Name:

## Geol 250 – Examination Three

Please answer the following questions (2 points each).

- 1. A bucket has a volume of 13 liters. What is the volume of the bucket in cm<sup>3</sup>?
- 2. What would be the mass of water (in grams) that would fill the bucket in question #1?
- **3.** What would be the mass (in **kilograms**) of a volume of a fluid with a density of 0.01 g/cm<sup>3</sup>) that would fill the bucket in question #1?
- 4. To which of the three main rock types do rocks composed of evaporite minerals belong :

[ sedimentary / igneous / metamorphic ] (circle all that apply)

- 5. Larger clasts require [ more / less ] (circle one) energy to transport than smaller clasts.
- 6. Rhyolite and granite are both felsic igneous rocks, meaning they have the same [ texture / composition ] (circle one).
- 7. Weathering during transport will tend to do which of the following to clasts :

## [increase roundedness / increase sorting / increase clast size] (circle all that apply)

- 8. Pore space [ increases / decreases ] (circle one) during sedimentary lithification
- 9. [True or False] (circle one) Minerals have metallic lusters because they are made of metal.
- 10. [True or False] (circle one) In geology, the term "rock" is more loosely defined than the term "mineral."
- **11.** A rock formed when magma cools to form a glass is:

[ igneous / metamorphic / sedimentary ] (circle all that apply).

**12.** What is one reason why crystal symmetry form is not usually useful in identifying a mineral that is part of rock.

13. What two processes generally occur during lithification of sedimentary rocks?

**14.** On Moh's Hardness Scale, quartz has a hardness of 7 and corundum has a hardness of 9. How could you confirm that a given specimen of corundum is indeed harder than a given specimen of quartz? Be specific in your answer.

**15.** Briefly explain one reason that the interior of the Earth is hot enough for magma to sometimes form in Earth's crust.

16. Define: mafic

**17.** Briefly explain one physical or chemical difference between sedimentary clasts deposited in a proximal environment versus a distal environment. Make sure your answer is clear.

**18.** Name any two <u>common</u> rock forming minerals.

19. What chemical weathering process is responsible for breaking down most of Earth's rock forming minerals?

20. A metamorphic rock composed entirely of quartz is called what?

21. What is the main difference between plutonic rock forming environments and volcanic rock forming environments?

22. Obsidian generally contains no minerals. Why not?

23. Batholiths, sills and dikes are all examples of what kind of geologic feature?

24. What information can you infer from the *texture* of an igneous rock?

25. Which type of sedimentary rock is particularly susceptible to dissolution by acid rainwater?

Please answer the following questions (5 points each, unless otherwise indicated).

1. List the 8 most abundant elements in Earth's crust on the eight lines below. You may use the chemical abbreviations or the full spellings of the element names, but whichever you use, spelling counts 100%.

2. Starting with a metamorphic rock exposed on the surface of the Earth, list and briefly describe the processes that are <u>absolutely necessary</u> to convert the material in the metamorphic rock into a clastic sedimentary rock.

**3.** List the five characteristics a material must possess to be considered a mineral:

A.

Β.

C.

D.

Ε.

4. 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."