Name _____

GEOLOGY 335 (Geology and Mineral Resources of Texas)

First Intrasemester Exam

(CONDENSED)

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

1. In the absence of rock exposures in an area that would be sufficient to see actual cross-cutting relationships, 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 exercise). Geologic age indicators such as radiometric age information or fossil-determined ages are also unavailable. Diagrams may be useful to explain your answers. (10 points)

2. Provide correct answers to the following questions (5 points each)

   a. Name two **major** rivers that flow **northward** into the Rio Grande.

   b. The east-west distance across Texas at 32°N latitude is about 800 miles. On the geologic highway map of Texas, this distance is about 26 inches. What is the numerical scale of the geologic highway map, i.e. 1:X? (Just in case you don't remember, 1 mile = 5,280 feet)

   c. Name a mineral with 2 directions of cleavage that is a major component of Enchanted Rock. (Be specific)

   d. Name a major mineral within Ochoan strata of the Delaware Basin that has a Mohs' scale hardness of 2.

   e. Name the feature that separates the Palo Duro Basin from the Anadarko Basin.

   f. What is the depth from the surface to basement beneath Guadalupe Peak?

   h. What was the approximate latitude of Texas during the Permian?

3. What type of faults occur in the Marathon region of Texas? Describe their orientation, dip, and sense of displacement. What caused the development of these faults and when? How do the faults in the Llano uplift differ from those in the Marathon region in these aspects? (25 points)

4. Describe the rock record for the southeastern Llano Uplift from 800 Ma to 100 Ma (don't forget the importance of the "absence" of rocks). Formation names are **not** important, but **rock types are**! Using this evidence, outline the major events in the geologic history of the region, including information on depositional environments, etc. (30 points)