

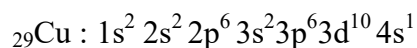
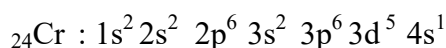


STD 10– FIRST BELL – CHEMISTRY – CLASS-06

Chapter – 1

PERIODIC TABLE AND ELECTRONIC CONFIGURATION

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



1. The d subshell can accommodate a maximum number of electron is 10.
2. The completely filled configuration (d^{10}) or the half filled configuration (d^5) of this subshell is more stable than the others.
3. Subshell electronic configuration of chromium and copper, the configurations with half filled d subshell or completely filled d subshell show greater stability.

Subshell electronic configuration, blocks, period and group

- In modern periodic table elements are classified into four blocks s,p,d& f .
 - In the periodic table elements in group 1&2 belong to s block, those in groups 13 to18 belong to the p block, those in group 3 to 12 belong to the d block.
 - The elements in the f block are placed at the bottom of the periodic table in two separate rows.
 - The period number is the same as the shell number of the outermost shell in the subshell electronic configurations.
 - S block elements the number of electrons in the outermost s subshell will be the group number.
 - Group number of P block elements are by adding 12 to the total number of electrons in the outermost p subshell.
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Elements	Atomic number	Subshell electronic configurations	Subshell which last electron is added	Block	No of outermost shell	Period number	Group number
Li	3	$1s^2 2s^1$	s	s	2	2	1
Mg	12	$1s^2 2s^2 2p^6 3s^2$	s	s	3	3	2
N	7	$1s^2 2s^2 2p^3$	p	p	2	2	15
Ca	21	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$	s	s	4	4	2
Ne	10	$1s^2 2s^2 2p^6$	p	p	2	2	18

Home work:

1. Complete the table

Elements	Atomic number	Subshell electronic configurations	Subshell which last electron is added	Block	No of outermost shell	Period number	Group number
Na	11						
P	15						
C	6						
K	19						
Cl	17						

2. When the last electron of an atom was filled in the 3p subshell, the subshell electronic configuration was $3p^4$. Answer the following questions.

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- a. Complete subshell electronic configuration.
 - b. Atomic number
 - c. Group number
 - d. Period number

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