

ESC 115 Physical Geology

Test 4

Fall, 2012

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

1. **(3 pts)** What was the Great American Desert? How is the picture shown an important part of changing it?
2. **(4 pts)** The slide shown attempts to demonstrate porosity. What is the difference between porosity and permeability?
3. **(3 pts)** What was the Overland Trail? Why was it historically important?
4. **(6 pts)** Explain how deserts A, B, and C formed.
5. **(4 pts)** The figure shown highlights warm ocean temperatures in red and cold in blue? How does this effect rainfall patterns? What is El Niño?

6. (5 pts) What is chemical weathering? What is physical (mechanical) weathering? Give an example for each. Which is shown in the figure? **Extra credit:** Name up to three of the cave formations shown.
7. (6 pts) Explain the process by which petroleum forms. Give at least four steps. How does it differ from the formation of coal? How is it similar?
8. (5 pts) The table shows the top sources of crude oil imported into the U.S. Pick any five and explain why they are a major source for the U.S.
9. (3 pts) How do springs form?
10. (5 pts) Sketch and label a rainshadow desert. Explain how it forms. Include features from the hydrologic cycle.
11. (3 pts) This morning gas prices for the cheapest grade were \$3.19 at the station near my house. In September, the average price nationally was \$3.85. In 2009 in September, the average price was \$2.56. Give three reasons for these price changes.

12. (6 pts) What is the most significant process in soil formation in a humid climate, such as is shown on the slide? How would it be different in a desert? How would it be different in a rain forest?
13. (4 pts) What is the difference between renewable and non-renewable energy? Give an example of each.
14. (4 pts) Give two points of controversy over global warming. Explain how the greenhouse effect works. You may draw a sketch if desired.
15. (4 pts) Pick a natural resource, such as the water behind a dam. Name four sets of competing users for that resource. How would each want the resource to be managed?
16. (4 pts) What are the two most effective ways to slow population growth?
17. (4 pts) How did the extermination of Haiti's pigs relate to deforestation and soil loss?

18. (6 pts) Sketch a confined aquifer, such as the Bighorn Basin, labelling the recharge and discharge areas, confining layer, and direction of flow. Why is Thermopolis Hot Spring hot?
19. (4 pts) Of the videos we've seen during this section of the class, pick two and briefly explain the main idea.
20. (6 pts) Sketch an unconfined aquifer, such as at my home in Walnut Cove, NC, labelling the recharge and discharge areas, water table, probable spring location, and direction of flow.
21. (5 pts) What was a review question that you prepared for but was not asked. Answer it.
22. (6 pts) What are three ways you think this course could be improved?