

Name \_\_\_\_\_

**GEOLOGY 335 (Geology and Mineral Resources of Texas)**

First Intr semester Exam

**(CONDENSED)**

Answer the following questions. **BUDGET YOUR TIME WISELY!**

1. Use the Rocky Creek geologic map exercise as the principal source of information to answer the following questions. (5 points each)
  - (A) What is the geologic age range for the development of the faults exposed in the Llano Uplift?
  - (B) What is the physical evidence for this age range?
  - (C) What is a more precise geologic age for this faulting based on your knowledge of the geologic history of the region?
  - (D) What major tectonic event does this faulting represent?
2. The scale for a map is 1:36,000. How many feet on the ground are represented by 1 inch on the map? (5 points).
3. Draw and clearly label a generalized cross-section of the upper part of a typical onshore Gulf Coast salt dome. Indicate the major mineral composition of each zone and show the orientation of any layering in each zone. Outline the geologic processes that resulted in the formation of the salt diapir and the cap rock. (25 points)
4. Compare the general lower Paleozoic (Cambrian through Silurian) stratigraphy that would be intersected in a deep hole drilled in Lubbock Co. with one drilled along the Bend Arch in Callahan Co. The dominant rock types and total stratigraphic thickness for each geologic period should be included in the comparison. What does the stratigraphic comparison indicate about the "paleogeography" of these two areas at about 550 million years before the present? What is the depth to basement in each area? (25 points)
6. In the absence of actual geologic age indicators such as radiometric age information or fossil-determined ages, what are two types of geologic evidence that would be definitive for the relative geologic age relationship of a plutonic igneous rock that is in contact with a sedimentary rock? (consider the Rocky Creek geologic map). Diagrams may be useful to explain your answer. (10 points)
7. Name **two** types of mineral cleavage. List **two** minerals which have well-developed cleavage of **each** type (be sure to specify which). (10 points)
8. Name the major rivers that form state boundaries of Texas. (5 points)