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Physics 404 **HOMEWORK ASSIGNMENT #6** **Spring 2013**

Due date: Tuesday, Oct. 22 **Deadline:** Thursday, Oct. 24

1. (10) 5.6 (Cf. 1.51) Describing operation of a muscle as a fuel cell.

2. (10) 5.13 and 5.14 d, e (a, b, c done in class) Another Maxwell relation problem and exploring the implications of the result 5.14c obtained in class.

3. (5) 5.28 Calcite and aragonite: extension of analysis of diamond and graphite.

4. (10) 5.32 Debunks a common belief about how ice skating works. In part d), assume that the contact area of the ice skate is about 10 cm^2 and that the skater's mass is 60 kg.

5. (5) 5.60 (Trace the solid lines of Fig. 5.31, then draw in the appropriate dashed lines with arrows.)

6. (10) 5.62 Derivation of the lever rule.

Problem 5.16 is worth doing for practice if you have time and interest.

Students who have taken PHYS 411 would do well to look at 5.17 (also 5.47). Some results, for general information are: $dU = T\,dS + \mu_0\,\mathscr{H}\,dM$ and $dG = -S\,dT - \mu_0\,M\,d\mathscr{H}$

Problem 5.52 is very worthwhile if you know how to use Mathematica or some other app to do the plot.

Those of you who are intrigued by the idea of distinctive behavior near critical points might want to look at 5.55 (too long to assign).