

GEOLOGY 11
EXAM II - STUDY QUESTIONS

What's in a magma?

Name and define three different types of intrusive igneous bodies.

Why do different magmas have different viscosities? Which have high viscosities? What are shield and strato-volcanoes and how do they differ? Why do some eruptions produce shield volcanoes and others strato-volcanoes? Why do some volcanoes explode? Which are more likely to and why?

How can you get a felsic melt from a mafic parent rock? How can you get a mafic rock from a felsic melt?

What is the difference in the solidus for a wet versus dry magma? Which is more likely to be dry, a mantle rock or a crustal rock? Why do some rocks melt on decompression and others when buried? What is "decompression melting", anyway?

Why are basalts and granites common, and gabbros and rhyolites rare?

What is the most abundant volcanism on earth?

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 on which it is based? (e.g. What is the Law of Superposition?)

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

What are two methods of dating rocks? (each can be found on the Geologic Time Scale).
What is the scientific basis of each? What are the limitations of each?

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

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

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

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?