



Chem!stry

Name: ()

Class:

Date: / /

Quiz on Atomic Orbital Theory

1. a) Define the term *atomic orbital*.

.....
.....

[1]

b) What is the maximum number of electrons that can occupy the same atomic orbital at the same time?

.....

[1]

c) How many quantum numbers are required to uniquely identify each electron orbiting the nucleus of an atom?

.....

[1]

d) State the *Aufbau Principle*.

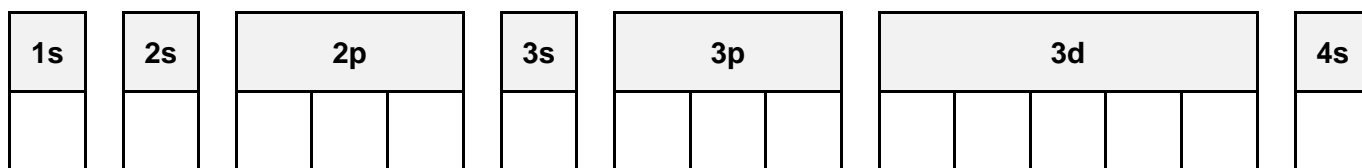
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e) Complete the table below to summarise the essential information about orbitals.

Orbital:	Shape:	Number of these orbitals that combine to form a sub-shell:	Number of the electron shell in which this orbital first appears:
s-orbital			
p-orbital			
d-orbital			

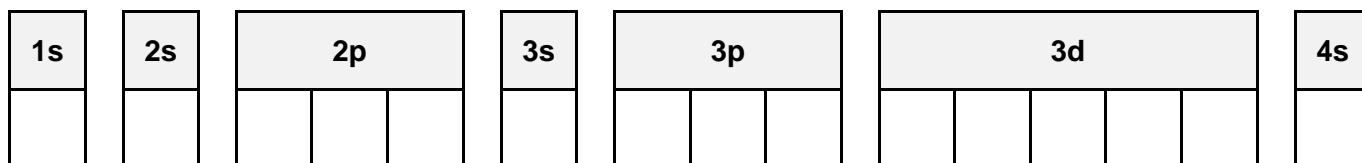
[3]

2. Using single headed arrows to represent electrons, complete the diagram below to give the electronic configuration of an atom of nickel – Ni – atomic number 28.



[1]

3. Using single headed arrows to represent electrons, complete the diagram below to give the electronic configuration of a cobalt(II) ion – Co^{2+} – atomic number 27.



[1]

4. Complete the information below by writing numbers in the boxes to indicate how many electrons there are in each sub-shell of an atom of silver – Ag – atomic number 47.

1s 2s 2p 3s 3p 3d 4s 4p 4d 5s

[1]

5. Complete the information below by writing numbers in the boxes to indicate how many electrons there are in each sub-shell of a selenium ion – Se^{2-} – atomic number 34.

1s 2s 2p 3s 3p 3d 4s 4p

[1]

- Scan the QR code below for the answers to this assignment.



http://www.chemist.sg/chemical_bonding/atomic_structure/orbitals_quiz_ans.pdf