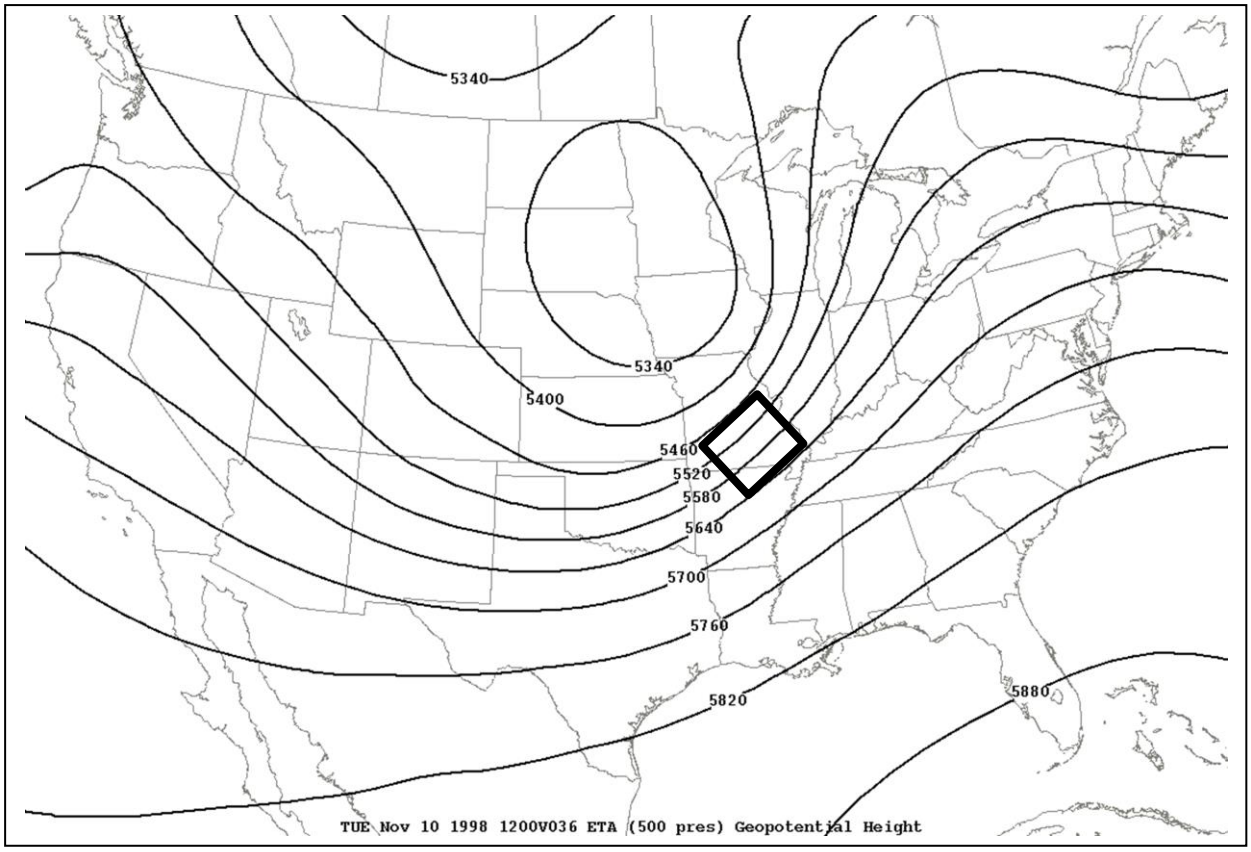
NAME: _____ SECTION _____

Atmospheric Sciences 101 Winter 2015
Homework #7 (Due Thursday, 12 March 2014)

1. The following diagram shows a map of 500mb heights. [4]



A. On the square air parcel indicated in the diagram, draw the balance of forces and the resulting wind direction of the parcel. Then draw an "L" where you expect the height of the 500 mb surface to be lowest. [2.5]

B. What is the name for the balance of forces you drew in the image above? [0.5]

C. Based on the upper-level chart, under which area would you expect the surface temperatures to be the coldest? Briefly explain [1]

1. Frontal structure and profiles [3]

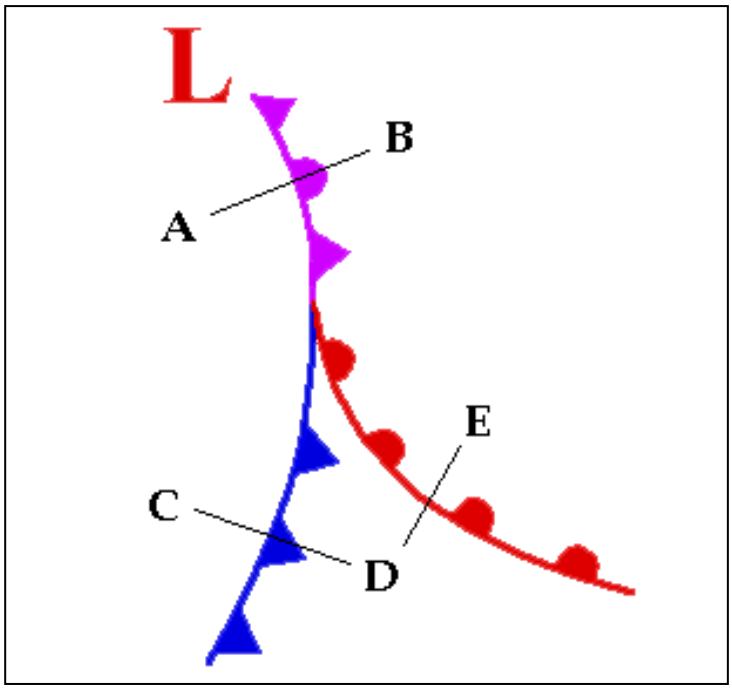
A. On the figure below, what fronts do the following represent? [1]

The structure intersected by the LINE A – B: _____

The structure intersected by the LINE C – D: _____

The structure intersected by the LINE D – E: _____

B. On the figure below, indicate the relative temperatures of each air mass. (Hint: There are three air masses involved. One each is "cold", "cool", or "warm".) [1]



C. In the spaces provided, diagram the vertical profiles of the three fronts indicated in the above figure. Indicate the relative temperatures of the air masses in each of the figures. Be sure to accurately represent the shape of the fronts in the vertical. [1]

A – B **C – D** **D – E**

4. Tropical Cyclones [3]

A. Why don’t tropical storms form on the equator? [1]

B. Name two conditions that are conducive to tropical cyclone development. [1]

C. What is the area of heavy precipitation surrounding the eye of a hurricane called? [0.5]

D. What is the name of the scale used to classify the strength of a hurricane? [0.5]