G202 Quiz 1 Study Guide

Recommended Study Techniques

(1) go over pre-lab questions / study them
(2) review the "How to Study" sheet handed out at beginning of term
(3) use the concepts below as a guide to help you focus on your notes
(4) memorize terms and concepts
(5) go over your on-line homework questions / answers, make sure you know the answers
(6) go back over the labs and make sure you can do the tricks / skills
(7) review some of the important figures in your lab manual and text
(8) go to the lab and look at the lab answer keys, minerals and rocks, work with the samples in lab
~~(9) review the techniques for working with maps / air photos~~
(10) change your socks and drink plenty of water
(11) avoid acoholic beverages / parties the night before the quiz
(12) clean your room....

NOTE: I would spend a minimum of 4-5 hours studying for this quiz if I wanted to do well.

Part 1. Lecture Concepts

Key Words

Environmental Spheres
Lithosphere
Biosphere
Hydrosphere
Age of the Earth
Ultimate Driving Forces
- Climate
- Gravity
- Tectonics

Crustal Composition
Core
Mantle
Crust
Oceanic Crust
Continental Crust
Asthenosphere
Lithosphere
"Plates"
Scientific Method
Hypothesis
Experimental Design
Unit Algebra
Unit Conversion
Graphing
Equation of Line
Slope of Line
y=mx + B

map view
cross-section view
3-D view
metric / English units
mass
temperature
density
rock
mineral
element
compound
atom
nucleus
electron
proton
neutron
mineral properties
crystal form
luster
color
streak
hardness
cleavage
fracture
specific gravity
rock forming minerals
silicates

carbonates
oxides
sulfates
halides
rock cycle
igneous
metamorphic
sedimentary
magma / lava
fast-cooling lava
slow-cooling magma
two-phase cooling
extrusive / lava
intrusive / magma
weathering
sediment
sediment transport
sediment burial
lithification
fossil
metamorphic
foliation
non-foliated
heat-pressure-chemical
granite
basalt
obsidean

- sandstone
- shale
- limestone
- siltstone
- gneiss
- slate
- marble
- quartz
- feldspar
- muscovite
- biotite
- Plate Tectonics
- Continental Drift
- Plate Boundaries
  - Convergent
  - Divergent
  - Transform
- Spreading Center
- Subduction Zone
- Volcanic Arc
- Mountain Building
- Weathering
- Erosion
- Sediment
- Agents of Transport
  - Wind
  - Water
  - Ice
  - Gravity
- Physical Weathering
  - rk fragmentation
  - frost wedging
  - unloading/release
  - Thermal Expansion
  - Root Wedging
  - Animal Burrowing
- Chemical Weathering
  - carbon dioxide
  - carbonic acid
  - water
- Clay (size / mineral)
- weathering
- sediment
- erosion
- lithification
  - compaction
  - cementation
- Sed. Rock types
  - Detrital
  - Biochemical
  - chemical
- sediment size fractions
  - gravel
  - sand
  - silt
  - clay
- grain shape
- grain sorting
- rock types
  - sandstone
  - conglomerate
  - shale
  - limestone
  - evaporites
- crystalline vs. microcrystalline
- coal
- clastc / nonclastic
- marine
- nonmarine
- fluvial
- lacustrine
- glacial
- sedimentary structures
- methods of transport
  - bedload
  - suspension
  - dissolved load
- cross-stratification
- graded bedding
- reverse grading
- normal grading
- asymmetric ripples
- symmetric ripples
- flute casts
- cast vs. mold
- mudcracks
- raindrop imprints
- Sedimentary Environments
  - river
  - tidal flat
  - lake
  - estuary
  - beach
  - shelf
  - reef
  - deep ocean

Questions for Thought

How do the three ultimate driving forces relate to anything that we've covered since the beginning of the term?

What is the elemental composition of the Earth's crust? atmopshere?

What is the difference between a rock and mineral? Can you sketch the rock cycle yet?

What is the controlling factor of mineral properties? Why are they different?

What is the crust anyhow? Can you draw a diagram of the interior of the Earth (core, mantle, asthenosphere, crust)?

What factors influence how fast a rock will weather? Do all rocks weather at the same rate?

What is the difference between weathering and erosion?

What are the two meanings of the word "clay"?

What do rocks inherently decompose? Why are clay minerals stable at the Earth's surface?

What is the sedimentary process from start to finish?

How does transport energy relate to grain size of deposits? (e.g. would you find boulders in the deep ocean?)

What are the basic marine and nonmarine sedimentary environments?

What are sedimentary structures and how are they used to reconstruct sedimentary environments?

What type of environment do the various sed. rock types form? e.g. sandstone, conglomerate, evaporites, coal, mudcracks, limestone, etc. where would these rocks form at the earth's surface?

2. Lab Skills to Work On

Applying the scientific method
basic metric / english unit conversion
graphing
drawing sketch maps and cross-sections
Identifying basic mineral properties
- which minerals / rocks fizz?
- metallic vs. nonmetallic
- light vs. dark colored
- 1 or 3 directions of cleavage

can you do a basic mineral hardness test?
Could you identify an igneous, sedimentary vs. metamorphic rock?
what about the three diff. types of sed. rocks?
Can you estimate: grainsize? sorting? grading? angularity?
What about basic paleocurrent directions? How can you tell which way the fluid was moving when the sediment was deposited?
What about recognizing some basic sedimentary structures?
Associating a specific rock type to a possible sedimentary environment?