# CHEMISTRY

# BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

# PERIODIC PROPERTIES AND VARIATIONS OF PROPERTIES

## Fill In The Blanks

**1.** The modern Periodic Table has..... periods.

A. 7

B. 8

C. 18

D. 9

**Answer: A**

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**2.** Elements in a period, all have the same number of ..... in their atoms.

A. valence electrons

B. electron shells

C. valency

D. None of the above

**Answer: B**

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**3.** Elements in a group, all have the same number of..... .

A. electron shells

B. atomic number

C. outermost valence electrons

D. none of the above

**Answer: C**

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**4.** The metallic character..... in a group as one moves from top to bottom.

A. increases

B. decreases

C. remains same

D. none of the above

**Answer: A**

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**5.** The metallic character ..... in a period as one moves from left to right.

A. decreases

B. increases

C. remains same

D. none of the above

**Answer: A**

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**6.** The electronegativity of elements ..... across the period and ..... down the group.

A. increases, increases

B. decreases, increases

C. increases, decreases

D. decreases, decreases

**Answer: C**

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**7.** In general, non-metals are ..... electronegative than metals.

A. less

B. more

C. equal

D. none of the above

**Answer: B**

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**8.** On moving from left to right in a given period, the number of shells .....

A. increases

B. remains the same

C. decreases

D. none of the above

**Answer: B**

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**9.** Across a period, the ionization potential .....

.

A. increases

B. decreases

C. remains the same

D. none of the above

**Answer: A**

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**10.** Down the group, electron affinity.....

A. decreases

B. increases

C. remains same

D. none of the above

**Answer: A**

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**11.** In a group, the larger the atomic size of an element, the..... metallic is the element.

A. more or less

B. same

C. less

D. more

**Answer: D**

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**12.** Moving across a ..... of the periodic table, the elements show increasing ..... character.

A. group, non-metallic

B. period, non-metallic

C. group, metallic

D. period, metallic

**Answer: B**

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**13.** The energy required to remove an electron from a neutral isolated gaseous atom and convert it into a positively charged gaseous ion is called.....

A. ionization potential

B. electronegativity

C. valency

D. electron affinity

**Answer: A**

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**14.** The properties of elements are periodic function of their.....

A. both (b) and (c)

B. atomic mass

C. atomic number

D. valency

**Answer: C**

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**15.** The elements occupying left and right side groups of periodic table are called ..... elements.

A. special

B. common

C. representative

D. transition

**Answer: C**

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**16.** If an element has a low ionization energy then it is likely to be _____.

A. metallic

B. non-metallic

C. both (a) and (b)

D. electronegative

**Answer: A**

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**17.** If an element has seven electrons in its outermost shell then it is likely to have the _____atomic size among all the elements in the same period.

A. largest

B. smallest

C. same

D. both (a) and (b)

**Answer: B**

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**18.** The most active metals are present in .....

1 and 2 of the Periodic Table

A. Group

B. Period

C. Both (a) and (b)

D. None of these

**Answer: A**

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**19.** The most reactive non-metals comprise Group..... of the Periodic Table.

A. 14

B. 15

C. 16

D. 17

**Answer: D**

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## Multiple Choice Questions

**1.** The element with lowest ionization energy among the following is:

A. Li

B. N

C. K

D. Rb

**Answer: D**

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**2.** Select the element in period 3 whose electron affinity is zero:

A. Neon

B. Sulphur

C. Sodium

D. Argon

**Answer: D**

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**3.** Arrange the following as per instruction given in the brackets :K, CI, Na, S, Si increasing order of atomic size)

A. $K > Na > Si > S > Ci$

B. $K > Na > Si > \ > CI > S$

C. $Na > S > Cl > K > Si$

D. $Si > S > Cl > Na$

**Answer: A**

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**4.** Which of the following is the atomic number of an element that forms basic oxide?

A. 18

B. 17

C. 19

D. 15

**Answer: C**

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**5.** The most electronegative element from the following elements is :

A. Magnesium

B. Chlorine

C. Aluminium

D. Sulphur

**Answer: B**

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**6.** Alkaline earth metals include:

A. Group 1 element

B. Group 2 element

C. Group 18 element

D. Group 17 element

**Answer: B**

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**7.** Identify the element belonging to third period and 17th group of the periodic table.

A. Chlorine

B. Bromine

C. Sulphur

D. Silicon

**Answer: A**

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**8.** If element 'X' forms a chloride with the formula $XCI_3$, then X would most likely belong to the same group of the Modern Periodic Table as:

A. Na

B. Br

C. Al

D. Mg

**Answer: C**

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**9.** An element having electronic configuration 2, 8, 18, 3 belongs to which group of the Modern Periodic Table?

A. $13^{th}$ group

B. $3^{rd}$ group

C. $18^{th}$ group

D. $15^{th}$ group

**Answer: A**

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**10.** Arrange the following as per instruction given in the brackets: Cs, Na, Li, K, Rb (Increasing order of metallic character)

A. $Li < Na < K < Rb < Cs$

B. $Li < Na < Cs < K < Rb$

C. $K < Rb < Cs < Li < Na$

D. $Cs < LiNa < K < Rb$

**Answer: A**

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**11.** Arrange the following as per instruction given in the brackets : Cl, F, Br, I (Increasing order of electron affinity)

A. $Br < I < F < CI$

B. $I < Br < Cl < F$

C. $Br < Cl < I < F$

D. $F < C < Br < I$

**Answer: B**

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**12.** Among the elements given below, the element with the least electronegativity is:

A. Lithium

B. Carbon

C. Boron

D. Fluorine

**Answer: A**

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**13.** An element A belonging in Period 3 and Group II will have

A. 3 shells and 2 valence electrons

B. 2 shells and 3 valence electrons

C. 3 shells and 3 valence electrons

D. 2 shells and 2 valence electrons

**Answer: A**

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**14.** In a group, the atomic size

A. Decreases from top to bottom

B. Increases from top to bottom

C. Remains same

D. First decreases then increases

**Answer: B**

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**15.** The non-metals are present

A. On the left hand side of the periodic table

B. On the right hand side of the periodic table.

C. In the middle of the periodic table.

D. In the centre of the periodic table

**Answer: B**

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**16.** The atoms of elements belonging to the same group of periodic table have the same:

A. Number of protons

B. Number of electrons

C. Number of neutrons

D. Number of valence electrons

**Answer: D**

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**17.** The metallic character of elements across the period from left to right.

A. Increases

B. Decreases

C. Remains constant

D. First decreases than increases

**Answer: B**

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**18.** The most distinctive property of the noble gases is that they are:

A. Metallic

B. Metalloid

C. Radioactive

D. Unreactive

**Answer: D**

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**19.** Elements of Group 16 have 6 valence electrons. The valency of Group 16 elements is:

A. 2

B. 6

C. 3

D. 5

**Answer: A**

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**20.** Number of shells across the period:

A. Increases

B. Decreases

C. Remains same

D. All of above

**Answer: C**

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**21.** The electronic configuration of an element T is 2, 8,7. What is the group number of T?

A. Group 1

B. Group 17

C. Group 18

D. Group 2

**Answer: B**

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**22.** Ionisation Potential increases over a period from left to right because the:

A. Atomic radius increases and nuclear charge increase

B. Atomic radius and nuclear charge decrease

C. Atomic radius increases and nuclear charge decreases

D. Atomic radius decreases and nuclear charge increase

**Answer: D**

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**23.** The elements having the least number of electrons shells:

A. F

B. K

C. Na

D. Li

**Answer: D**

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**24.** The elements having a lower nuclear charge:

A. Be

B. Mg

C. Li

D. K

**Answer: A**

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**25.** On moving from left to right across a period of the periodic table, the electron affinity of the elements in groups 1 to 7:

A. Goes up and then down

B. Decreases and then increases

C. Increases

D. Decreases

**Answer: C**

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**26.** An element with highest electron affinity:

A. Neon

B. Sulphur

C. Sodium

D. Chlorine

**Answer: D**

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**27.** An element with the atomic number 19 will most likely combine chemically with the element whose atomic number is:

A. 17

B. 11

C. 18

D. 20

**Answer: A**

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**28.** If an element A belongs to period 3 and Group II then it will have:

A. 3 shells and 2 valence electrons

B. 2 shells and 3 valence electrons

C. 3 shells and 3 valence electrons

D. 2 shells and 2 valence electrons

**Answer: A**

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**29.** Which of the following pairs have both the members from the same group of periodic table?

A. Mg, Be

B. Mg, Na

C. Mg, Cu

D. Mg, Cl

**Answer: A**

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**30.** An element in period 2 whose electron affinity is zero:

A. Neon

B. Sulphur

C. Sodium

D. Neon

**Answer: D**

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**31.** Among the elements of period 2 the element which has high electron affinity is:

A. Lithium

B. Carbon

C. Chlorine

D. Fluorine

**Answer: D**

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**32.** Lanthanides and actinides are also called:

A. normal elements

B. transition elements

C. noble gases

D. inner transition elements

**Answer: D**

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**33.** The elements in which electrons are progressively filled in 4f orbital are called:

A. actinoids

B. transition elements

C. lanthanoids

D. halogens

**Answer: C**

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**34.** Which of the following types of elements show variable valency?

A. Transition elements

B. s-block elements

C. p-block elements

D. d-block elements

**Answer: A**

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**35.** The element with highest ionization potential is :

A. Hydrogen

B. Caesium

C. Radon

D. Helium

**Answer: D**

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**36.** Which of the following is a most reactive element of the group 17?

A. Oxygen

B. Sodium

C. Fluorine

D. Magneshium

**Answer: C**

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## Match The Following

**1.** Match the columns:

| Column A | Column B |
|---|---|
| (1) Proton | (A) An alkaline earth metal |
| (2) Sodium | (B) Halogen |
| (3) Barium | (C) Noble gas |
| (4) Chlorine | (D) An alkali metal |
| (5) Electron | (E) Responsible for nuclear charge |
| (6) Completed shell | (F) Occupied sub-shell |

A. 1-E, 2-D, 3-A, 4-B, 5-C, 6-F

B. 1-D, 2-E, 3-C, 4-A, 5-B, 6-F

C. 1-A, 2-C, 3-F, 4-B, 5-E, 6-D

D. 1-E, 2-D, 3-A, 4-B, 5-F, 6-C

**Answer: D**

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## Reason Based Questions

**1.** Why group IA elements are called alkali metals?

A. When combined with water, their oxides produce acidic solutions.

B. When their oxides and hydroxides are treated with water, they produce alkaline solutions.

C. When their peroxides are treated with water, they produce alkaline solutions.

D. When treated with water, their hydroxides produce acidic solutions.

**Answer: B**

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**2.** Why sodium is a metal while sulphur is a non metal ?

A. Boiling point of sodium is $882.8^{\circ} C$

B. Specific gravity of sodium is 0.97

C. Sodium has a larger atomic radii

D. Sodium belongs to which group The Alkali Metals

**Answer: C**

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**3.** Why are the elements sodium and chlorine in the same period of the periodic table ?

A. Because the electrons in both elements are contained in three shells.

B. Because their electronic configurations are same

C. Because their atomic sizes are same

D. None of the above

**Answer: A**

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**4.** Magnesium atom is smaller than sodium atom. Why?

A. Because the electrons in magnesium are contained in three shells.

B. Because the electron shells are pulled inward more strongly in Mg atom than in Na atom.

C. Because the electron shells are pulled inward more strongly in Na atom than in Mg atom.

D. None of the above

**Answer: A**

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**5.** Which is larger $Na^+$t or $K^+$ ? Why?

A. $K^+$ is larger than Nat because of the larger ionic radius

B. $Na^+$ is larger than $K^+$ because of the larger ionic radius

C. $K^+$ is larger than Nat because K belongs to period 4

D. Both are of same size

**Answer: C**

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**6.** Noble gases have zero electron affinity values. Why?

A. Nobel gases have same numbers of electrons at their outermost shell

B. Because they have stable electronic configuration

C. All of them have equal numbers of electrons on protons

D. None of the above

**Answer: B**

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## Figure Based Questions

**1.** Given below is the part of Periodic Table :

| | | | | | | |
|---|---|---|---|---|---|---|
| Li | Be | B | C | N | O | F |
| Na | Mg | Al | Si | P | S | Cl |

Hwo does metallic character of an element change as one moves from left to right in

period and top to bottom in group respectively?

A. From left to right in period, the metallic character of an element increases. And from top to bottom in period, the metallic character of the elements increases

B. From left to right in period, the metallic character of an element decreases. And from top to bottom in period, the

metallic character of the elements increases

C. From left to right in period, the metallic character of an element increases. And from top to bottom in period, the metallic character of the elements decreases

D. From left to right in period, the metallic character of an element decreases. And from top to bottom in period, the

metallic character of the elements decreases

**Answer: A**

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**2.** The electro negativities (according to pauling) of the elements in period 3 of the portion of Periodic Table are as follows when the elements arranged in alphabetical order:

| Al | Cl | Mg | Na | P | S | Si |
|---|---|---|---|---|---|---|
| 1.5 | 3.0 | 1.2 | 0.9 | 2.1 | 2.5 | 1.8 |

Arrange the elements in the order in which they occur in the Periodic Table from left to right. (The group 1 element first, followed by the group 2 element and so on, up to group 7)

A. Na, Mg, Al, Si, P, S, C.

B. Mg, Na, Al, Si, CI, P, S

C. Na, Al, Mg, P, Si, CI, S

D. Mg, Al, CI, P, S, Si, Na

**Answer: A**

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**3.**

| Elements | A | B | C |
|---|---|---|---|
| Mass number | 23 | 20 | 35 |
| Number of neutrons | 12 | 0 | 18 |

To which groups do A,B and C belongs ?

A. A belongs to IA group, B belongs to VIIA group, C belongs to zero group

B. A belongs to IA group, B belongs to zero group, C belongs to VIIA group

C. A belongs to VIIA group, B belongs to zero group, C belongs to VIIA group

D. A belongs to VIIA group, B belongs to IA group, C belongs to zero group

**Answer: B**

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**4.** Consider the section of the periodic table given below:

| Group | IA | IIA | IIIA | IVA | VA | VIA | VIIA | O |
|---|---|---|---|---|---|---|---|---|
| Numbers | 1 | 2 | 13 | 14 | 15 | 16 | 17 | 18 |
| | Li | | D | | | O | J | Ne |
| | A | Mg | E | Si | | H | K | |
| | B | C | | F | G | | | L |

In this table :

B does not represent Boron

C does not represent Carbon

F does not represent Fluorine

H does not represent Hydrogen

K does not represent Potassium You must see the position of the element in the periodic table. Some elements are given in their own symbol and position in the periodic table. While others are shown with a letter. With reference to the table :

Which is the most electronegative?

A. A

B. D

C. O

D. J

**Answer: D**

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**5.** Consider the section of the periodic table given below:

| Group | IA | IIA | IIIA | IVA | VA | VIA | VIIA | O |
|---|---|---|---|---|---|---|---|---|
| Numbers | 1 | 2 | 13 | 14 | 15 | 16 | 17 | 18 |
| | Li | | D | | | O | J | Ne |
| | A | Mg | E | Si | | H | K | |
| | B | C | | F | G | | | L |

In this table :

B does not represent Boron

C does not represent Carbon

F does not represent Fluorine

H does not represent Hydrogen

K does not represent Potassium You must see the position of the element in the periodic table. Some elements are given in their own symbol and position in the periodic table. While others are shown with a letter. With

reference to the table :

How many valence electrons are present in G?

A. 2

B. 3

C. 4

D. 5

**Answer: D**

View Text Solution

**6.** Consider the section of the periodic table given below:

| Group | IA | IIA | IIIA | IVA | VA | VIA | VIIA | O |
|---|---|---|---|---|---|---|---|---|
| Numbers | 1 | 2 | 13 | 14 | 15 | 16 | 17 | 18 |
| | Li | | D | | | O | J | Ne |
| | A | Mg | E | Si | | H | K | |
| | B | C | | F | G | | | L |

In this table :

B does not represent Boron

C does not represent Carbon

F does not represent Fluorine

H does not represent Hydrogen

K does not represent Potassium You must see the position of the element in the periodic

table. Some elements are given in their own symbol and position in the periodic table. While others are shown with a letter. With reference to the table :

Write the formula of the compound between B and H.

A. BH

B. $B_2H$

C. $BH_2$

D. $(BH)_2$

**Answer: B**

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**7.** The diagram given below is a part of Periodic Table . Study the table and answer the questions given below the table :

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | 2He |
| 3 | 4Be | | | | | | | | | | | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | | | | | | | | | | | 13 | 14Si | 15 | 16S | 17 | 18 |
| 19 | 20Ca | 21 | 22 | 23 | 24Cr | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36Kr |

Name two elements in same group of Periodic Table .

A. Oxygen and Uranium

B. Oxygen and Sulphur

C. Calcium and Hyrogen

D. Cromium and Rubidium

**Answer: B**

View Text Solution

**8.** The diagram given below is a part of Periodic Table . Study the table and answer the questions given below the table :

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | 2He |
| 3 | 4Be | | | | | | | | | | | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | | | | | | | | | | | 13 | 14Si | 15 | 16S | 17 | 18 |
| 19 | 20Ca | 21 | 22 | 23 | 24Cr | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36Kr |

Name the transition metal.

A. Cromium

B. Sulphur

C. Calcium and Hyrogen

D. Oxygen

**Answer: A**

View Text Solution

**9.** The diagram given below is a part of Periodic Table . Study the table and answer the questions given below the table :

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | 2He |
| 3 | 4Be | | | | | | | | | | | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | | | | | | | | | | | 13 | 14Si | 15 | 16S | 17 | 18 |
| 19 | 20Ca | 21 | 22 | 23 | 24Cr | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36Kr |

Name an element , which reacts vigorously with water.

A. Argon

B. Boron

C. Calcium

D. Uranium

**Answer: C**

View Text Solution

**10.** The diagram given below is a part of Periodic Table . Study the table and answer the questions given below the table :

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | 2He |
| 3 | 4Be | | | | | | | | | | | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | | | | | | | | | | | 13 | 14Si | 15 | 16S | 17 | 18 |
| 19 | 20Ca | 21 | 22 | 23 | 24Cr | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36Kr |

Which element forms very conrrosive acid ?

A. Chromic acids produced by chromium

B. Oxalic acid produced by Oxygen

C. Calcium carbonate acid produced by calcium

D. Ferric oxide produced by Iron

**Answer: A**

View Text Solution

## Assertion And Reason Based Questions

**1.** Assertion : The ionization energyof Mg is more than sodium

Reason : The ionization energy decreases in a period from left to right.

A. Assertion and Reason both are correct statements and reason is the correct explanation of the assertion .

B. Assertion and Reason both are correct statements , but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason is false .

D. Assertion is false , but reason is true.

**Answer: B**

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**2.** Assertion: Noble gases are placed in different group in periodic table.

Reason: Noble gases are inert in nature.

A. Assertion and Reason both are correct statements and reason is the correct explanation of the assertion .

B. Assertion and Reason both are correct statements , but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason is false .

D. Assertion is false , but reason is true.

**Answer: A**

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**3.** Assertion : The elements of the differenet group have similar chemical peroperties.

Reason : It is because they have same number of valence electrons.

A. Assertion and Reason both are correct statements and reason is the correct explanation of the assertion .

B. Assertion and Reason both are correct statements , but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason is false .

D. Assertion is false , but reason is true.

**Answer: D**

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**4.** Assertion : Metalloids are present in zig - zag rows in periodic table .

Reason : Metalloids have same properties.

A. Assertion and Reason both are correct statements and reason is the correct explanation of the assertion .

B. Assertion and Reason both are correct statements , but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason is false .

D. Assertion is false , but reason is true.

**Answer: B**

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**5.** Assertion : Chlorine is called halogen .

Reason : IT is because chlorine reacts with metals to form salts .

A. Assertion and Reason both are correct statements and reason is the correct explanation of the assertion .

B. Assertion and Reason both are correct statements , but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason is false .

D. Assertion is false , but reason is true.

**Answer: D**

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