

BAE 103
Energy in Biological Systems

Problem Set No. 8
Concepts of Pressure and Fluid Flow
Due Date: Monday, February 26

- 8.1. Convert the gauge pressure of 67.2 psi to MPa.
- 8.2. If the local atmospheric pressure is 30.45 in Hg, convert the gage pressure in problem 8.1 to an absolute pressure and report your answer in units of kPa..
- 8.3. Assume the local atmospheric pressure is 28.98 in of Hg. A gauge shows a vacuum of 780 mm of hg. Is this possible? Explain your answer and show supporting calculations.
- 8.4. A storage tank contains molasses. A pressure guage at the bottom reads 30 psig. If the specific gravity of the cane molasses is 1.41, what is the depth (m) of molasses in the tank?
- 8.5. What is the average velocity (m/s) of water flowing in a 10.0 cm I.D. pipe, if the pipe delivers 120 gal/min to a wash tank?