

ESC 115 Physical Geology

Fall, 2014

Test 1

The first 12 questions refer to the slides we will view together in class. The 13th slide is a reference to help you with the test. Please use the space provided to answer the questions.

1. **4 pts** Explain the difference between uniformitarianism and catastrophism. Consider any natural disaster and explain how each would be used to say what causes the disaster.
2. **3 pts** Describe three parts of Dubuque's history related to the slide shown.
3. **3 pts** Why does Minnesota have so many lakes? Don't give a one-word answer. Instead, explain the process.
4. **4 pts** What is the white area in the central part of the figure? Why does it matter to us here in Dubuque?
5. **2 pts** Were the rocks shown transported by water or by glaciers? How do you know?
6. **3 pts** What are three ways shown in the slide for attempting to reduce soil loss?

7. **4 pts** Demonstrated in the slide is one type of bonding common in minerals. Please name all four. For **extra credit**, name an associated mineral for each of the bond types.
8. **4 pts** Explain the process you would go through to attempt to determine if the mineral shown is a) quartz, b) calcite c) gypsum, or d) halite.
9. **4 pts** What is the process shown? What are three other characteristics of water that result from hydrogen bonds?
10. **10 pts** (a) Why are silicate minerals important? (b) What are three ways they vary depending on the amount of magnesium and iron? (You may create a chart if desired.) (c) How do the ways the silica tetrahedra bond affect whether the mineral is mafic or felsic?
11. **4 pts** The fossils shown are trilobites. How can their presence in rocks help us with relative dating? How is that different from absolute dating?

12. **6 pts** Briefly summarize three stories from this section and explain their relevance to geology.
13. **3 pts** How is geology related to the making of underwear in North Carolina?
14. **2 pts** What makes a statement scientific or not?
15. **4 pts** Explain two ways you could determine that the rocks under UD's campus are older than those beneath the Dubuque Airport.
16. **4 pts** Our weather this winter is predicted to be particularly cold. What is the source of snow in the winter? How does it differ from the source of much of our summer rainfall?
17. **4 pts** What are two geologic reasons Dubuque is prettier than most of Iowa?
18. **3 pts** Water contains hydrogen and oxygen. Oxygen has two isotopes, one heavier than the other. How does this affect evaporation?
19. **3 pts** What is the difference between a rock and a mineral? What are two properties of a mineral?

20. **3 pts** Pick one of the environmental challenges currently facing Iowa and explain why it is a challenge and what might be done about it.

21. **9 pts** Sketch and label the rock cycle, including the processes that form the rocks.

22. **5 pts** What are two things that contribute most to you doing well in this course? What are three things that do not contribute or get in the way of your success?

23. **5 pts** What was one review question not used on the test that you prepared for? Answer it.