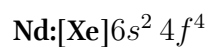
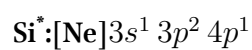
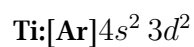
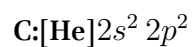
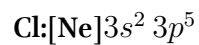


Quiz 8.3 – Atomic Spectroscopy

Name: _____

Electronic Term Symbols

Give the symbol for the lowest energy term for each of the following electronic configurations (You may neglect spin-orbit coupling and J -levels):

**Spin-Orbit Coupling**

For each term, give the J states according Russell-Saunders coupling

○ 3P

○ 2S

○ 1D

○ 3F

Selection Rules

Tell whether each transition (or class of transitions) is allowed. If not, give the selection rule which it violates

○ $1s^1 \rightarrow 2s^1$

○ $1s^2 2s^2 2p^2 \rightarrow 1s^1 2s^2 2p^3$

○ $^3P_2 \rightarrow ^3S_1$

○ $^1D_2 \rightarrow ^3P_2$

○ $^3D_1 \rightarrow ^3S_1$

○ $^1P_0 \rightarrow ^1D_0$