

CE 20500 - Engineering Geology
Pop Quiz 4
February 9, 2012

NAME: _____ Simply The Best _____

Short Definition-type questions:

1- Define a *rhyolite*?

Extrusive, volcanic rock that is characterized by SiO_2 wt% of >65 wt% and contains an aphanitic texture.

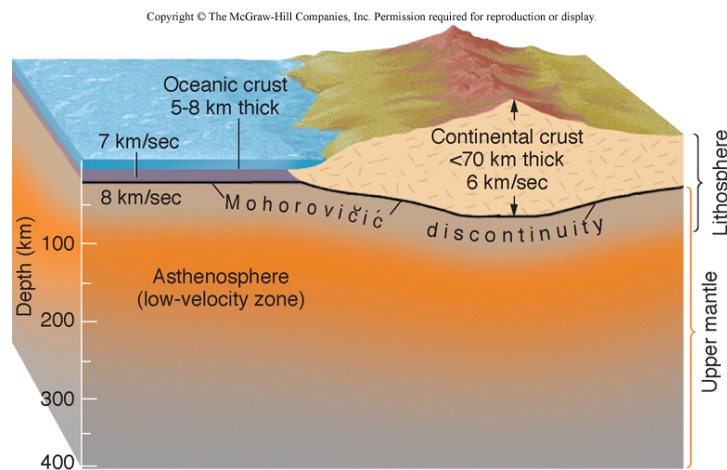
2- Why is the conversion of anhydrite to gypsum and vice versa a concern for structural and geotechnical engineers?

Dehydration (loss of water molecule in crystal structure) in Gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) converts it to Anhydrite (CaSO_4), and is associated with a volume reduction in soil/rock; the reverse reaction is accompanied by an increase in volume (expansion). These volume changes can have disastrous effects on foundations.

3- What common characteristics do the terrestrial (“inner”) planets of our solar system contain?

High density, small in size (compared to the outer planets), and are composed mainly of Si, O, Fe, Mg.

4- Provide a schematic illustration of Earth’s upper mantle?



5- What does the volcanic activity at both Hawaii and Iceland have in common? What is different?

Both are basaltic shield volcanoes that are related to plume magmatism. However, the Iceland plume impinges on a mid-ocean ridge spreading center.