

Review Questions for Environmental Geology, Exam 2

1. Review all the information in your notes and on the available Power Points, and review Chapters 5-10.
2. Be able to define the following terms (these should be in your text):
 - a) Chapter 5 – catastrophe, disaster preparedness, forecast, precursor, prediction, warning
 - b) Chapter 6 – channelization, discharge, drainage basin, flood, floodplain, levee, hydrograph, ratings curve, flood frequency curve, stage, recurrence interval
 - c) Chapter 7 – landslide, safety factor, subsidence
 - d) Chapter 8 – earthquake, liquefaction, magnitude, material amplification, Modified Mercalli Scale, dilatancy-diffusion model, focus, tsunami, fault zone, fault segmentation, active fault
 - e) Chapter 9 – ash fall, ash flow, caldera eruption, lateral blast, lava, pyroclastic activity, volcanic dome, composite volcano, shield volcano, cinder cone, lahar, magma,
 - f) Chapter 10 – beach, beach budget, beach nourishment, breakwater, groins, jetties, longshore current, rip current, seawall, storm surge, hurricane
3. Be able to provide answers to the questions from Assignment #2.
4. Be able to answer the following questions:
5. What is involved in the evaluation of a hazard?
6. Review carefully Figure 5.12 on p.125. Where do geologists contribute to the illustrated process?
7. Review carefully Figure 5.13 on p. 127. Be able to evaluate a recovery based upon this diagram.
8. How is the discharge of a stream calculated?
9. How are flood frequency curves constructed? What types of data are used?
10. What are some things that are done to reduce flood hazards?
11. What is the effect of urbanization on flooding?
12. What are the factors that cause flood damage?
13. What are some adjustments people make to flooding?
14. Review carefully Figure 7.3 on p.176. You should be able to describe the different types of mass movements.
15. Describe the six factors that contribute to slope stability.
16. What is the safety factor and how is it calculated? In what range of the safety factor is a slope stable?
17. Describe the Vaiont Dam disaster.
18. How do we minimize the landslide hazard?
19. How is subsidence created?
20. What can be done to minimize landslide hazards?
21. What is an earthquake segment?
22. What are the three main types of faults? Be able to describe/illustrate them.
23. How do Richter-style earthquake magnitude scales work?
24. What are the different types of seismic waves generated by an earthquake? Describe each of their motions.
25. What is a seismograph and how does it work?
26. Which earthquake magnitude scale is the best for determining the true size of an earthquake? How is it different from the other scales?
27. What factors determine the Intensity of an earthquake?
28. What are the stages of the earthquake cycle?
29. What are the effects of earthquakes?
30. How do earthquakes cause tsunami?
31. Are there reliable earthquake warning systems? Why or why not?
32. How can earthquake hazard be reduced?
33. What parts of the United States have the greatest earthquake hazard? Volcanic hazard? Why do these seem to coincide in some areas?
34. Describe the different types of volcanic hazard.

35. How are the eruptions of Mt. St. Helens, Mt. Pinatubo and Mt. Unzen similar? Different?
36. Describe the data types used to forecast volcanic eruptions.
37. What is an "A-type" signal?
38. What is harmonic tremor or a "B-type" earthquake signal? What type of volcano is it associated with? How is it useful in predicting eruptions?
39. Why do people live near volcanoes?
40. Be able to draw an idealized wave and label wave height, wavelength, crest, trough and period.
41. Describe the motion of the water particles involved in a wave. How does the motion change with depth?
42. What happens to a wave as it approaches the shore.
43. Describe how the beach budget works.
44. What is the most important factor in the total energy carried by a water wave?
45. Describe the different types of hard and soft stabilization of the shoreline.
46. Why was hurricane Katrina so devastating (see p. 311).
47. What effects do hurricanes have on the coast?
48. Where are hurricanes most likely to affect the U. S. coastline?
49. What kind of adjustments are made to coastal hazards?