



## INDIAN SCHOOL AL WADI AL KABIR

<b>Class: X</b>	<b>Department of SCIENCE-2020-21</b> <b>Subject:- CHEMISTRY</b>	<b>Date of completion: -</b> <b>28<sup>TH</sup> May 2020</b>
<b>Worksheet No: 01</b> <b>ANSWERS ONLY</b>	<b>CHAPTER: PERIODIC</b> <b>CLASSIFICATION OF ELEMENTS</b>	<b>Note:</b> <b>A4 FILE FORMAT</b>
<b>Name of the student:</b>	<b>Class &amp; Sec:</b>	<b>Roll No:</b>

### Objective type Questions (1 mark)

1. These elements are metalloids.
2. The properties of the elements are the periodic function of their atomic numbers.
3. (b)  $XY_2$
4. Sodium.2,8,1.
5. They have same number of shells.
6. Same number of valence electrons.

### Intermediate level questions (2 or 3 marks)

7. 

Modern periodic table	Mendeleev's periodic table
The elements are arranged in the increasing order of atomic number	The elements are arranged in the increasing order of atomic mass
Noble gases are placed in group 18	Noble gases are not placed.
8. Atomic number is the number of electrons for atoms. As the valence electrons are the ones which are involved during chemical reactions, atomic number is an appropriate parameter in classifying the elements not the atomic mass.
- (i) decreases. Along a period, the shell number remains the same, the atomic size decreases, effective nuclear charge increases, electrons are held more tightly by the nucleus hence the tendency to lose electrons decreases.
  - (ii) increases. Down a group, the atomic size increases, hence effective nuclear charge decreases and the attraction between outermost electrons and nucleus decreases. Therefore, the tendency to lose electrons or metallic property increases.
9.
  - (a) 2,8,8,2. The valency is 2
  - (b) Metal
  - (c)  $CaCl_2$

(d) It is more reactive than Mg as it is placed below Mg in the periodic table. Bigger in size than Mg, hence the electron is lost easily due to the lesser effective nuclear charge. Therefore, more reactive.

10. (i)

(a) The combining capacity of an element.

(b) Atomic size is measured in atomic radius which is the distance between the outermost shell and the nucleus.

(ii) Valency increases until group 14 and then decreases to zero. Atomic size decreases along a period.

11.

i) 5 and 3.

ii) A

iii) A

**Advanced level questions (3 or 5 marks)**

12.

(a) Li and K ;C and S

(b) Mg

(c) K

(d) C and S

(e) Al

13. (a)

Classification	Advantages	Disadvantages
Dobereiner	The first known attempt to classify the elements based on their physical and chemical properties	Only three triads were found
Newlands	The first known arrangement of elements based on the increasing order of atomic weights and arrangement in tabular form.	Newlands octaves was applicable only for lighter elements
Mendeleev	Left spaces for those elements which were not discovered yet and predicted the properties of the elements	Hydrogen could not be placed judicially

(b) Henry Moseley

(c)The Modern periodic law states that the properties of the elements are the periodic function of their atomic numbers.

14.

(a) C and D

(b) B

(c) C

- (d) A and B
15. Na, Mg and Al are the elements having 1,2,3 electrons respectively in the outer most shell. Which of the elements:  
 (a) Na, Atomic radius decreases across the period as the shell remains the same for all these elements but the effective nuclear charge increases across the period.  
 (b) Al. As we move across the period the metallic property decreases as the nuclear charge increases and tendency to lose electrons decreases
16. Arrangement of elements with similar properties in a group. Prediction of properties and leaving place for the elements which were not discovered at that time.
17.  
 (a) 2,8,7(b) 1  
 (c) 17<sup>th</sup> group and 3<sup>rd</sup> period
18.  
 (a) 18  
 (b) Anions  
 (c) One (Doesn't exist in modern periodic table)  
 (d) 7 electrons in the outermost shell
19.  
 (a) K -2,8,8,1  
 (b) Be and Ca. Same number of electrons in the outermost shell.  
 (c) Be and F. Be has higher atomic radius
- 20.

Mendeleev's periodic table	Modern periodic table
the elements are arranged in the increasing order of atomic masses.	the elements are arranged in the increasing order of atomic numbers.
the position of isotopes was not justified	the classification is based on the atomic number and not atomic mass and hence the position of isotopes is fully justified.

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**Checked by :HOD - SCIENCE**