TRANSITION ELEMENTS

The elements in which penultimated electrons are filled in d-sub energy level are called d-block elements.

Due to incompletion of their two outermost orbits they show variable valency and variable oxidation state , therefore they are called transition elements.

These elements are present in the periodic table from IIIB to IIB .

There are three series of transition elements in which they are placed. In 3d-series from Sc to Zn , in 4d-series from La to H_f to Hg and in 5d-series from Ac to Ku to Uun_{110} elements are present

Characteristics of 3d- series

electronic configuration.

The electronic configuration of the elements is $ns^2(n-1)d^{1-10}$

Elements	$_{21}Sc$	$_{22}Ti$	$_{23}V$	$_{24}Cr$	$_{25}Mn$	$_{26}Fe$
Expected electronic configuration.	$4s^2,3d^1$	$4s^2,3d^2$	$4s^2,3d^3$	$4s^2,3d^4$	$4s^2,3d^5$	$4s^2,3d^6$
Observed electronic configuration	$4s^2,3d^1$	$4s^2,3d^2$	$4s^2,3d^3$	$4s^1,3d^5$	$4s^2,3d^5$	$4s^2,3d^6$

Elements	$_{27}Co$	$_{28}Ni$	$_{29}Cu$	$_{30}Zn$
Expected electronic configuration.	$4s^2,3d^7$	$4s^2,3d^8$	$4s^2,3d^9$	$4s^2,3d^{10}$
Observed electronic configuration	$4s^2,3d^7$	$4s^2,3d^8$	$4s^1,3d^{10}$	$4s^2,3d^{10}$

Metallic character

All the transition elements show metallic character, i.e. all these elements are metals.

Explanation