ESC 115 Physical Geology

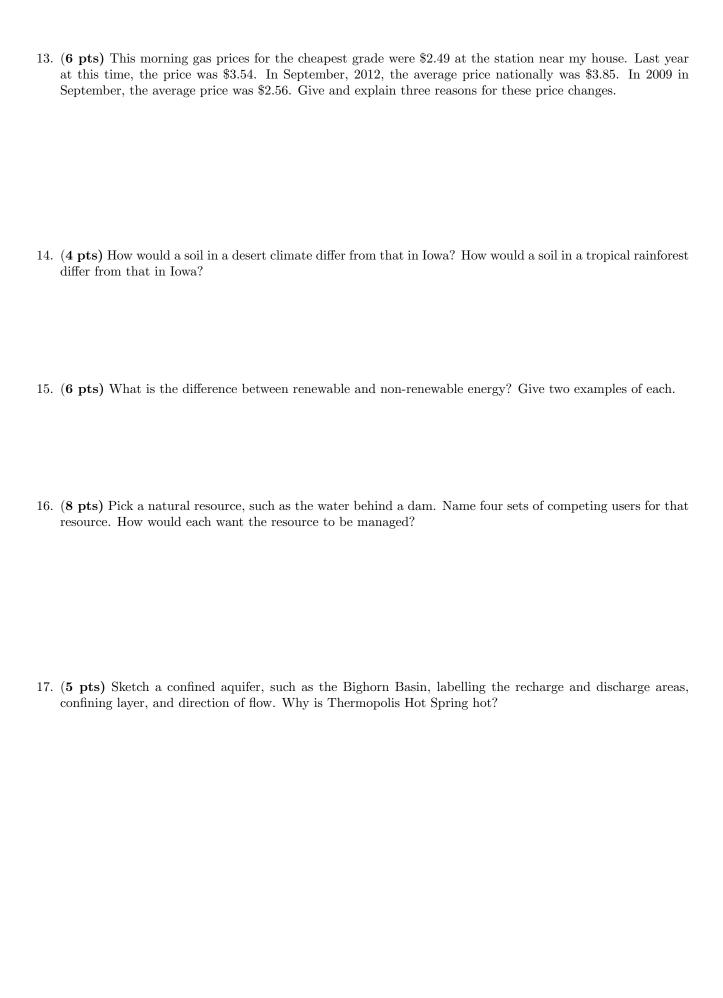## Test 4

Fall, 2014

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

1. (**5 pts**) Is the aquifer shown confined or unconfined? What is porosity? What is permeability?

2. (**2 pts**) What are the red dots shown? How did they form?

3. (**4 pts**) What was the *Great American Desert*? How did the Ogallala Aquifer effect it?

4. (**3 pts**) What is a spring? Give an example of how one might form.

5. (**2 pts**) How do caves form? **Extra credit:** What is the name of two of the cave formations shown.

6. (**5 pts**) i) What is karst? ii) What are the two main types of weathering? Give an example for each.

7. (**5 pts**) Shown are countries from which the U.S. imports oil. Pick five and explain why they are major suppliers for the U.S.

8. (**6 pts**) i) Explain at least 4 steps in the process by which petroleum forms. ii) Explain which is a common factor in petroleum and coal formation. iii) What is a difference between the formation of petroleum and coal.

9. (**5 pts**) What are the three most significant greenhouse gases? Explain two points of controversy over global warming.

10. (**6 pts**) Explain how the desert circled formed. Pick two other ways that deserts form and explain them.

11. (**6 pts**) Pick any three videos or stories and explain how they relate to geology, using at least two sentences each.

12. (**3 pts**) What is subsidence? What causes it? What is a sinkhole?

13. (**6 pts**) This morning gas prices for the cheapest grade were $2.49 at the station near my house. Last year at this time, the price was $3.54. In September, 2012, the average price nationally was $3.85. In 2009 in September, the average price was $2.56. Give and explain three reasons for these price changes.

14. (**4 pts**) How would a soil in a desert climate differ from that in Iowa? How would a soil in a tropical rainforest differ from that in Iowa?

15. (**6 pts**) What is the difference between renewable and non-renewable energy? Give two examples of each.

16. (**8 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?

17. (**5 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?

18. (**4 pts**)What are two ways that natural resource use relates to population growth? What are the two most effective ways to slow human population growth?

19. (**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.

20. (**5 pts**) What was a review question that you prepared for but was not asked. Answer it.

21. (**5 pts**) What are three ways you think this course could be improved?