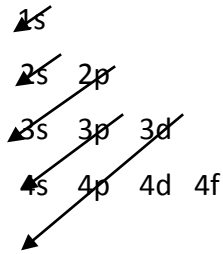
Answer on Question #76765 – Chemistry – General Chemistry

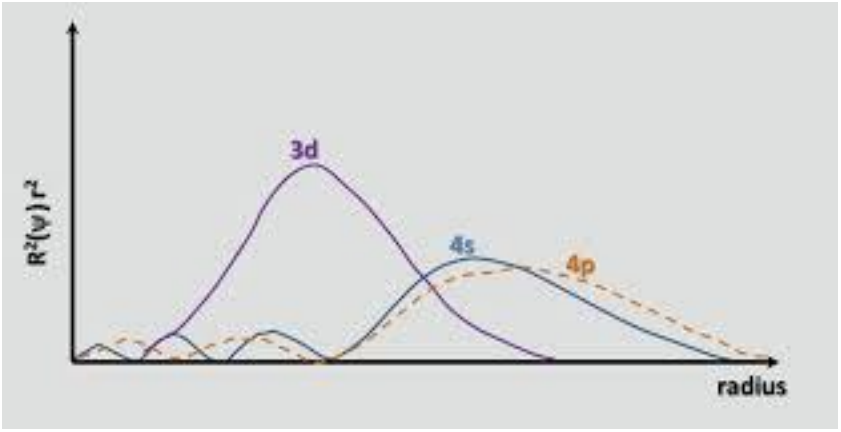
a) Give the FULL electronic configuration of potassium.
b) Draw the radial distribution functions (RDFs) for the 4s and 3d orbitals, and use them to explain your answer to part a).
c) Explain briefly why many homoleptic transition metal complexes of carbon monoxide, CO, tend to obey the eighteen-electron rule.
d) For the ligands listed below, identify those that are n-acids and/or n- bases.
Br^-, CO, H_2O, PMe_3

Solution:

a) ^{19}K $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

b)





c) The rule states that thermodynamically stable transition metal organometallic compounds are formed when the sum of the metal d electrons and the electrons conventionally considered as being supplied by the surrounding ligands equals 18.

d) Acid: H_2O

Base: Br^-, CO, PMe_3, H_2O