Diagonal Relationship

Nurture: Course on Inorganic Chemistry for Class 11

Vishal joshi • Lesson 3 • May 18, 2021

12

C.B

C.C

met.

salt

s block

P(13,14,15 16 17, 18)

d

f

Hydro

Envi

26 May

11th

Periodic

C.B

S-Block

P-Block(13,14)

Hydrogen its compound

Environment

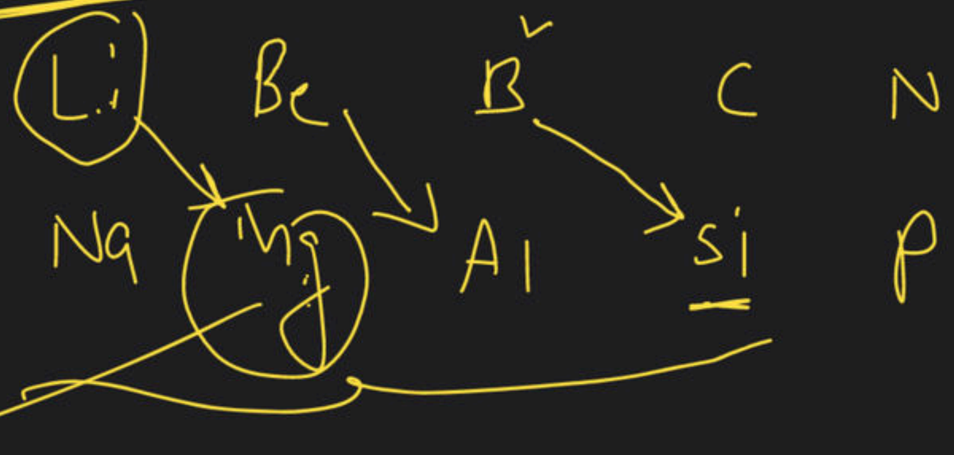
<26

One or Which of the following set of element represents diagonal relationship.

(a) (B → Al) (b) (Be → Mg) (c) Li → Mg (d) none of these

(e) Reason = Similar charge density

alkali metal



alkaline earth metal

Similar Charge density $= \frac{\text{charge}}{\text{size}}$

Q. due to Similar Ionic size Li^{+} and Mg^{+2} show diagonal rela

$Li^{+} = 76$ pm

$Mg^{+2} = 72$ pm

1 pm = 10^{-12} m

Charge density = $\frac{\text{Charge}}{\text{Size}}$

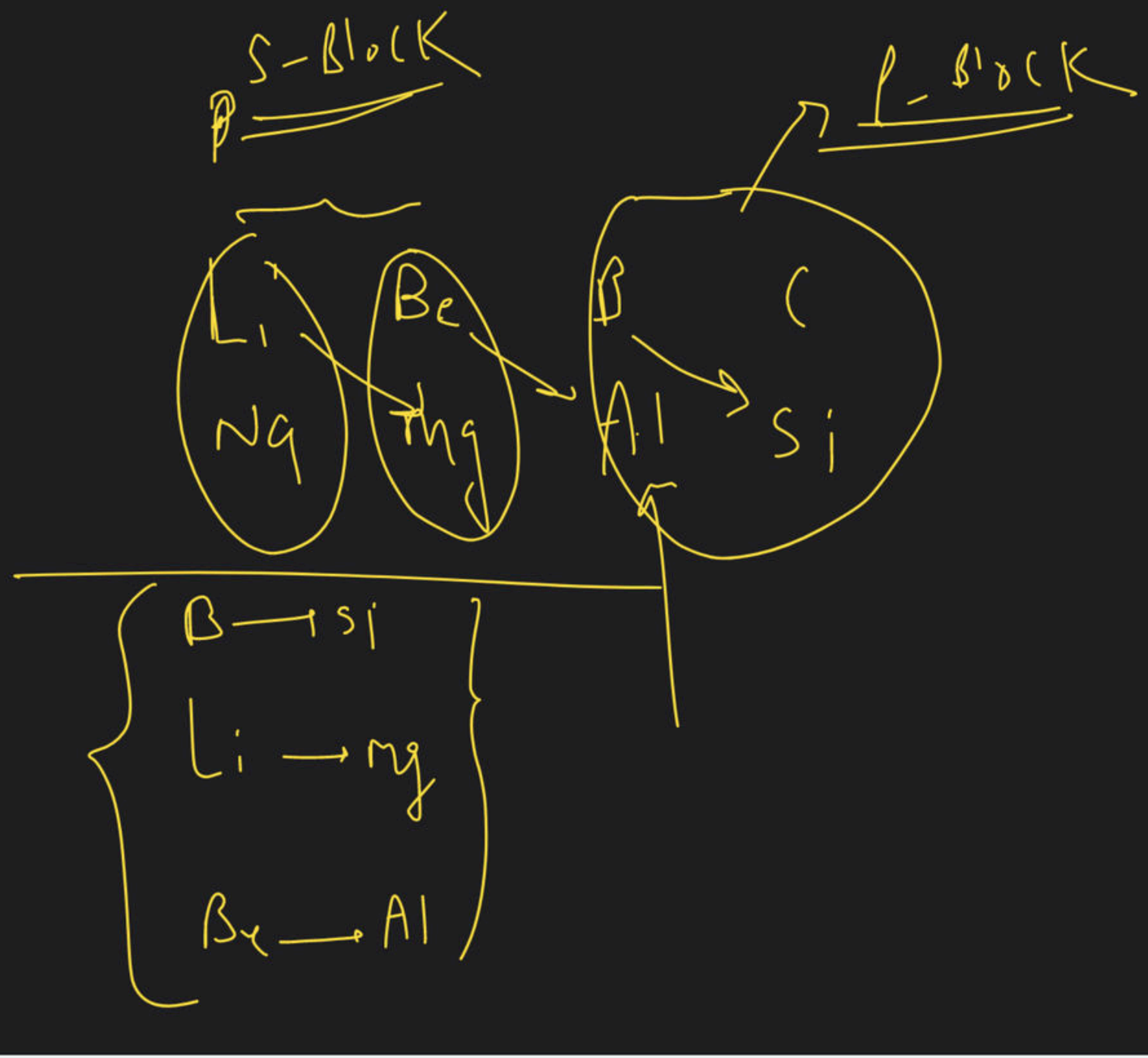
Due to similar — Size ∽

$Li = 152$ pm

$Mg = 160$ pm

$Li^{+} = 76$ pm

$Mg^{2+} = 72$ pm


S-Block
P-Block
Li
Be
B
C
Na
Mg
Al
Si
B → Si
Li → Mg
Be → Al

Q.1

Which of the following p-block element show diagonal relationship with s-block

(a) B (b) Si (c) Al (d) all

(5) ↓ M.B.S $\propto \frac{1}{\text{size}\uparrow}$

M.B.S < number of u.p.e

M.B.S = Metallic bond strength

u.p.e = unpaired electron

alkali metal

Li
Na
K
Rb
Cs

down the group size ↑

M.B.S ↓

Fr → Liq. at 28°C

Order of M.B.S.

Li > Na > K > Rb > Cs

Which of the following element is harder in alkali metal

(1) Cs (2) Rb (3) K (4) Li

M.B.B < M.P | B.P

M.P | B.P

Li > Na > K > Rb > Cs > Fr

liq at 25°C

Which of the following alkali metal has higher m.p among them

(1) Na (2) Rb (3) K (4) Cs

M.B.S = metallic bond strength

U.p.e = Unpaired e^-

alkali metal

Li