Geology 171 – Earth Science

Exam 2 study guide

You should do fine on Exam 2 if you study factual information on the following:

- Conditions leading to the formation of exfoliation domes.
- Where (on Earth) would frost wedging be most efficient.
- Products (i.e. what’s left over) of dissolution of calcite, hydrolysis of K-feldspar, and oxidation of pyrite.
- The two climatic controls on chemical weathering.
- Relative solubilities of halite, calcite, gypsum & silicate minerals (e.g. quartz).
- What controls the variation in weathering rates for silicate minerals.
- Classification and origin of sedimentary rock types.
- Modern day examples of depositional environments and the sedimentary rocks likely to form.
- Energy of sedimentary environments and the rocks likely to form.
- Three ways that sediment is held together to make sedimentary rocks (and an example of each).
- Role of latitude in modern limestone formation and modern evaporite formation.
- Major principles used in relative age dating of rocks (what each one means and how they’re applied).
- Understanding geologic age relations for a given set of rock exposures (see handouts).
- What is an unconformity.
- Facts about the two common ways that unstable (parent) elements decay (alpha decay; beta decay).
- How radiometric dating works (parent / daughter ratio; half lives, etc) with an example.
- Facts about Radon gas and the rock types that yield the most.
- Specific reasons why zircon is such an ideal mineral for radiometric dating.
- What “correlation” means.
- How bentonites can be used to determine when species of organisms lived.
- What characteristics make a good index fossil.
- The geologic time scale including Eons & Eras (you don’t need to know the order of the Periods).
- Major events on Earth (oldest rocks, fossilizable hard parts, mass extinctions, earliest hominids).
- Five lines of evidence for an extraterrestrial cause of dinosaur extinction.
- Frequency of globally catastrophic meteorites.
- The plate tectonic setting for regional metamorphism.
- What minerals define a foliation and the pressure conditions underwhich it forms.
- The principal metamorphic rock types.