H. Williams

GEOMORPHOLOGY
EXAM 2 REVIEW SHEET

Example Questions:

1. Describe the major factors that control the strength of a mass of rock.
2. Explain why joint characteristics are so important in determining strength of a rock mass.
3. State the modified Coulomb Equation for shear strength of soil on a slope (i.e. including the effects of pore water pressure); define each term and explain why saturation of soil increases the likelihood of slope failure.
4. With reference to the article on landslide susceptibility mapping, describe the four factors used to assess landslide susceptibility, explain how a GIS was used to evaluate and map susceptibility and give two examples of how the landslide susceptibility map could be used by planners in Travis County.
5. Draw a labeled sketch of the hydrological cycle within a small watershed. Identify and describe each component.
6. Describe, with the aid of diagrams, the following types of mass wasting: rockfall, rockslide, slump, mud flow, earth flow, debris flow, creep.
7. Explain with the aid of diagrams, Hortonian overland flow, saturation overland flow and interflow.
8. Explain, with the aid of diagrams, the following models of slope evolution: a. slope decline b. slope replacement c. parallel retreat.
9. Describe (with diagrams) five common drainage patterns and explain the origin of each.
10. With the aid of diagrams explain shear stress and normal stress acting on soil on a slope. Show how the magnitude of these two forces depends on the slope angle.
11. Describe five changes that decrease stability of slopes.
12. With reference to the article on the effects of urbanization on White Rock Creek, explain (in general) why and how urbanization changes a stream's storm response in terms of peak storm flow, storm flow volume and lag time.
13. Explain how stream erosion, bedrock outcrops and outliers have formed the major features of the landscape in the Denton area. Include maps and/or sketches.
14. With reference to the article on erosion from gas well sites, describe the main sources of erosion, the fate of sediment and the “site stabilization” effect.

Exam 2 will consist of a choice of 4 out of 6 of the questions above.