Nishant Jindal

PERIODIC TABLE

2023

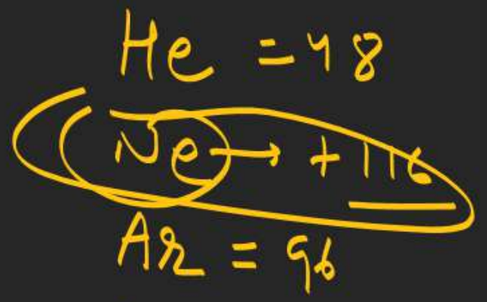
1. Inert gases have positive electron gain enthalpy. Its correct order is

(A) Xe < Kr< Ne < He

(B) He<Ne < Kr < Xe

(C) He <Xe <Kr< Ne

(D) He < Kr < Xe < Ne



He < Xe < Kr < Ne

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PERIODIC TABLE

2. Which of the following represents the correct order of metallic character of the given elements?

(A) Si < Be < Mg < K

(B) Be < Si < Mg < K

(C) K < Mg < Be < Si

(D) Be < Si < K < Mg

Si = non metal

Be = alkaline earth metal

Be
Mg ↓ metallic ch. ↑

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PERIODIC TABLE

3. The bond dissociation energy is highest for

(A) Cl_2 (B) I_2 (C) Br_2 (D) F_2

B.E

$Cl_2 > Br_2 > F_2 > I_2$

PERIODIC TABLE

4. Match List – I with List – II

List – I (Atomic number)	List – II (Block of periodic table)
(A) 37	I. p–block
(B) 78	II. d–block
(C) 52	III. f–block
(D) 65	IV. s–block

Choose the correct answer from the options given below:

(A) A –II, B – IV, C – I, D – III

(B) A –I, B – III, C – IV, D – II

(C) A –IV, B – III, C – II, D – I

(D) A –IV, B – II, C – I, D – III

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PERIODIC TABLE

5. The correct increasing order of the ionic radii is

(A) $Cl^- < Ca^{2+} < K^+ < S^{2-}$

(B) $K^+ < S^{2-} < Ca^{2+} < Cl^-$

(C) $S^{2-} < Cl^- < Ca^{2+} < K^+$

(D) $Ca^{2+} < K^+ < Cl^- < S^{2-}$

+ive Charge ↑ Radii ↓

−ive Charge ↑ Radii ↑

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PERIODIC TABLE

6. Nd^{2+} = _____

(A) $4f^2 6s^2$ (B) $4f^4$ (C) $4f^3$ (D) $4f^4 6s^2$

$Ce = 4f^1 5d^1 6s^2$

$Pr = 4f^3 6s^2$

$Nd = 4f^4 6s^2$

PERIODIC TABLE

7. Given below are two statemnts: one is labelled as Assertion(A) and the other is labelled as Reason (R)

Assertion (A) : The first ionization enthalpy of 3d series elements is more than that of group 2 metals

L ⟶ R I.E ↑

Reason (R) : In 3d series of elements successive filling of d-orbitals takes place.

(R = $3d^5 4s^1$

In the light of the above statements, choose the correct answer from the options given below:

(A) Both (A) and (R) are true and (R) is the correct explanation of (A)

(B) Both (A) and (R) are true but (R) in not the correct explanation of (A)

(C) (A) is false but (R) es true

(D) (A) is true but (R) is false

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PERIODIC TABLE

8. Which of the following elements have half-filled f-orbitals in their ground state?

(Given : atomic number Sm = 62; Eu=63; Tb=65;Gd=64, Pm = 61)

A. Sm

B. Eu $= 4f^7\,6s^2$

C. Tb

D. Gd $= 4f^7$

E. Pm

Choose the correct answer from the options given below:

(A) B and D only

(B) A and E only

(C) A and B only

(D) C and D only

PERIODIC TABLE

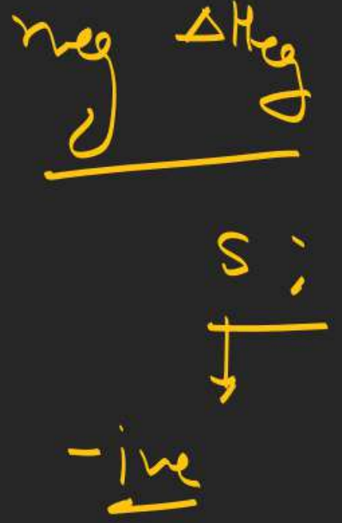
9. For electron gain enthalpies of the elements denoted as $\Delta_{eg}H$, the incorrect option is :

(A) $\Delta_{eg}H$ (Cl) < Δ_{eg} H (F)

(B) $\Delta_{eg}H$ (Se) < Δ_{eg} H (S)

(C) $\Delta_{eg}H$ (I) < Δ_{eg} H (At)

(D) $\Delta_{eg}H$ (Te) < Δ_{eg} H (Po)



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PERIODIC TABLE

10. Which one of the following elements will remain as liquid inside pure boiling water?

(A) Ga (B) Br (C) Li (D) Cs

PERIODIC TABLE

11. Group- 13 elements react with O_2 in amorphous form to form oxides of type M_2O_3(M = element). Which among the following is the most basic oxide?

(A) Al_2O_3 (B) B_2O_3 (C) Tl_2O_3 (D) Ga_2O_3

B → oxides (acidic)

Al, Ga → Amphoteric

In, Tl → basic

PERIODIC TABLE

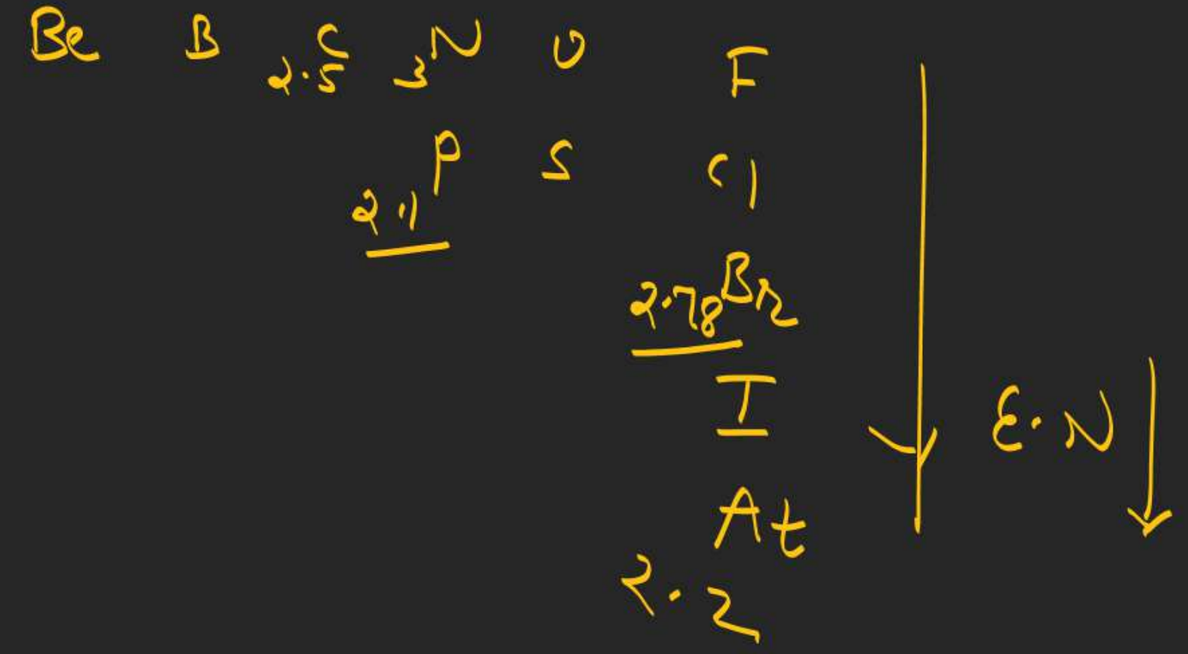
12. The correct order of electronegativity for given elements is

(A) P > Br > C > At

(B) Br > P > At > C

(C) Br > C > At > P

(D) C > P > At > Br



PERIODIC TABLE

13. Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A : The energy required to form Mg^{2+} from is much higher than that required to produce Mg^{+}

Reason R: Mg^{2+} is small ion and carry more charge than Mg^{+}

In the light of the above statements, choose the correct answer from the options given below. $Mg = 3s^2$

(A) Both A and R are true but R is NOT the correct explanation of A

(B) A is true but R is false

(C) A is false but R is true

(D) Both A and R are true and R is the correct explanation of A

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PERIODIC TABLE

14. The correct order of metallic character is

(A) K > Be > Ca

(B) Be > Ca > K

(C) Ca > K > Be

(D) K > Ca > Be

K > Ca > Be

Be
Mg
Ca

PERIODIC TABLE

15. For compound having the formula $GaAlCl_4$, the correct option from the following is

(A) Ga is coordinated with Cl in $GaAlCl_4$

(B) Ga is more electronegative than Al and is present as a cationic part of the salt $GaAlCl_4$

(C) Cl forms bond with both Al and Ga in $GaAlCl_4$

(D) Oxidation state of Ga in the salt $GaAlCl_4$ is + 3

Ga^+

B
Al – 143
Ga 135
In
Tl

down the group lower O.S more stable

B
Al
Ga
In
Tl

Ga^+ $AlCl_4^{\ominus}$

Ga^+ Al^{+3}

$GaCl_3 + Al \xrightarrow{Tl} Ga^+[AlCl_4]^-$

PERIODIC TABLE

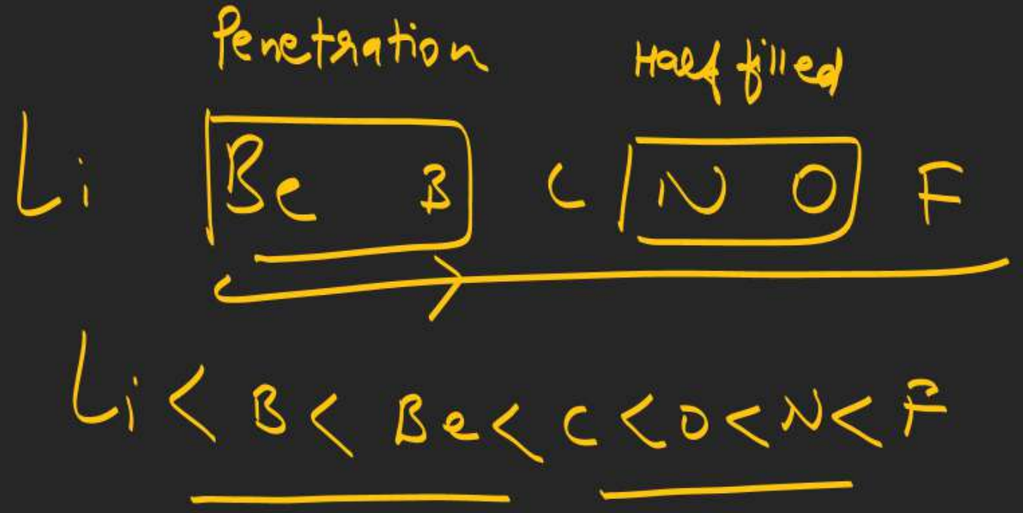
16. For elements B, C, N Li, Be, O and F, the correct order of first ionisation enthalpy is

(A) Li < Be < B < C < O < N < F

(B) B < Li < Be < C < N < O < F

(C) Li < Be < B < C < N < O < F

(D) Li < B < Be < C < O < N < F



PERIODIC TABLE

17. Which of the following statements are not correct?

A. The electron gain enthalpy of F is more negative than that of Cl.

B. Ionization enthalpy decreases in a group of periodic table.

C. The electronegativity of an atom depends upon the atoms bonded to it.

D. Al_2O_3 and NO are examples of amphoteric oxides.

Choose the most appropriate answer from the options given below:

(A) A, B, C and D

(B) A, B and D only

(C) B and D only

(D) A, C and D only

PERIODIC TABLE

18. Identify the correct order of standard enthalpy of formation of sodium halides.

(A) NaI < NaBr < NaF < NaCl

(B) NaI < NaBr < NaCl < NaF

(C) NaF < NaCl < NaBr < NaI

(D) NaCl < NaF < NaBr < NaI

$NaI < NaBr < NaCl < NaF$

PERIODIC TABLE

2022

1. Metals generally melt at very high temperature. Amongst the following, the metal with the highest melting point will be

(A) Hg

liq.

(B) Ag

high M.P

(C) Ga

liq.

(D) Cs

27°C liq.

PERIODIC TABLE

2. The correct order of electron gain enthalpies of Cl, F, Te and Po is

(A) F < Cl < Te < Po

(B) Po < Te < F < Cl

(C) Te < Po < Cl < F

(D) Cl < F < Te < Po

S > Se > Te > Po > O

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PERIODIC TABLE

3. Which of the following elements in considered as a metalloid?

(A) Sc (B) Pb (C) Bi (D) Te

Sc → d-Block metal

Pb → metal

Bi → metal

Sn and Pb are soft metal
Having low m.p

O, S } non
Se
Te
Po

PERIODIC TABLE

4. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason(R)

Assertion (A): The ionic radii of O^{2-} and Mg^{2+} are same.

Reason (R) : Both O^{2-} and Mg^{2+} are isoelectronic species

In the light of the above statements, choose the correct answer from the options given below

(A) Both (A) and (R) are true and (R) is the correct explanation of (A)

(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(C) (A) is True but (R) is false

(D) (A) is false but (R) is true

PERIODIC TABLE

5. The correct order of increasing ionic radii is

(A) $Mg^{2+} < Na^{+} < F^{-} < O^{2-} < N^{3-}$

(B) $N^{3-} < O^{2-} < F^{-} < Na^{+} < Mg^{2+}$

(C) $F^{-} < Na^{+} < O^{2-} < Mg^{2+} < N^{3-}$

(D) $Na^{+} < F^{-} < Mg^{2+} < O^{2-} < N^{3-}$

Key point :→

In isoelectronic species

-ive charge ↑ Radii ↑

PERIODIC TABLE

6. Element "E" belongs to the period 4 and group 16 of the periodic table. The valence shell electron configuration of the element, which is just above 'E' in the group is

(A) $3s^2 3p^4$

(B) $3d^{10} 4s^2, 4p^4$

(C) $4d^{10} 5s^2, 5p^4$

(D) $2s^2, p^4$

PERIODIC TABLE

7. Match List-I with List-II.

List-I (Oxide)	List-II (Nature)
(A) Cl_2O_7	(I) Amphoteric
(B) Na_2O	(II) Basic
(C) Al_2O_3	(III) Neutral
(D) N_2O	(IV) Acidic

N_2O CO NO H_2O — neutral oxide

Pb Zn Be Al Ga Sn Cr ($+3/+4$) — all the oxides and hydroxides are Amphoteric in nature

Choose the correct answer from the options given below:

(A) (A) - (IV), (B) - (III), (C) – (I), (D) — (II)

(B) (A) - (IV), (B) - (II), (C) - (1), (D) – (III)

(C) (A)-(II), (B) - (IV), (C) - (III), (D) (I)

(D) (A)-(1), (B) - (II), (C) - (IIII), (D) – (IV)

As_2O_3 V_2O_5 Sb_2O_3

S-Block — Basic

except BeO

PERIODIC TABLE

8. Given below are two statements. One is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: The first ionization enthalpy for oxygen is lower than that of nitrogen.

Reason R: The four electrons in 2p orbitals of oxygen experience more electron-electron repulsion.

In the light of the above statements, choose the correct answer from the options given below.

(A) Both A and R are correct and R is the correct explanation of A.

(B) Both A and R are correct but R is Not the correct explanation of A.

(C) A is correct but R is not correct.

(D) A is not correct but R is correct

PERIODIC TABLE

9. The IUPAC nomenclature of an element with electronic configuration [Rn] $5f^{14}6d^{1}7s^{2}$ is:

(A) Unnilbium

(B) Unnilunium

(C) Unnilquadium

(D) Unniltrium

PERIODIC TABLE

10. The first ionization enthalpies of Be, B, N and O follow the order

(A) O < N < B < Be

(B) Be < B < N < O

(C) B < Be < N < O

(D) B < Be < O < N

PERIODIC TABLE

11. Given two statements below:

Statement – I : In Cl_2 molecule the covalent radius is double of the atomic radius of chlorine.

Statement – II : Radius of anionic species is always greater than their parent atomic radius.

Choose the most appropriate answer form options given below.

(A) Both Statement I and Statement II are correct.

(B) Both Statement I and Statement II are incorrect.

(C) Statement I is correct but Statement II is incorrect.

(D) Statement I is incorrect but Statement II is correct.

PERIODIC TABLE

12. Outermost electronic configuration of four elements A, B, C, D are given below:

(a) $3s^2$ (b) $3s^23p^1$ (c) $3s^23p^3$ (d) $3s^23p^4$

The correct order of first ionization enthalpy for them is:

(A) (A) < (B) < (C) < (D) (B) (B) < (A) < (D) < (C)

(C) (B) < (D) < (A) < (C) (D) (B) < (A) < (C) < (D)

PERIODIC TABLE

13. In which of the following pairs, electron gain enthalpies of constituent elements are nearly the same or identical?

(a) Rb and Cs (b) Na and K

(c) Ar and Kr (d) I and At

Choose the correct answer from the options given below:

(A) (A) and (B) only (B) (B) and (C) only

(C) (A) and (C) only (D) (C) and (D) only

PERIODIC TABLE

14. The correct decreasing order for metallic character is

(A) Na > Mg > Be > Si > P

(B) P > Si > Be > Mg > Na

(C) Si > P > Be > Na > Mg

(D) Be > Na > Mg > Si > P

PERIODIC TABLE

15. Which of the following pair of molecules contain odd electron molecule and an expanded octet molecule?

(A) BCl_3 and SF_6

(B) NO and H_2SO_4

(C) SF_6 and H_3SO_4

(D) BCl_3 and NO

PERIODIC TABLE

16. The first ionization enthalpy of NA, Mg and Si, respectively, are: 496, 737 and 789 kj mol^{-1}. The first ionization enthalpy (kj mol^{-1}) of Al is:

(A) 487 (B) 768 (C) 577 (D) 856