Fall 2018 Final Exam Review Questions

**Misc.**

Assuming the pressure pattern is the same at the surface (high friction) and 10,000 feet above the ground, draw two arrows representing wind direction and speed at the ground and 10,000 feet up.

Why does State College often have lots of cloudiness in the winter when a dry, cP air mass moves in from the NW?

Given a temperature of 105F and a relative humidity of 100%, what is the approximate dewpoint?

Given a relative humidity of 50% and a dewpoint of 30F, what is the approximate temperature?

Will pollution (released at ground level) tend to be more of a problem in the early morning or in the afternoon? Why?

What type of clouds would you expect to form in a moist, stable atmosphere?

Explain why it's generally windier on sunny afternoons than in the morning.

True or False...A microburst is an especially strong thunderstorm downdraft.

**Winter Weather**

Does FRESH SNOW or WATER have a higher albedo?

Name the term that describes distance that air travels over water, associated with lake effect snow.

True or False...The only precipitation type to require the surface temperature to be at or below freezing is snow.

Draw a representative temperature profile for sleet. Include a line showing a temperature of 32 F.

True or False...The height of the 500mb level is almost always lower, on average, in winter than in the other seasons.

**Land Use**

True or False... There is controversy about whether changes in land use cause changes in the weather.

What is the term we use to describe the temperature characteristics of a large city?

Describe the changes in water cycling that occur in a city relative to the surrounding countryside and how this relates to daytime temperatures.

How do you think clearing away the rain forests will eventually affect the weather in that part of the world?

Give three factors responsible for increased nighttime temperature in large cities.

**Ozone**

Over what continent would we find the ozone "hole?" What does a "hole" in the ozone mean, exactly?

Why is stratospheric ozone considered "good" while tropospheric ozone is considered "bad?" What is chemically different between them, if anything?

What class of man-made chemicals has been linked to a sharp decrease in global ozone? What happens to these very stable chemicals when they reach the stratosphere?

Explain in some detail why the greatest loss of atmospheric ozone has been observed over the Antarctic continent.

**Climate Change**

What is the technically correct term or that describes global warming?

What is the most abundant greenhouse gas released into the atmosphere when fossil fuels are burned?

Describe everything you can about the Keeling Curve.

As glaciers and polar ice melt, what happens to the average planetary albedo? What should happen to the average global temperature because of this change in albedo, all else being equal? What then should happen to the amount of ice covering the planet?

How does increasing population in cities complicate the global warming issue?

What two factors predominantly contribute to sea level rise?

List at least two types of paleoclimate record techniques that we use to understand past climate conditions

True or false: Heat waves are expected to become more intense in the future.