Tutorial

Question 15.

a) Iron has 26 proton number. Write the electronic configuration of iron, iron(II) ion and iron(III) ion.

Fe: **1s 2s 2p 3s 3p 4s 3d**

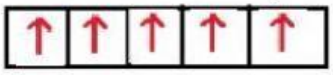
Fe^{2+}: **1s 2s 2p 3s 3p 4s 3d**

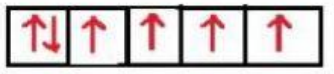
Fe^{3+}: **1s 2s 2p 3s 3p 4s 3d**

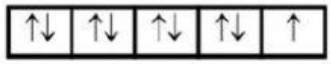
b) How many valence e belong to the Iron atom?

c) What is the outermost orbital for Iron atom?

d) State the correct stability of e filled in the d orbital







More stable the arrangement of the e in the 3d orbitals, it is easier to form the ION

Stability of e arrangement, filled in the orbital 3d:
Fully filled 3d orbitals >> Half Filled 3d orbitals >> partially filled 3d orbitals

e) Which of these two species is more stable? Explain.

Fe^{3+} has _____ 3d orbitals while Fe^{2+} has _____ 3d orbitals.

_____is more stable because it contains _____ 3d orbital.

LIVEWORKSHEETS

f) Give A possible set of quantum numbers of electrons in the outermost orbitals of iron(II) ions.

(n, l, m, s)

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LIVEWORKSHEETS