

BAE 103
Energy in Biological Systems

Problem Set No. 11
Concepts: Psychrometrics
Due Date: Monday, March 26

- 11.1 Using the psychrometric chart provided, answer the following:
- (a) At what temperature will condensation occur when air at a $75^{\circ}\text{F}_{\text{d.b.}}$ and 70% relative humidity is suddenly cooled to a lower temperature? (Answer to nearest $\pm 1/4^{\circ}\text{F}$).
 - (b) What is the wet bulb temperature at $80^{\circ}\text{F}_{\text{d.b.}}$ and 100% relative humidity?
 - (c) What is the specific humidity of air at $60^{\circ}\text{F}_{\text{d.b.}}$ if the enthalpy is 22.5 BTU per lb of dry air? (Answer to nearest $\pm .0001 \text{ lbH}_2\text{O}(\text{lbda})$)
 - (d) What is the relative humidity of air at $80^{\circ}\text{F}_{\text{d.b.}}$ and $61^{\circ}\text{F}_{\text{w.b.}}$? (Answer to nearest 1%)