ARJUNA NEET BATCH

CLASSIFICATION OF ELEMENTS & PERIODICITY IN PROPERTIES DPP-07

Which of the following is affected by stable configuration of an atom:-

(a) Electronegativity E.N.

(b) Ionisation potential I.P.

(c) Electron affinity E.A. → If an element have stable configuration, the tendency to gain an electron decrease. due to which E.A. of Nitrogen is less than expected.

Correct answer is:

(A) Only electronegativity ✗

(B) Only ionisation potential. ✗

(C) Electron affinity and ionisation potential ✓

(D) All of the above ✗

E.N. → tendency to attract shared pair of electron toward itself

$H \rightarrow Cl \leftrightarrow \overset{\delta+}{H} - \overset{\delta-}{Cl}$

↳ no relation with stable electronic configuration

I.P. → I.P increases for stable electronic configuration

Expected order of I.P. : C < N < O

but actual order : C < O < N → because of stable half filled e.c. of Nitrogen.

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odd one out

Which of the following elements have the different value of electronegativity:-

(A) H **(B) S**

(C) Te **(D) P**

H and P have almost same electronegativity

E.N. along the period from left to right increases.

E.N. down the group from top to bottom decreases.

Group 15 — Group 16 — Increases →

P

S

Se

Te

decreases ↓

E.N. of S > P

E.N. of Te < S

(∵ E.N Te ≈ P)

∴ S has different value of electronegativity.

Correct order of electronegativity of N, P, C and Si is:-

(A) N < P < C < Si ✗

(B) N > C > Si > P ✗

(C) N = P > C = Si ✗

(D) N > C > P > Si

E.N., increases along a period and decreases down the group.

	Group 14	Group 15
Period 2 →	C	N
Period 3 →	Si	P

N > C

P > Si

C > Si

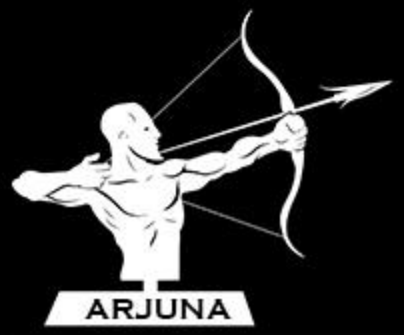
N > P

C > P

P ≈ H

Correct order of E.N. : N > C > P > Si

Period-2 Period-3



Electronegativity of the following elements increases in the order.

(A) O, N, S, P ✗
(B) P, S, N, O
(C) P, N, S, O ✗
(D) S, P, N, O ✗

E.N. decreases down the group.
→ And Increases along a period

	Group 15	Group 16
Period-2	N	O
Period-3	P	S

O > N
S > P

N > P
O > S

N > S
↳ Period 3
↓
Period 2

Increasing Correct E.N. order : P < S < N < O

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The correct set of decreasing order of electronegativity is:-

(A) Li, H, Na
(B) Na, H, Li
(C) H, Li, Na
(D) Li, Na, H

H is also electropositive like Group 1 metals. and hence can be placed above them.

H, Li, Na

H
Li
Na

decreases down the group.

Decreasing order of E.N. : $H > Li > Na$

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Polarity of a bond can be explained by:-

(A) Electron affinity
(B) Ionisation potential
(C) Electronegativity
(D) All of the above

(A) E.A. → Complete gain of electron
(B) I.P. → Complete removal of electron

Isolated gaseous atom.

$X_{(g)} + e^- \longrightarrow X^-_{(g)}$

$X_{(g)} \longrightarrow X^+_{(g)} + e^-$

(C) E.N. → tendency to attract shared pair of electron toward itself.

$H \Rightarrow Cl \leftrightarrow \overset{\delta+}{H} - \overset{\delta-}{Cl}$ → polarity of bond.

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Mulliken scale of electronegativity uses the concept of :-

(A) E. A. and EN of pauling ✗

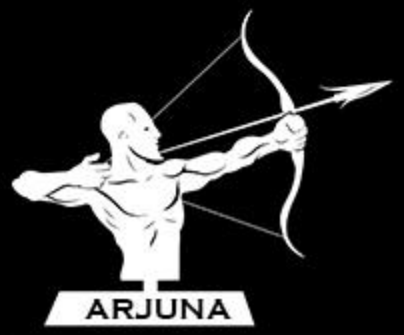
(B) E. A. and atomic size ✗

(C) E.A. and I.P.

(D) E.A. and bond energy ✗

According to Mulliken, Electronegativity = $\frac{\text{I.P.} + \text{E.A}}{2}$

units of I.P. and E.A. = eV (electron volt)



The pair with minimum difference in electronegativity is :-

(A) F, Cl → large difference.

(B) C, H → Carbon is more E.N than H.

(C) P, H

(D) Na, Cs → Electropositive, less electronegativity but Na and Cs lies far to each other in same group ∴ they show E.N. difference more than P.

F is most electronegative atom.

(C) E.N. of P and H are almost similar.

∴ they have minimum difference of E.N.

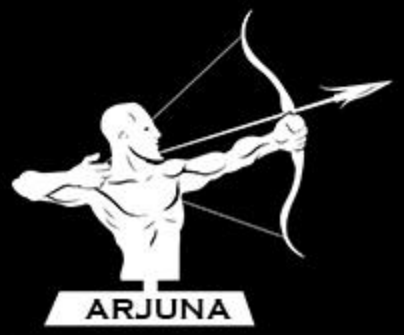
Least electronegative element is:-

(A) I
(B) Br
(C) C
(D) Cs

Group 1 element and lies down in the group.

E.N decreases down the group and increases along a period.

∴ Cs is least E.N than other elements given in the options as it lies left to all element as well as bottom in the group.



The electronegativities of the following elements H, O, F, S and Cl increase in the order :-

(A) H < O < F < S < Cl ✗

(B) Cl < H < O < F < S ✗

(C) H < S < O < Cl < F

(D) H < S < Cl < O < F

	Group 15	Group 16	Group 17
Period 2.		O	F
Period 3.	P	S	Cl

O < F

S < Cl

O > S

F > Cl

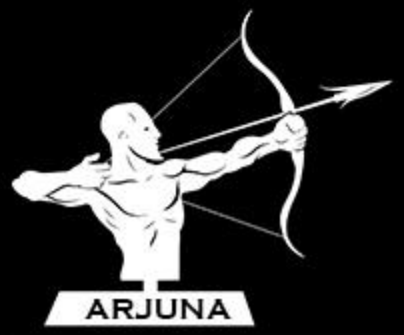
O > Cl

Cl ≈ N

P ≈ H

E.N. increases along a period, ∴ H is least electronegative. as it behaves as more as alkali metals. in case of E.N.

Correct E.N order : H < S < Cl < O < F



Thank You