

Review Topics for Final Exam

Multiple Choice Questions from Exams 1 and 2.

**Chapter 11: Groundwater**

- Definition of aquifer, aquiclude; porosity, permeability. Know what materials make good aquifers and why? Aquifer types (unconfined, confined, artesian, perched).
- Definition of the water table; understanding of how groundwater flows; know Darcy's Law equation and the parameters that go into the equation.
- Groundwater environmental issues (excessive pumping, subsidence, salt-water intrusion, contamination).
- Understand how contaminants behave in aquifer systems depending on whether their soluble or insoluble.

**Chapter 12: Glaciers, Glacial Landscapes, and Ice Ages**

- Know the two basic types of glaciers: (1) valley (alpine) and (2) continental ice sheets.
- The basic climatic requirements for glacier formation; metamorphism of snow to glacial ice.
- Understand the simple model of glacier mass balance and climate change effects the mass balance. Definitions of accumulation zone, ablation zone, equilibrium line (or snowline).
- Understand how glaciers move, know typical velocity profiles through a glacier.
- Be prepared to define or describe erosional and depositional landscape features associated with both alpine and continental glaciation. Which depositional features are made of till? Which are made of outwash? How can you tell?
- When was the last Ice Age?
- Know the primary evidence for Ice Ages? Be familiar with the types of data collected from ice cores and their significance ( $\text{CO}_2$ ,  $^{18}\text{O}$ , dust from ice core data, marine fossils).
- Know the proposed causes of Ice Ages; including (1) orbital (astronomical) parameters, (2) changes in ocean circulation, (3) changes in atmospheric chemistry.
- Understand how tectonics processes may affect cause global climate.

**Chapter 14: Barrier Island Coastal Processes (study material relevant to only this topic)**

- Know what a barrier island system is and the names of some features (e.g. spit, inlet, flood and ebb tidal deltas, marsh, etc.)
- Know the processes that affect the transport and deposition of sand in barrier island systems (ie. seasonal wave energy, longshore currents, sea-level rise, etc.).
- Engineering techniques (both hard and soft) and the pros and cons of each.

**Final Exam Format:**

75% new material

25% old material (as 20 M/C questions from Exam 1 and 2 and 5 river features in the matching section)

40 Multiple choice questions

15 T/F questions

15 Matching (match a geological feature with its basic process of formation)

4 of 6 Short Answer