ELECTRON CONFIGURATION WORKSHEET

What is the subshell designation (e.g. 2p, 3d…) for the following cases?

a) n = 2, l = 0 _____
b) n = 4, l = 3 _____
c) n = 5, l = 1 _____
d) n = 3, l = 0 _____
e) n = 6, l = 1 _____
f) n = 5, l = 2 _____

The quantum numbers listed below are for 4 different electrons in the same atom. Arrange them in order of increasing energy.

a) n = 4, l = 0, m_l = 0, m_s = ½ _____ least energy
b) n = 3, l = 2, m_l = 1, m_s = ½ _____
c) n = 3, l = 2, m_l = -1, m_s = ½ _____
d) n = 3, l = 1, m_l = 1, m_s = -½ _____ highest energy

Do any have the same energy? _____ which ones? _____

write the complete electron configurations of the following elements:

1) sodium _____
2) iron _____
3) bromine _____
4) barium _____
5) neptunium _____

write the shorthand electron configurations of the following elements:

6) cobalt _____
7) silver _____
8) tellurium _____
9) radium _____
10) lawrencium _____

Determine what elements are denoted by the following electron configurations:

11) $1s^2 2s^2 2p^6 3s^2 3p^4$ _____
12) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1$ _____
13) [Kr] $5s^2 4d^{10} 5p^3$ _____
14) [Xe] $6s^2 4f^{14} 5d^6$ _____
15) [Rn] $7s^2 5f^{11}$ _____

Determine which of the following electron configurations are not valid:

16) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^5$ _____
17) $1s^2 2s^2 2p^6 3s^3 3d^5$ _____
18) [Ra] $7s^2 5f^8$ _____
19) [Kr] $5s^2 4d^{10} 5p^5$ _____
20) [Xe] _____