Name:

Geol 250 – Examination Two

Please answer the following questions (2 points each).

1. A bucket has a volume of 10,000 milliliters. What is the volume of the bucket in **cm^3**?

2. What would be the mass of water (in **kilograms**) that would fill the bucket in question #1?

3. What would be the mass (in **grams**) of a volume of mercury (density = 14 g/cm^3) that would fill the bucket in question #1?

4. [**True** or **False**] A 100-year flood has an average recurrence interval of 1,000 years.

5. **[True** or **False]** In adiabatic cooling, the temperature does not change.

6. **[True** or **False]** 85% relative humidity means that 85% of a packet of air is composed of water.

7. During evaporation, latent heat is [**absorbed** / **released**] (*circle one*) by the evaporating material.

8. **[True** or **False]** Streams only flood when disturbed by human activity.

9. **[True** or **False]** High pressure systems are generally associated with the development of large weather systems like warm fronts and cold fronts.

10. Most of the Earth's freshwater is in what phase of matter [**solid / liquid / gas**] (*circle one*)?

11. To reach its dew point temperature, a packet of unsaturated air must usually be [**heated** / **cooled**]. (*circle one*)

12. Wind blows **[clockwise / counterclockwise]** (*circle one*) around the center of a low pressure system (a cyclone) in the northern hemisphere.

13. Dry air in the atmosphere is composed primarily of oxygen and what other gas?

14. What is the mathematical formula for calculating relative humidity?

15. Which greenhouse gas is removed from the atmosphere during photosynthesis?

16. What is a stream's drainage basin?

17. A stream can carry material as dissolved load, suspended load or bed load. What is meant by bed load?

18. What source of energy is primarily responsible for the skyward (upward) movement of water vapor in the hydrologic cycle?

19. What is the *defining difference* between hurricanes and tropical storms (i.e. what has to change for a tropical storm to be considered a hurricane)?

20. Why is detecting unstable air vitally important in weather forecasting?

21. What is the opposite of melting?

22. Why is the troposphere warmest at low altitude?

23. Why do streams flow downhill?

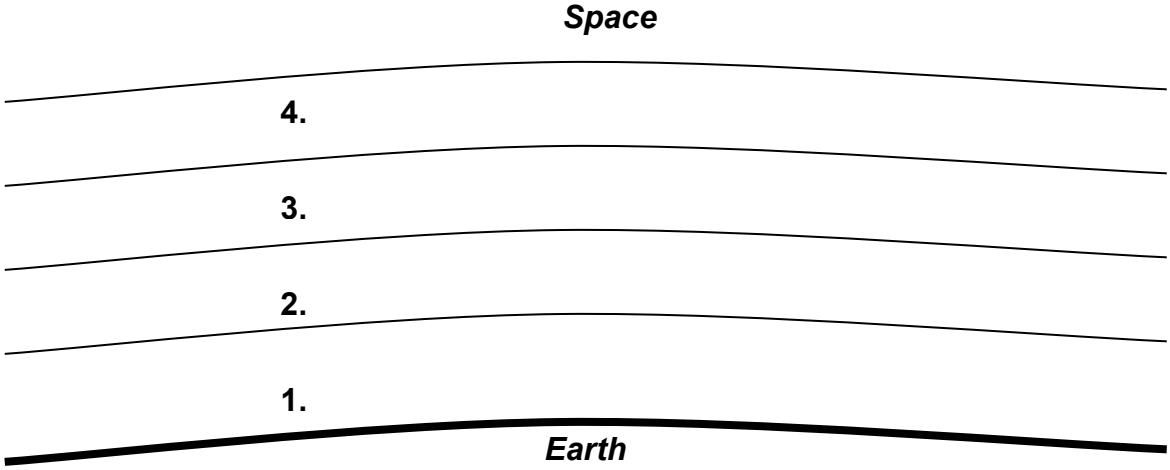
24. Define: natural levee.

25. Briefly describe two severe hazards (i.e., things that can kill you) commonly associated with thunderstorms.

Please answer the following questions **(5 points each**).

1. How do meandering streams differ from braided streams?

2. Complete the diagram below by filling in the names of the four layers of the atmosphere.



3. Earlier this month, Rock Hill experienced the following weather:

Sunday high of 72^{o}, mostly sunny
Monday high of 55^{o}, morning thunderstorms followed by clearing skies
Tuesday high of 50^{o}, clear skies

What is the simplest explanation for this change in the weather?

4. Which of these 10 conditions tends to increase the probability of cloud formation (*circle all that apply*)

high atmospheric pressure / low atmospheric pressure /

a cold front / **a warm front** /

high dewpoint temperature / **low dewpoint temperature** /

very humid air / very dry air/

high aerosol count in atmosphere / **low aerosol count in atmosphere /**

5. On the back of this sheet of paper, briefly explain how the “Greenhouse Effect” keeps the Earth’s troposphere warmer than it would be if there were no greenhouse gases.