

# ESC 115 Physical Geology

## Test 3

Fall, 2016

The first 18 questions refer to the slides we will view together in class. Please use the space provided to answer the questions.

1. **(8 pts)** (a) What is risk? Give the definition we've been using in class. (b) What are two ways of determining the probability of a hazardous event? Explain each with an example of their use.

(a)

(b)

2. **(6 pts)** We discussed three ways of making decisions about reducing risk, such as in deciding whether or not to require car seats for children. On field trips with students, we have often gone white-water rafting. In recent years, we have been required to wear helmets. For each of the three ways discussed in class, explain how you would decide whether wearing helmets while white-water rafting *should* be required. **Extra credit:** Why do you think they now *are* required?

3. **(3 pts)** Explain how the P and S waves shown in Figure A can be used to locate the epicenter of an earthquake. Explain how.

4. **(4 pts)** A, B, and C each mark a plate boundary. At which location is an earthquake most likely to generate a tsunami? \_\_\_\_  
Explain. (A sketch is fine.).

5. **(3 pts)** What kind of volcanic landform is the lava shown likely to produce? Why?
6. **(3 pts)** In what geologic setting is the type of volcanic landform shown likely to be found? Explain how it forms.
7. **(3 pts)** In what geologic setting is the type of volcanic landform shown likely to be found? Explain how it forms.
8. **(3 pts)** Shown is the motion of a wave's passage in open ocean. Explain how this leads to it breaking upon the beach.
9. **(3 pts)** What is the process shown? Why is it important for understanding how beaches change?
10. **(3 pts)** Explain the difference between relative and absolute sea level. What is the most important factor in changing absolute sea level?
11. **(5 pts)** What are the three most important factors causing ice ages? What are the two main kinds of glaciers?
12. **(4 pts)** What is an estuary? Why is it particularly rich biologically? (Explain. Don't just list the three items every organism needs to do.)
13. **(3 pts)** What are three ways sediment is transported by streams, two of which are shown? Explain each.
14. **(4 pts)** What is urbanization? What are three ways it affects flooding?

15. (4 pts) Which of the figures (A or B) is a braided stream? \_\_\_\_\_

Which is shown in the lower portion of the figure? \_\_\_\_\_

Under what conditions does a braided stream likely form? Give an example.

16. (3 pts) What is a drainage divide? What is a drainage basin? Explain the purple area labelled *Interior Drainage*.

17. (3 pts) What were three factors contributing to the 1993 Mississippi River flood?

18. (6 pts) What are three videos or stories that were part of this section? Explain how each relates to geology. You need to provide at least **two sentences** per example. **Extra credit:** Name and explain a 4th story.

19. (3 pts) What is beach nourishment? (And don't put shrimp or a Corona!) What are a benefit and a potential problem?

20. (3 pts) If you were in charge of protecting a coastal town in the eastern side of a Hawaiian island from a tsunami, what would be your plan? Include at least 3 steps.

21. **(5 pts)** What is a sharecropper? How was the sharecropping system often abused? Most sharecroppers were African-American. How were they treated differently from white during the flood? What happened to many of the sharecroppers after the 1927 flood was over? How did this influence national politics?
22. **(5 pts)** Describe five ways a stream changes from headwaters to mouth in terms of discharge, velocity, sediment load, channel shape, or sediment size.
23. **(3 pts)** What are three lessons that past earthquakes can teach us in order to improve future success in surviving them?
24. **(5 pts)** What is a delta? Think of two reasons why many early great civilizations developed on deltas (Nile, Mesopotamia, etc.). Explain.
25. **(5 pts)** What is one question you reviewed for this test that did not appear on it? Answer it.