

Review Topics for Exam II

Chapter 6: Sediments and Sedimentary Processes

- The difference between clastic, biochemical, and chemical (inorganic) sediments. Know an example of a sedimentary rock derived from each.
- Physical processes that occur during transport of clastic sediment.
- Process of lithification; compaction, cementation.
- Sedimentary structures and their interpretation (ie. know how to interpret mud cracks or ripple marks in terms of the physical environment in which they formed).
- Concept of sedimentary environments and their use in interpreting earth history.

Chapter 7: Metamorphism

- Basic concept and causes of metamorphism; P-T conditions of metamorphism.
- The general idea on how metamorphic rocks acquire a "fabric" (e.g., slaty cleavage, gneissic layering).
- Know what contact and regional metamorphism are. Relation to tectonics.
- Concept of metamorphic grade and associated mineralogical changes. Definition of metamorphic zones and P-T index minerals. Which mineral makes a good index mineral for metamorphic P-T conditions? Why?
- Know basic P-T metamorphic gradients and where you would find them in relation to tectonics.

Chapter 9: Mass Wasting

- Basic types of mass wasting processes and how mass wasting events are classified.
- Be familiar with some common types of mass wasting and their approximate velocity.
- Force balance on a slope, factors that affect slope stability
- Know examples of human-induced and natural triggers and why they cause mass wasting
- Know various techniques to reduce mass wasting hazards

Chapter 10: Rivers and Flooding

- Basic concepts of hydrologic cycle, drainage basin, divide, longitudinal profile, drainage patterns and relation to underlying bedrock.
- Erosion and depositional processes and influential factors; transport processes and types of sediment load.
- Depositional features and channel types- meandering, braided, straight; know how a meandering channel forms; know why a braided channel forms.
- Alluvial fans and deltas- what are they and how and where do they form.
- Know the definition and equation for discharge.
- Floods; floodplain; formation of natural levees. Know what a flood hydrograph is and the comparison between rural and urbanized floods
- Flood analysis using flood frequency curves to estimate the size of future floods.

Chapter 15: Rock Deformation and Structures

- Know definitions and examples of brittle and ductile deformation.
- Be able to relate the three types of forces (e.g., tensional, compressional, shearing) with their corresponding plate tectonic environment in which they occur.
- Know the types of faults and their relation to tectonic forces. Given a block diagram of a fault, be able to name it (e.g., normal, reverse, etc.) and give the tectonic setting.
- Know how a thrust fault is defined, tectonic setting, and geologic significance.
- Know what type of deformation folds are (brittle or ductile?). What type of forces and tectonic setting.
- Fold anatomy (fold axis, axial plane, limbs) and basic idea of fold classification.
- Know how to recognize symmetrical, asymmetrical, overturned, and recumbent folds. Be able to interpret a picture or label a schematic drawing.