

Geology and the Environment Study Guide for Exam 2

Chapter 6: Soils, Weathering and Erosion

- 1) Types of Mechanical Weathering
 - a. Ice Wedging
 - b. Sheetting
 - c. Disintegration
- 2) Types of Chemical Weathering
 - a. Hydrolysis
 - b. Dissolution
 - c. Oxidation
- 3) Weathering Characteristics of Common Rocks
 - a. Granite
 - b. Basalt
 - c. Sandstone
 - d. Limestone
 - e. Shale
- 4) Geologic Features of Weathering
 - a. Spheroidal Weathering
 - b. Cavernous Weathering
- 5) Soils
 - a. Typical Soil Profile including all horizon types
 - b. Residual, Transported, Volcanic and Loess Soils
- 6) Soil Classification based on climate type
 - a. Pedalfers
 - b. Laterites
 - c. Pedocals
 - d. Tundra Soils
- 7) Soil Erosion and Mitigation
- 8) Expansive Soils and Permafrost
- 9) Case Studies

Chapter 7: Mass Wasting and Subsidence

- 1) Types of Flows
 - a. Creep
 - b. Debris Flows
 - c. Debris Avalanche
- 2) Landslides that move as a Unit
 - a. Slumps
 - b. Block Glides, Block Slides or Translational Slides
 - c. Complex Landslides
- 3) Driving Forces and Resisting Forces of Slide Mechanics
- 4) Factors that lead to Landslides
- 5) Factors that reduce Slope Strength

Chapter 7: Mass Wasting and Subsidence (continued)

- 6) Control and Stabilization of Slopes
- 7) Subsidence and Mitigation
- 8) Case Studies

Chapter 8: Freshwater Resources

- 1) Freshwater Use
 - a. Instream Use
 - b. Offstream Use
 - c. Consumptive Use
 - d. Nonconsumptive Use
- 2) Types of Lakes
 - a. Freshwater
 - b. Salt Lake
 - c. Playa
- 3) Nourishment Classification of Lakes
 - a. Oligotrophic
 - b. Eutrophic
 - c. Mesotrophic
- 4) Water Tables and Terminology
 - a. Aquifers
 - b. Aquiclude
 - c. Perched Water Table
 - d. Unconfined Water Table
 - e. Confined and Artesian Wells
- 5) Gaining vs. Losing Streams
- 6) Groundwater Mining
- 7) Karst Terranes
- 8) Ground Water Pollution
- 9) Case Studies

Chapter 9: Hydrologic Hazards of the Earth's Surface

- 1) Factors Important in a River System
 - a. Velocity
 - b. Discharge
 - c. Cross-sectional Area
- 2) Alluvial Fans and Deltas
- 3) Factors Determining Flooding
- 4) Flood Types and Measurement
- 5) Flood Frequency and Recurrence Interval
- 6) Mitigation Options
- 7) Flood Facts and Flood Planning
- 8) Case Studies

Chapter 10: Coastal Environments and Humans

- 1) Corals and Bleaching
- 2) Wind Waves and their Parts
- 3) Tsunamis
- 4) Types of Beaches
- 5) Mitigation of Beach Erosion
- 6) Estuaries
 - a. Coastal Plain
 - b. Fjords
 - c. Fault-Block
 - d. Bar-Formed
- 7) Hurricanes and Coastal Flooding
- 8) ENSO and the Coastal Zone
- 9) Case Studies

I will ask you eight essay questions from this list of topics. You will be only required to answer five of those questions. There will also be a bonus question. The essay section of the test is worth 50 points. The multiple choice part of the exam is also worth 50 points.