

Geology 22
Process Geomorphology
Midterm Exam
Fall, 2003

Name _____

This exam is closed book and closed notes. Take some time to read the questions carefully before you begin writing. Answer the questions concisely but fully; use sketches and diagrams wherever appropriate. If you are not clear on a question, ask me to clarify it. Budget your time!!

Part I. Slides of Landforms (4 slides @ 4 points ea; 16 points total)

Slide #1:

- What do we call this weathering feature? _____
- How does it form?

Slide #2:

- What is the dominant process on this hillslope?
- What are the underlying mechanisms at work?

Slide #3:

Name this type of river _____

Provide a possible geomorphic explanation for why the sinuosity of this river changes from *high to low to high*.

Slide #4

- Name this geomorphic feature _____
- What is main process responsible for the formation of these features?

Part II. Definitions

BRIEFLY define **all of the following 10** ideas, concepts, or things in the context of this course. Allow about 25 minutes for this section. (10 items, 40 points each; 40 points total).

1. base level

2. inselberg

3. tafoni

4. translational slide

5. stream competence

6. G. K. Gilbert

7. saturation overland flow

- 10.

3. Explain the significance of the graph below in the context of the threshold of critical power.

4. Explain how rates of physical weathering may change through geologic time. Be sure to provide specific examples.

Part IV. Basin Denudation problem (10 points)

You are monitoring a gauging station data at the mouth of a drainage basin on a cold and dry polar island, and have compiled the following data:

- Drainage basin area= 2.0 km²
- Density of the regolith in the drainage basin= 1.5 g cm³
- Gauging station data:
 - Bedload per year=10000 kg
 - Suspended load per year=12000 kg

1. calculate the rate of basin denudation (report answer to millimeters per year).

2. another geologist is doing the same thing on a tropical island. Explain why your results are likely to be *more* accurate.