

GEOLOGY 111
EXAM II
STUDY QUESTIONS
Covers lectures and readings from Oct 10 - Nov 9

What is physical weathering? Chemical weathering? Hydrolysis?

What happens to iron as mafic silicate minerals weather?

What are the final end products of the complete weathering of all silicate minerals?

What are the three types of clastic sedimentary particles? They are defined by grain size, but do they have characteristic grain shapes as well? How do their grain shapes affect their transport, sorting and deposition?

What is traction and which sedimentary particles are transported in this way? Saltation? Suspension?

What is the importance of the cohesive character of clay to the erosion of mud deposits?

Which are the extrabasinal sedimentary rocks and which are the intrabasinal? What does it mean to be intrabasinal?

How does water, as an agent of transportation, sort sediments into separate mud deposits and sand deposits?

What are the similarities and differences between alluvial and deltaic sedimentary deposition? How might rocks from alluvial and deltaic environments differ?

How do continental shelves build up tabular layers of sediment? How do deltas build up tabular, continuous layers of sediment?

What is regression? Transgression? What makes sea level rise and fall?

What characteristic sequence of sedimentary rocks is associated with sea level rise and why?

What is a joint? How do they arise?

What is relative dating and what are the principals (e.g. the Law of Superposition) on which it is based?

How can a structure such as a fault be dated relatively?

What are three methods of getting absolute ages for rocks? (each can be found on the Geologic Time Scale).

What is the scientific basis of each? What are the limitations of each?

Name the periods of the Geologic Time Scale. When did life appear? How old is the earth and how do we know that? How is the time scale subdivided? When was the end of the Mesozoic?

Name three minerals that contain unstable, radioactive elements and that are useful for isotopic dating of rocks. What radioactive elements are in each mineral? What are you dating when you date each mineral?

What is a normal fault? reverse fault? thrust fault? strike-slip fault? How can you tell one from the other?

How can you recognize the occurrence of a fault in the field? How can you determine the nature of offset on a fault once you find it?

What is an anticline and what is a syncline? How can you tell one from the other? How can you tell if they plunge and what way they plunge?

Which structures accomplish extension of the crust? Which accomplish shortening and thickening?

Name someplace in the US where you could go to see each of these types of structures.

What conditions produce metamorphism?

What is metamorphism and what kind of changes occur to a rock during metamorphism? Are these changes linked or independent? Can you explain your answer? What does it mean to be high or low grade?

What is devolatilization and how and when does it occur in minerals?

Metamorphism occurs over a broad pressure and temperature range. How can we determine the pressure and temperature at which a rock metamorphosed?

Where/How are rocks metamorphosed by high temperatures and low pressures? by high pressures and low temperatures? by high pressures and temperatures?

What is contact metamorphism and how can it be distinguished from regional metamorphism?

The origin of granites is linked to the development of metamorphism in orogenic belts. How?

What is a metamorphic facies? an index mineral? an isograd?