DIET PALAKKAD
INTER BELL 2.0

**HS Chemistry
STD x**

07-07-2021
WEDNESDAY

Peculiarity of the electronic configuration of chromium (Cr)and copper(Cu)

➡️ Subshell electronic configuration

✻ $_{24}$Cr Chromium– $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{4,} 4s^2$

✻

   Cu Copper–$1s^2 2s^2 2p^6 3s^2 3p^6 3d^9 4s^2$
$_{29}$

➡️ The stable subshell electronic configuration

✻ $_{24}$Cr Chromium– $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$

✻

   Cu Copper–$1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$
$_{29}$

For the subshell electronic configurations of chromium and copper, the configurations with half filled d subshell or completely filled d subshell show greater stability.

Subshell electronic configuration and blocks

Based on subshell electronic configuration,elements

are classified into four blocks **s,p,d,f**

➡️ <u>**Period and Group can be found out on the basis of subshell electronic configuration**</u>

Element	Sub shell Electronic Configuration	Sub shell to which last electron is added	Shell no. of outermost shell	No. of electrons in outermost sub shell	Group No.	Period No.
$_3$Li	$1s^2\,2s^1$	s	2	1	1	2
$_{11}$Na	$1s^2\,2s^2\,2p^6\,3s^1$	s	3	1	1	3
$_{20}$Ca	$1s^2\,2s^2\,2p^6\,3s^2\,3p^6\,4s^2$	s	4	2	2	4

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<u>***For s block elements**</u>

Group number- The number of electrons in outermost s subshell

Period number-Number of outermost shell

Element	Sub shell Electronic Configuration	Sub shell to which last electron is added	Shell no. of outermost shell	No. of electrons in outermost sub shell	Group No.	Period No.
$_3$Li	$1s^2\ 2s^1$	s	2	1	1	2
$_{11}$Na	$1s^2\ 2s^2\ 2p^6\ 3s^1$	s	3	1	1	3
$_{20}$Ca	$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2$	s	4	2	2	4

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*For p block elements

Group number- 12+ number of electrons in outermost p subshell

Period number-Number of outermost shell

ASSIGNMENT

The atomic number of an element Y is 17.

1)Write the subshell electronic configuration of the

element.

2)Find the period,group and block .