# ESC 115 Physical Geology

## Fall, 2016

## Test 2

The first 12 questions refer to the slides we will view together in class. Please use the space provided to answer the questions.

1. **(6 pts)** Complete the igneous chart shown with the corresponding rock name.

2. **(8 pts)** Identify four types of evidence for plate tectonics and explain each as to how it supports plate tectonics.

3. **(6 pts)** Each of the circled mountain ranges formed in a different way. Explain each.

4. **(6 pts)** What are the three primary geologic locations at which volcanoes form? What are three precursor events to a volcanic eruption? **Extra credit:** What is a precursor event for another natural hazard?

5. **(4 pts)** On the figure shown are three variables—temperature, pressure and wet/dry status. Explain how to interpret this diagram at point E and how that is relevant at subduction zones.

6. **(2 pts)** Explain how the figure shown is relevant to the opening of the Gulf of Mexico.

7. **(2 pts)** Where are the youngest mountains forming in the contiguous U.S.A.? Where are the oldest rocks at the surface?

8. **(2 pts)** How does the east coast differ geologically from the west coast? What is the main factor causing coastlines to differ from north to south?

9. **(3 pts)** Describe or sketch how the feature shown formed.

10. **(3 pts)** Describe or sketch how the feature shown formed.

11. **(3 pts)** Describe or sketch how the feature shown formed.

12. **(7 pts)** Harry Hess and Alfred Wegner each contributed key ideas that led to plate tectonic theory. a) Explain Wegner's key idea and what led to it. Why was it rejected initially? b) Explain Hess's two key ideas and what led to each.

13. **(6 pts)** Describe briefly three of the videos or stories from this section. To receive full credit, you must link them to geology.

14. **(4 pts)** We've discussed two prominent examples of hotspots in the U.S.A. Tell how they are similar and how they are different.

15. **(4 pts)** Based on the chart in question 1, what type of rock is likely to form

    (a) at an eruption at a mid-oceanic spreading center.: _____

    (b) at an eruption at Yellowstone: _____

    (c) deep beneath the Andes: _____

    (d) deep inside a continent: _____

16. **(2 pts)** The Earth is 4.6 billion years old. Why hasn't it already cooled off?

17. **(6 pts)** Sketch and label an oceanic-continental plate collision.

18. **(2 pts)** What is the impact of cooling rate upon texture (crystal size) of igneous rocks? Explain in terms of the table from Question 1.

19. **(12 pts)** Give an example of a plate tectonic setting at which each of the following rock types would form. Explain the process enough to show you understand it. For each, give a specific location, such as an National Park or mountain range, where you might encounter these rocks.

    (a) igneous:

    (b) sedimentary:

    (c) metamorphic:

20. **(4 pts)** What is the connection between geology and jazz? (1 point for each item.)

21. **(2 pts)** Think of one of your favorite natural areas for vacationing or getting away. How does geology relate to its features?

22. **(1 pt)** Explain one of these terms: orogeny, accretion, guyot, or craton.

23. **(5 pts)** Think of one of the review questions that you prepared for this test that has not been asked. Answer it here.