

Answer on Question #65578 - Chemistry -General Chemistry

8. What is the electron configuration of the element with 27 protons?

Solution:

The atomic number is: 27. Element is: Co.

Atoms have equal numbers of protons and electrons. So, the cobalt atom has 27 electrons.

Full electron configuration is: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^7$ (the 4s shell is listed first because a filled $4s^2$ is lower energy than a partially-filled $3d^7$).

Electron configuration written in shorthand is: $[\text{Ar}]4s^2 3d^7$.

Answer:

$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^7$;

$[\text{Ar}]4s^2 3d^7$.