**CHEM 3010: Physical Chemistry**

**Introduction to Quantum Chemistry,**
**Spectroscopy & Statistical Thermodynamics**

**Assignments, Winter 2016**

Here is a list of conceptual problems ("Q") and numerical problems ("P") from end-of-chapter in Engel and Reid "*Physical Chemistry* 3rd Edition. I suggest that you do these problems. They are a good practice for the tests and exam.

Assignment #1: Q12.2, Q12.7, Q12.11, Q12.12, Q12.14, Q12.15
P12.1, P12.11, P12.12, P12.18, P12.21, P12.27

Assignment #2: Q13.3, Q13.9, Q13.11, Q13.12, Q13.16, Q13.18, Q13.20
P13.3, P13.4, P13.7, P13.26, P13.29a, P13.31, P13.36

Assignment #3: Q14.1, Q14.4, Q14.8, Q14.12
P14.8, P14.9, P14.13

Assignment #4: Q15.3, Q15.11, Q15.13, Q15.16, Q15.17, Q15.19
P15.1, P15.5, P15.10 (the question should have $\psi_3$, not $\psi_4$), P15.15, P15.22, P15.30, P15.34

Assignment #5: Q16.11
P16.2, P16.5

Assignment #6: Q17.1, Q17.7, Q17.14, Q17.16, Q17.19
P17.3, P17.5, P17.6, P17.23

Assignment #7: Q18.2, Q18.3, Q18.6, Q18.10, Q18.12, Q18.19, Q18.20 (note that $V(x,y) = \frac{1}{2}(k_x x^2 + k_y y^2)$, the factor $\frac{1}{2}$ is missing in the book.)
P18.1, P18.3, P18.5, P18.8, P18.18, P18.22

Assignment #8: Q19.2, Q19.7, Q19.16, Q19.20
P19.1, P19.2, P19.4, P19.15, P19.16, P19.25, P19.30, P19.40

Assignment #9: Q20.4, Q20.5, Q20.11, Q20.13, Q20.15, Q20.16, Q20.17
P20.11, P20.12, P20.5 (do P20.12 first, then use the expression you derived for solving P20.5), P20.20, P20.28, P20.31

Assignment #10: Q21.1, Q21.4, Q21.12, Q21.19, Q21.20
P21.3, P21.10, P21.15, P21.20

Assignment #11: Q22.10
P22.3, P22.5, P22.9, P22.11 (first question only), P22.16, P22.17, P22.26, P22.27 a) and b), P22.33, P22.36, P22.37