Name _____

EAPS 11200
The Earth Through Time
Lecture Exam One
September 25, 2013
Closed Books & Notes
One Hour Time Limit

Each question equals 4 points unless otherwise noted.

I. Scientific Method

1. An acceptable hypothesis must be testable and repeatable. Discuss this concept; include the topic of cold fusion in your answer.

2. Scientific progression involves the sequence of from hypothesis, to theory, to law. Consider the following items: 1) gravity, 2) relativity, 3) evolution, 4) Occam's Razor of Parsimony, and 5) Nebular formation of the Solar System. For the five above, indicate which of the three levels apply.

3. Who first proposed the concept of multiple working hypotheses and when did he do so?

4. The structure in Kentland, IN was studied in lab. What is the current accepted explanation for this structure? Name two of the other three origins that were considered for its formation.

5. Give two pieces of evidence that are used to support the origin currently accepted for the Kentland structure.

II. Plate Tectonics

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1. Name the seven major plates of the World. Which of these does not contain a continental land mass? (5 points)

2. Name and give the location of two of the smaller plates. Where is the Ring of Fire located?

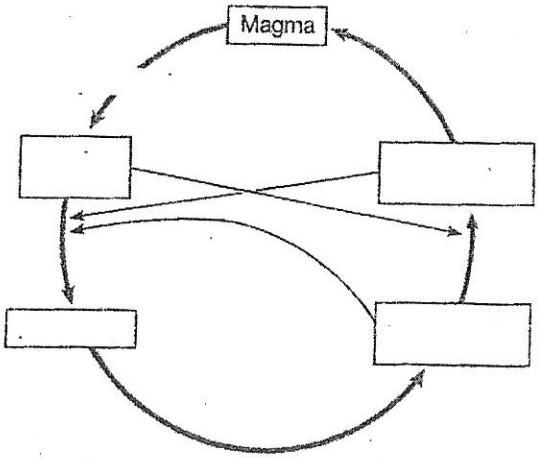
3. Convergent boundaries are one type of plate boundary. Name the other two. List the three types of convergent boundaries. (5 points)

4. Wegener in 1915 proposed five items of evidence to support plate tectonics; name them. Why did scientists of his day not accept this theory?

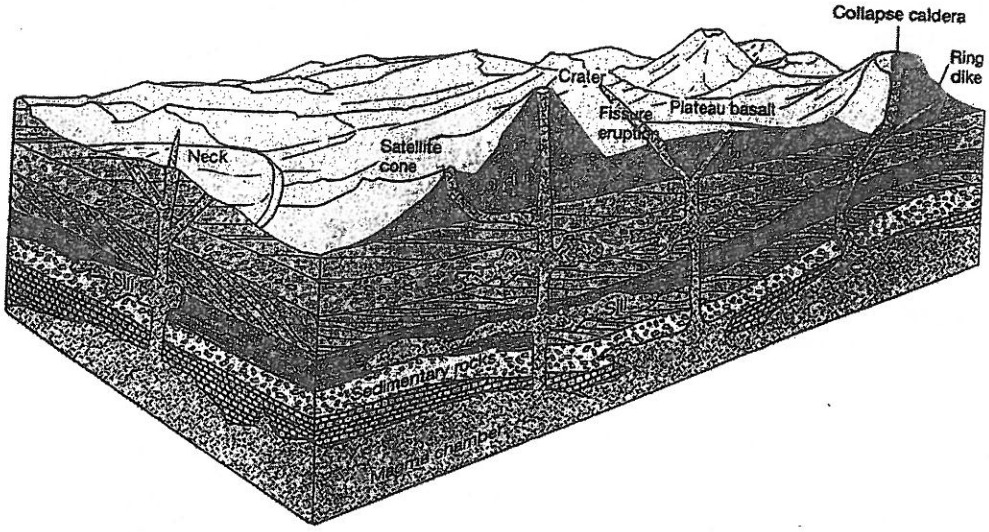
5. Following World War II, convincing scientific evidence was presented in support of plate tectonics. Name and discuss it.

III. Study of Rocks

1. Complete the geologic rock cycle shown below. (6 points)

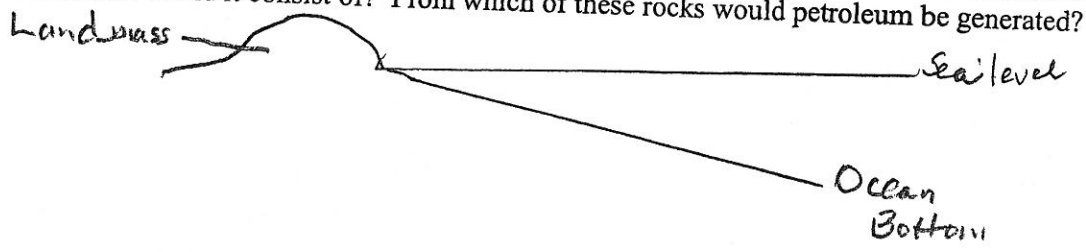


2. The diagram below shows the cross section of an igneous terrain. Consider the following igneous rocks: granite(G), rhyolite(R), tuff(T), syenite(S), Obsidian(O) and basalt porphyry(BP). Locate where these rocks would occur on the diagram. Next, divide the rocks into three categories: a) intrusive, b) extrusive, and c) hypabyssal. (6 points)



Cross section of volcanoes and related features.

3. Below is a sedimentary rock depositional area shown in cross section. Indicate where the following common rocks would occur: shale, limestone, conglomerate and sandstone. If the sandstone is mature, what minerals would it consist of? From which of these rocks would petroleum be generated?



4. Define the terms limestone and dolomite. How would you tell them apart?

5. Arkose and greywacke are considered to be immature sedimentary rocks. Explain why this is the case.

6. Metamorphic rocks can be foliated or non-foliated. List the basic varieties of foliated rocks (four of them). Give them according to increasing metamorphic grade from lowest to the highest.

7. List the two common non-foliated metamorphic rocks. What physical properties are used to distinguish between these two?

8. The two origins of metamorphic rocks are regional and contact. Draw a cross section showing the occurrence of contact metamorphism.

IV. Basic Laws of Geology

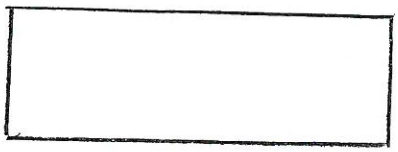
1. Name five of the Basic Principles of Geology discussed in class.

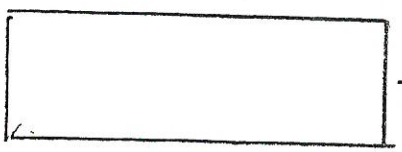
2. Select three of these Principles and illustrate them with proper drawings.

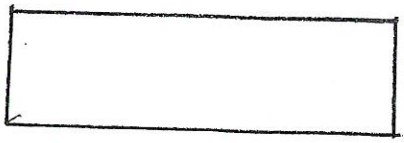
3. Discuss Uniformitarianism. Give an example showing how this is applied to geologic studies today.

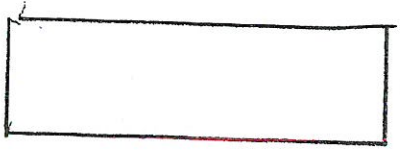
4. What is a geologic formation and what two parts comprise its name? Give an example of a geologic formation.

5. In the four boxes below, give the names of the different types of unconformities. Draw an appropriate cross section for each of these. (6 points)

NAME _____ 

 NAME _____

_____ 

 _____

6. **Extra Credit (5 points)** – Select a topic from the lecture material that has not been covered by this exam and discuss it briefly.