ESC 115 Physical Geology

Test 4

Fall, 2016

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**) What is a) porosity b) permeability c) recharge?

2. (**3 pts**) What is the relationship between the figure shown and the *Great American Desert*? How was it transformed into part of the *Bread Basket of the World*? Explain.

3. (**3 pts**) What is a spring? What makes some springs hot?

4. (**3 pts**) Why do most of the world's caves form in limestone? Explain how they form. **Extra credit:** Name two of the cave formations shown.

5. (**4 pts**) Explain how both coal and petroleum form, giving three similarities and one difference.

6. (**6 pts**) This morning gas prices for the cheapest grade were $2.09 at the station near my house. In the fall of 2013, the price was $3.54. In September, 2012, the average price nationally was $3.85. In the fall of 2014, the price dropped to $1.49. What are three factors affecting oil prices? Explain each, giving specific examples.

7. (**4 pts**) What are two major factors in determining where we get out oil? Give an example of each using examples from the list shown.

8. (**6 pts**) Shown is global average temperature since 1865. What are three patterns with global temperature?

9. (**5 pts**) Shown is an explanation of the greenhouse effect. What are three important gases that cause this effect? Explain how at least one of them has been increased in the atmosphere by human activity.

10. (**3 pts**) Shown are three deserts, marked A, B, and C. Explain how each formed. **Extra credit:** Name deserts A and C.

11. (**4 pts**) Shown is a marker for the Overland Trail outside Laramie, Wyoming. Pick two features of the landscape or history and explain them.

12. (**6 pts**) Pick any three videos or stories and explain how they relate to geology, using at least two sentences each.

13. (**6 pts**) (a) What is karst? Name at least two characteristics. (b) What are the two main types of weathering? Give an example for each.

14. (**4 pts**) What are the two most effective ways of slowing population growth? Explain each.

15. (**2 pts**) What is subsidence? What causes it?

16. (**5 pts**) (a) How would a soil in a desert climate differ from that in Iowa? (b) How would a soil in a tropical rainforest differ from that in Iowa? (c) Draw a typical soil profile in Iowa. What is the most important factor in its formation?

17. (**5 pts**) What is the difference between renewable and non-renewable energy? Give two examples of each.

18. (**8 pts**) Pick an issue related to your own career that is impacted by multiple competing users, such as the example we used in class of managing water behind a dam. Name four sets of those competing users. How would each want the issue dealt with?

19. (**4 pts**) Sketch a confined aquifer, such as the Bighorn Basin, labelling the recharge and discharge areas, confining layer, and direction of flow.

20. (**5 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. (**3 pts**) What are three ways you think this course could be improved?