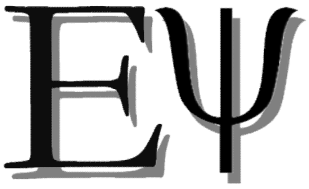
The Quantum Model and Electron Configuration



"What we observe as material bodies and forces are nothing but shapes and variations in the structure of space." – Erwin Schrodinger

FORMAT

The test will consist of the following new topics:

- the wave mechanical model
- the quantum mechanical model
- quantum numbers

If you want partial credit, you must show your work. Attempt every problem and DO NOT leave any blanks.

Note: *You will need your calculator and periodic table*.

KNOW THESE MEN

Max Planck	Erwin Schrodinger	Neils Bohr	Werner Heisenberg
Max Born	Louis de Broglie	Albert Einstein	Wolfgang Pauli
Paul Dirac	George Uhlenbeck	Samuel Goudsmit	

KNOW

Heisenberg's uncertainty principle
Pauli Exclusion Principle
Planck's constant for matter waves
the four quantum numbers and possible values

BE ABLE TO:

- ❑ describe an quantum mechanical atom
- ❑ find a matter wavelength
- ❑ list the quantum numbers

REVIEW

- ❑ quantum theory
- ❑ atomic structure
- ❑ nuclear symbols
- ❑ conversion problems
- ❑ conversion factors
- ❑ sig figs

PRACTICE

DIRECTIONS: List the quantum numbers in order by name, symbol, and description.

Name	Symbol	Description

DIRECTIONS: List the four types of sub shells and the maximum number of orbitals in each.

_____ _____ _____ _____ _____ _____ _____ _____

DIRECTIONS: Write a brief description for each of the following.

Paul Dirac –

Wolfgang Pauli –

George Uhlenbeck –

Uncertainty Principle -

Pauli Exclusion Principle -

DIRECTIONS: Short Answer.

_____ hat is the maximum number of electrons in any one orbital?

_____ How many electrons in the third energy level?

_____ How many orbitals in the 2s?

_____ How many orbitals in the second energy Level?

_____ How many electrons in 3d?

DIRECTIONS: List the three major subatomic particles, the charge, the location and the relative mass.

Subatomic Particle	Charge	Location	Mass

"Don't find fault; find a remedy." -- Henry Ford

