

GLY1000 Exam 2 (Chapter 5-9)

In Class Review Fall 2011- Dudley

This Study Guide Does not guarantee a Passing Grade on this Exam; I believe that all the information is correct however, I am not responsible if any it turns out to be false is . Good luck.

i-clicker questions

1. The chemical formula for Quartz is SiO_2 . This means that if you analyze a piece of Quartz you will find that...
 - a. The Piece Contains one Silica atom for every two oxygen atoms
2. When we say a material is "Crystalline" we mean that internally atoms are distributed in an orderly and repeating arrangement? True or False?
 - a. True
3. The fundamental unit or the most common mineral class on Earth is.....
 - a. Silicon Oxygen Tetrahedron
4. What is the difference between magma and lava?
 - a. Location, the former is molten rock underground whereas the latter is molten rock at the earth's surface
5. In which of the following tectonic settings does magma form primarily as a consequence of addition of volatiles...
 - a. Convergent Plate boundaries
6. What is the difference between soil and sediment?
 - a. The former has been modified by leaching on an accumulation of ions and may contain organic matter which the latter may not
7. Which of the following processes are considered to contribute to lithification?
 - a. Compaction and Consolidation (removal of water and air between grains)
 - b. Cementation by minerals precipitated from ground water
8. Biochemical limestone can consist of coral mounds and/or calcite shell fragments. True/False?
 - a. True
9. Which of the following phrases correctly completes the following sentence? During metamorphism, _____.
 - a. A protolith undergoes change in the solid state
10. What is the difference between foliated and non-foliated metamorphic rock?
 - a. The former display preferred orientation and/or compositional bonding. Whereas the latter do not.
11. A large cone-shaped volcano consisting of alternating layers of ash and lava is an
 - a. Strata volcano or composite Volcano

In-class Review Session

Minerals- naturally occurring solid, formed by geologic process, that has crystalline structure and definable chemical composition

Properties that make up a Mineral:

- Naturally Occurring
- Solid
- Formed by Geological Process
- Definable Chemical Composition
- Orderly arrangement of atoms
- Mostly Inorganic

Why is glass not a mineral?

- To be a mineral it must have a specifically ordered crystalline structure and glass does not.

Polymorphs- minerals that have the composition but different crystal structure. (Meaning, same chemicals make up the mineral but they are arranged differently)

Physical Properties used to ID Minerals:

- Color
- Streak
 - Congruent Streak- Color same as mineral
 - Incongruent Streak- Color different from mineral
- Luster
 - Metallic- Looks like metal
 - Non-Metallic
- Hardness
 - Scratch resistance of mineral
- Specific Gravity
 - Heft, how heavy the mineral feels
- Crystal Habit
 - Shape crystal forms
- Fracture
 - Sharp Edges in all directions
- Cleavage

- Flat, shiny surfaces described by number of planes and angles, 1, 2, 3, 4, 6, are possible.

What is the principle anionic group | most familiar silicate minerals?

- Principle Ionic Group

On what basis are silicate minerals further divided into distinct groups?

- They are distinguished from each other by the way in which the silicon-oxygen tetrahedral that constitute them are linked
- *Most common, Silicon-Oxygen Tetrahedron

Igneous Rock- Made by the freezing of a melt (meaning Lava has cooled and frozen)

*Earth is mostly Igneous Rock

Intrusive Igneous Rock- Cool Slowly underground

Extrusive Igneous Rock- Cool quickly at the surface

Magma Formation- Partial melting in Crust/upper mantle.

-Melting from:

- Pressure Release
- Volatile addition
- Heat Transfer

Magma Composition

Type	Density	Temp	Viscosity
Felsic	Very low	Very low	Very high, Explosive Eruptions
Intermediate	low	low	High, Explosive Eruptions
Mafic	high	high	Low, thin, hot runny Explosions
Ultramafic	Very high	Very high	Very Low

Properties of Rocks Change based on environment cooled in.

Freeze Fast on surface = fine grained

Cools intrusively = larger grained