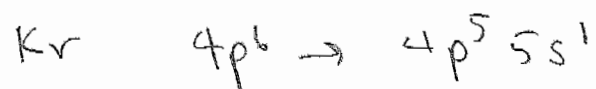
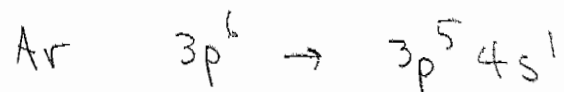
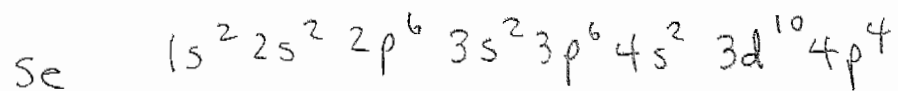
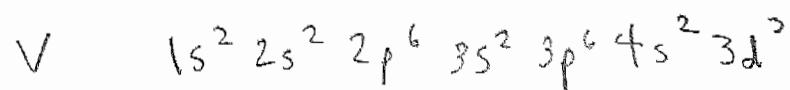
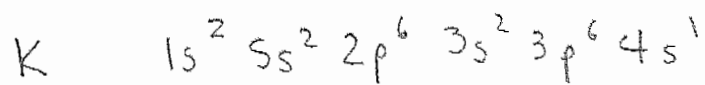


8.4



8.5





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$$Zr \quad \dots \quad 5s^2 4d^2$$

$$S=1 \quad L=3 \quad \rightarrow \quad J = 3+1, \dots, (3-1) \\ = 4, 3, 2$$



hand's rules

smallest J smallest energy 3D_2



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nr spin about $\Rightarrow L=0 \quad U \quad S=0$

$L=0$ H, Li, Na, K

$S=0$ Be, Mg, Ca, He, Ne, Ar



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#5

∞ well

$$\Psi_n(x) = \sqrt{\frac{2}{L}} \sin \frac{n\pi x}{L}$$

$$E = \frac{n^2 \pi^2 \hbar^2}{2mL^2}$$

a)

let $E_1 = \frac{\pi^2 \hbar^2}{2mL^2}$ and $E_2 = \frac{4\pi^2 \hbar^2}{2mL^2}$

ground state $E = 2E_1$

first excited state $E = E_1 + E_2$

b) not identical

	n_1, n_2	
ground	1, 1	1
first	1, 2	2 (one or the other could be excited)
	2, 1	

