

GEOL 1121 – Earth Materials, Processes and Environments

Review for Exam 2

The following is an attempt at a study guide for Exam 2.

Exam 2 – Chapters 5, 6 and 7

Vocabulary

Aa	Basalt plateau	Bed
Biochemical sedimentary rock	Caldera	Carbonate rock
Cementation	Chemical sedimentary rock	Chemical weathering
Cinder cone	Columnar jointing	Compaction
Composite volcano	cross-bedding	Depositional environment
Detrital sedimentary rock	Differential weathering	Dike
Erosion	Evaporite	Exfoliation dome
Extrusive	Facies	Fissure eruption
Fossil	Frost action	Graded bedding
Hydration	Hydrolysis	Lahar
Laterite	Lava	Lava dome
Lava flow	Lithification	Marine regression
Marine transgression	Mechanical weathering	Mud crack
Nuee ardente	Oxidation	Pahoehoe
Parent material	Pedalfer	Pedocal
Pillow lava	Pressure release	Pyroclastic sheet deposit
Regolith	Residual soils	Ripple mark
Salt crystal growth	Sediment	Sedimentary basin
Sedimentary structure	Shield volcano	Soil
Soil horizon	Solution	Spheroidal weathering
Strata	Talus	Thermal expansion
Transported soils	USDA 7th Approximation	VEI
Volcanic ash	Volcanic tremor	Volcano
Weathering		

Chapter 5 Vocabulary

Be able to define the following terms: aa, basalt plateau, caldera, cinder cone, columnar jointing, composite volcano, dike, extrusive, fissure eruption, lahar, lava, lava dome, lava flow, long period event, magma, nuee ardente, pahoehoe, pillow lava, pyroclastic sheet deposit, shield volcano, sill, VEI, volcanic ash, volcanic tremor, volcano

Chapter 5 Questions

1. Review the questions and answers for the "Mt. St. Helens" film.
2. List or describe the various solids, liquids and gases that come out of a volcanic vent.
3. Describe how each of the following form: shield volcanoes, composite volcanoes, cinder cones, and lava domes. Be sure to include a discussion of how the type of magma involved plays a role.
4. Give an example of a shield volcano.
5. Give an example of a composite volcano.
6. Suppose you find rock exposures on land made up of pillow lava overlain by deep sea sedimentary rocks. Where and how did the pillow lava form, and what type of rock would you expect to find beneath the pillow lava?
7. How do columnar joints form?

8. Basalt Plateaus and Pyroclastic Sheet Deposits are other types of volcanic landforms. What sorts of eruptions make these landforms, and how are these different from traditional volcanic eruptions?
9. Discuss the various volcanic hazards in terms of their potential short- and long-term impacts on humans.
10. What is a supervolcano? Give an example of one.
11. Discuss what is learned from a geologic investigation of a volcano.
12. What kinds of volcanic monitoring are done, and what do they tell us about the volcano that might make it possible to predict future eruptions?
13. In which regions of the world do most volcanic activity occur?
14. Give an example of a hot spot.

Chapter 6 Vocabulary

Be able to define the following terms: chemical weathering, differential weathering, erosion, exfoliation dome, frost action, hydration, hydrolysis, mechanical weathering, oxidation, parent material, pedalfers, pedocals, pressure release, regolith, residual soils, salt crystal growth, sheet joint, soil, soil horizon, solution, spheroidal weathering, talus, thermal expansion and contraction, transported soils, USDA 7th Approximation, weathering

Chapter 6 Questions

1. How is weathering different from erosion?
2. List or describe the main types of mechanical weathering.
3. List or describe the main types of chemical weathering.
4. How does mechanical weathering differ from and contribute to chemical weathering?
5. Discuss the factors that control the **rate of chemical weathering**.
6. Which minerals go readily into solution? Which mineral needs some acidity to go into solution?
7. Why are soils important?
8. Draw, label and describe the horizons found in a typical soil.
9. Soils can be residual or transported. How are transported and residual soils different? What types of soils form over various rock types in different climates? Why are there different transported soils?
10. Residual soils can be characterized as a Pedocal or Pedalfers. Under what climatic conditions does each form?
11. Under what conditions might a lateritic soil form?
12. Discuss the factors control the rate of soil development.
13. What is the relationship between climate and soil thickness?
14. What grain sizes are involved in the textural classification of soils?
15. List three resources that are a direct result of weathering.

Chapter 7 Vocabulary

Be able to define the following terms: bed, biochemical sedimentary rock, carbonate rock, cementation, chemical sedimentary rock, compaction, cross-bedding, depositional environment, detrital sedimentary rock, evaporite, fossil, graded bedding, lithification, marine regression, marine transgression, mud crack, ripple mark, rounding, sediment, sedimentary basin, sedimentary facies, sedimentary rock, sedimentary structure, sorting, strata, "way up" criteria, weathering

Chapter 7 Questions

1. Describe what happens to sediments as they are transported.
2. You should be able to name a particular sedimentary rock based upon a description.
3. What are carbonate rocks? Give an example.
4. Under what conditions are evaporites deposited, and what are the two most common types of evaporite rock?

5. Describe how deposits of mud and sand are lithified.
6. Compare the following sedimentary rocks to each other: a) quartz sandstone and arkose; b) coquina and oolitic limestone; c) conglomerate and breccia; d) rock salt and chert.
7. Out of sandstone, shale and limestone, which would be resistant to weathering in a humid climate? In an arid climate? Explain.
8. Review the handout on depositional environments. You should be able to match locations to sediment types found there, and eventual rock types.
9. What is a sedimentary facies?
10. What do vertical associations of particular sedimentary facies tell geologists about the rise or fall of sea level in the past?
11. Be able to describe/define the different types of sedimentary structures. Which types of these structures allow for the "way up" for bedding to be determined?
12. Describe the three parts of the petroleum system.
13. Describe the different mineral resources associated with sedimentary rocks, and be able to list examples of non-energy and energy-related sedimentary resources.
14. Answer question 10 on p.179.