Chem. 540
Instructor: Nancy Makri

Models – Problem 9

Calculate the following matrix elements of the harmonic oscillator Hamiltonian:

(a) $\langle 0 | \hat{x}^2 | 2 \rangle$ (b) $\langle 0 | \hat{x}^2 | 1 \rangle$ (c) $\langle 1 | \hat{x}^3 | 4 \rangle$ (d) $\langle n | \hat{x}^2 | n-1 \rangle$ (e) $\langle n | \hat{x}^2 | n+2 \rangle$.