



CHEMISTRY

NCERT - FULL MARKS

CHEMISTRY(TAMIL)

**PERIODIC CLASSIFICATION OF
ELEMENTS**

Evaluate Yourself

1. The element with atomic number 120 has not been discovered so far. What would be the IUPAC name and the symbol for this element? Predict the possible electronic configuration of this element.



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2. Predict the position of the element in periodic table satisfying the electronic configuration $(n - 1)d^2, ns^2$ where $n=5$





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3. Using Slater's rule calculate the effective nuclear charge on a 3p electron in aluminium and chlorine. Explain how these results relate to the atomic radii of the two atoms



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4. A student reported the ionic radii of isoelectronic species X^{3+} , Y^{2+} and Z^{-} as

136 pm, 64 pm and 49 pm respectively. Is that order correct? Comment.



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5. The first ionisation energy (IE_1) and second ionisation energy (IE_2) of elements X, Y and Z are given below.

Element	IE_1 (kJ mol^{-1})	IE_2 (kJ mol^{-1})
X	2370	5250
Y	522	7298
Z	1680	3381

Which one of the above elements is the most

reactive metal, the least reactive metal and a noble gas?



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6. The electron gain enthalpy of chlorine is 348 kJ mol^{-1} . How much energy in kJ is released when 17.5 g of chlorine is completely converted into Cl^- ions in the gaseous state?



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Evaluation Choose The Best Answer

1. What would be the IUPAC name for an element with atomic number 222?

A. bibibium

B. bididium

C. didibium

D. bibibium

Answer: D



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2. The electronic configuration of the elements

A and B are

$1s^2, 2s^2, 2p^6, 3s^2$ and $1s^2, 2s^2, 2p^5$

respectively. The formula of the ionic

compound that can be formed between these

elements is

A. AB

B. AB_2

C. A_2B

D. none of these

Answer: B



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3. The group of elements in which the differentiating electron enters the anti penultimate shell of atoms are called

A. p-block elements

B. d-block elements

C. s-block elements

D. f-block elements

Answer: D



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4. In which of the following options the order of arrangement does not agree with the variation of property indicated against it?

(NEET 2016 Phase 1)

A. $I < Br < Cl < F$ (increasing electron gain enthalpy)

B. $Li < Na < K < Rb$ (increasing metallic radius)

C. $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$ -
(increasing ionic size)

D. $B < C < O < N$ (increasing first ionisation enthalpy)

Answer: A



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5. Which of the following elements will have the highest electronegativity?

A. Chlorine

B. Nitrogen

C. Cesium

D. Fluorine

Answer: D



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6. Various successive ionisation enthalpies (in kJ mol^{-1}) of an element are given below

IE_1	IE_2	IE_3	IE_4	IE_5
577.5	1,810	2,750	11,580	14,820

The element is

A. phosphorus

B. Sodium

C. Aluminium

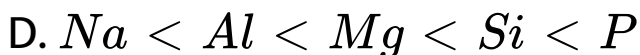
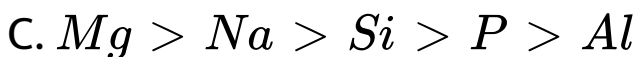
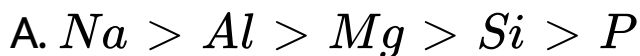
D. Silicon

Answer: A



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7. In the third period the first ionization potential is of the order.



Answer: B



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8. Identify the wrong statement.

A. Amongst the isoelectronic species, smaller the positive charge on cation, smaller is the ionic radius

B. Amongst isoelectronic species greater the negative charge on the anion, larger is the ionic radius

C. Atomic radius of the elements increases as one moves down the first group of the periodic table

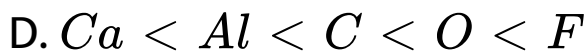
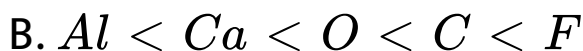
D. Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table.

Answer: A



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9. Which one of the following arrangements represent the correct order of least negative to most negative electron gain enthalpy



Answer: D



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10. The correct order of electron gain enthalpy with negative sign of F, Cl, Br and I having atomic number 9, 17, 35 and 53 respectively is

A. $I > Br > Cl > F$

B. $F > Cl > Br > I$

C. $Cl > F > Br > I$

D. $Br > I > Cl > F$

Answer: C



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11. Which one of the following is the least electronegative element?

A. Bromine

B. Chlorine

C. Iodine

D. Hydrogen

Answer: D



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12. The element with positive electron gain enthalpy is

A. Hydrogen

B. Sodium

C. Argon

D. Fluorine

Answer: C



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13. The correct order of decreasing electronegativity values among the elements X, Y, Z and A with atomic numbers 4, 8, 7 and 12 respectively

A. $Y > Z > X > A$

B. $Z > A > Y > X$

C. $X > Y > Z > A$

D. $X > Y > A > Z$

Answer: A



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14. Assertion: Helium has the highest value of ionisation energy among all the elements known

Reason: Helium has the highest value of electron affinity among all the elements known

A. Both assertion and reason are true and reason is correct explanation for the assertion

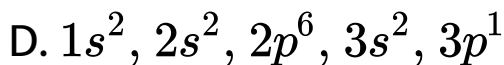
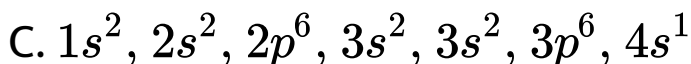
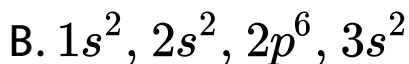
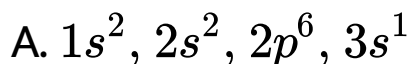
- B. Both assertion and reason are true but the reason is not the correct explanation for the assertion
- C. Assertion is true and the reason is false
- D. Both assertion and the reason are false

Answer: C



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15. The electronic configuration of the atom having maximum difference in first and second ionisation energies is



Answer: A



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16. Which of the following is second most electronegative element?

A. Chlorine

B. Fluorine

C. Oxygen

D. Sulphur

Answer: A



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17. IE_1 and IE_2 of Mg are 179 and 348 kcal mol^{-1} respectively. The energy required for the reaction $Mg \rightarrow Mg^{2+} + 2e^{-}$ is

A. $+169 \text{ kcal mol}^{-1}$

B. $-169 \text{ kcal mol}^{-1}$

C. $+527 \text{ kcal mol}^{-1}$

D. $-527 \text{ kcal mol}^{-1}$

Answer: C



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18. In a given shell the order of screening effect is

A. $s > p > d > f$

B. $s > p > f > d$

C. $f > d > p > s$

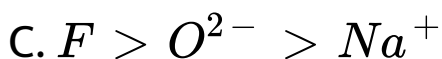
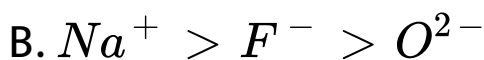
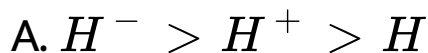
D. $f > p > s > d$

Answer: A



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19. Which of the following orders of ionic radii is correct?



D. none of these

Answer: D



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20. The First ionisation potential of Na, Mg and Si are 496, 737 and 786 kJ mol^{-1} respectively. The ionisation potential of Al will be closer to

A. 760kJmol^{-1}

B. 575kJmol^{-1}

C. 801kJmol^{-1}

D. 419kJmol^{-1}

Answer: B



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21. Which one of the following is true about metallic character when we move from left to right in a period and top to bottom in a group?

A. Decreases in a period and increases along the group

B. Increases in a period and decreases in a group

C. Increases both in the period and the group

D. Decreases both in the period and in the group

Answer: A



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22. How does electron affinity change when we move from left to right in a period in the periodic table?

- A. Generally increases
- B. Generally decreases
- C. Remains unchanged
- D. First increases and then decreases

Answer: A



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23. Which of the following pairs of elements exhibit diagonal relationship?

A. Be and Mg

B. Li and Mg

C. Be and B

D. Be and Al

Answer: D



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