)  $1s^2 2s^2 2p^5$

**Answer:** (b)

Solution: Ionisation enthalpy is the amount of energy required when an electron is removed from the outermost orbit of an isolated gaseous atom. Electronic configuration of  $1s^2 2s^2 2p^6 3s^1$  has lowest ionisation enthalpy.

5. The Ionic radius of cation is always-----
- (a) Less than the atomic radius
  - (b) more than the atomic radius
  - (c) Equal to atomic radius
  - (d) Cannot be predicted

**Answer:** (a)

**Explanation:** The Ionic radius of cation is always less than the atomic radius. Cation is formed by the loss of electrons. So that the effective nuclear charge increases as a result ionic radius decreases.

6. Which of the following elements has the maximum negative electron gain enthalpy?
- (a) Oxygen
  - (b) Chlorine
  - (c) Fluorine
  - (d) Nitrogen

**Answer:** (b)

**Explanation:** Chlorine has the maximum negative electron gain enthalpy.

7. The most electronegative element in the periodic table is-----
- (a) Nitrogen
  - (b) Oxygen
  - (c) Chlorine
  - (d) Fluorine

**Answer:** (d)

**Explanation:** The most electronegative element in the periodic table is Fluorine

8. The element of group 16 are called-----
- (a) noble gases
  - (b) chalcogens
  - (c) halogens
  - (d) alkali metals

**Answer:** (b)

**Explanation:** The elements of group 16 are called chalcogens.

9. In a group of the periodic table the Ionisation enthalpies of the elements decreases from top to bottom because of -----
- (a) increase in densities
  - (b) decrease in chemical reactivities
  - (c) increase in atomic sizes
  - (d) decrease in electronegativities

**Answer:** (c)

**Explanation:** In a group of the periodic table the Ionisation enthalpies of the elements decrease from top to bottom because of increase in atomic sizes.

10. The smallest ion among the following is

(a)  $\text{Na}^+$       (b)  $\text{Al}^{3+}$       (c)  $\text{Mg}^{2+}$       (d)  $\text{Si}^{4+}$

**Answer:** (d)

**Explanation:** The isoelectronic ions  $\text{Si}^{4+}$ , has the smallest size due to maximum nuclear charge.