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# SECOND TEST – STUDY SHEET

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## THE SECOND TEST

- Part 1 – multiple choice (40%)
- Part 2 – short answer (30%)
- Part 3 – long answer (30%)

Below is a review of the lecture material covered in the last section of the course. Remember, I will not *specifically* ask questions on this exam regarding material in the first section, although some questions may build upon this information. The review sheet consists of a series of questions regarding the lecture material. Most of these questions can be answered in a couple of words or phrases, but for the purpose of studying, it would be helpful if you try to answer them in as much detail as possible. You might try to answer the questions, first, without looking at any notes, then move to your textbook and notes to help you answer them in more detail. Remember, you are not required to turn in any answers for these – this is for your own benefit in studying.

## THE CHANGING FACE OF EARTH (REVIEW CHAPTERS 1, 2, 8, 9, AND 10)

- How do compositional differences between oceanic and continental crust affect Earth topography?
- Can you explain, in detail, the process of seafloor spreading?
- At what type of plate boundaries would you expect to find crust formation? destruction?
- How can plate tectonic motion affect ocean circulation and climate (give example)?
- How do seafloor spreading rates affect global sea level?
- How can changing sea level influence biotic interaction? biotic isolation?
- Why (and how) are continental shelves important to biotic ecosystems?

## THE DEPOSITIONAL RECORD (REVIEW CHAPTER 5)

- Why is the stratigraphic record important? Explain three reasons.
- What are the basic stratigraphic principles and how do they help us interpret Earth's history?
- What do unconformities represent and what influence do they have on stratigraphic interpretation?
- Describe several features of sediment that allow interpretations of environmental factors.
- What are the differences between body fossils, trace fossils, and chemical fossils?
- How might feeding trace fossils differ in regions of abundant food and scarce food? Low and high O<sub>2</sub>?
- How would you interpret abundant fossils, yet a small number of species in terms of ancient climates?

## TIME AND THE GEOLOGIC RECORD (REVIEW CHAPTER 6)

- What were the primary assumptions in the Archbishop's (counting Biblical generations), Joly's (salt content of oceans), and Kelvin's (cooling of the Earth) calculations of the age of the Earth?
- What are the differences between absolute and relative ages? give an example of each.
- Explain the process of radiometric dating. What are possible sources of error?
- Why is zircon a good mineral to date by radioactive decay (give as many reasons as possible)?
- Describe how the principles of superposition, cross-cutting relationships, and component inclusion can be combined with radiometric dating to constrain the age of a sedimentary succession.
- What are some advantages and disadvantages to using C-isotope stratigraphy to correlate sediments?
- What are some advantages and disadvantages to using biostratigraphy to correlate successions?
- What characteristics identify a good fossil for use in biostratigraphic analysis?

## EVOLUTION AND THE FOSSIL RECORD (REVIEW CHAPTERS 3 AND 7)

- Define and give an example of preservation modes: permineralization, replacement, carbonization
- What conditions favor preservation of organisms as fossils?
- Describe three examples that demonstrate that evolution occurs?
- Describe Darwin's hypothesis of evolution by natural selection? Why is sexual recombination of genes important?
- Why might radiation of new species occur after an extinction? After an evolutionary innovation?
- How does convergent evolution of animal forms support evolution by natural selection?