ECE370 POWER & ENERGY SYSTEMS
Hints & Answers for HW # 3

3.1 (a) (i) η_{ideal} = 60 .0 % (b) Note that 1 tonne = 1000 kg.

3.2 Use example in the notes to get the # of fission events and hence the # of kg (this is slightly over 860 kg). The density then gives you the volume. The ratio of volume of coal to uranium is approx. 25 x 10^6 : 1.

3.3 Note that the data tells you that the S/C test was done on the *hv* side, while the O/C test was done on the *lv* side; you need to refer all impedances to the *hv* side. (a) 5.79% 93.5% (NOTE: this is ***not*** rated load).

3.4 (a) approx. 75% (c) approx. 255 A

3.5 Bank is overloaded slightly under 10%