

Name: \_\_\_\_\_

*Sedimentology & Stratigraphy*

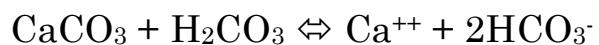
## LECTURE EXAM #2

April 4, 2019

1. Waves and their features for your first topic. Please tell me about waves with text and diagrams. These terms must be included: *fetch, orbitals, fair-weather wavebase, storm wavebase, breaking waves.* [10 points]
  2. Please draw a fully labeled diagram of a **barrier bar system** in map view. Include the bars themselves, a lagoon, and tidal deltas. What kind of sediment would you find in the lagoon if this was a bar system off the New Jersey coast? Your diagram must be in map view. [10 points]

3. What is a *rip current* and how does one form? Again, clear, labeled diagrams are good science! [5 points]

4. Our favorite equation --



Describe the particular circumstances under which the reaction is driven to the left (precipitation). [10 points]

5. Time for some conceptual reflection. You have learned two carbonate rock classification systems, that of Folk and that of Dunham. Briefly state the *principles* behind each system and under what conditions you may prefer one over the other. You need not repeat all the names. [10 points]

6. How does an *ooid* form? Describe only modern ooids here, including their mineralogy. [5 points]

7. Define and/or describe any three of the following terms, using labeled diagrams where appropriate. State the **importance** of your chosen terms for sedimentology and stratigraphy (depositional environments, economic value, etc.) (15 points total)
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gypsum

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flaser bedding

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pendant calcite cement

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intraclasts

8. Calcite Seas and Aragonite Seas are inevitable on this test. What *evidence* do we have in the rock and fossil record to support the concept of alternating Calcite and Aragonite Seas? This is not explaining *why* we have these seas, nor *how* they form, but the ***evidence*** that they happened. [10 points]

9. When we look at the formation of dolomite over time, we find that most dolomite formed during Calcite Sea intervals? What is the likely reason for this correlation? [10 points]

10. Below are descriptions of the units in an ideal Bouma Sequence. Please place them in the proper order by indicating for each its stratigraphic placement, with “A” at the bottom and “E” at the top. [5 points]

- Clay and Silt with parallel laminae.
- Sand and Granules with massive or graded bedding.
- Sand and Silt with ripples and wavy or convoluted laminae.
- Clay deposited from pelagic sources.
- Sand with planar parallel laminae.

11. Please describe how a *beachrock* forms, using a fully labeled diagram and a paragraph that describes all the relevant processes. [10 points]