

The National University of Lesotho
BSc and BA Examination
PG 3422: Geomorphological Techniques

April 2023

Duration: 3 hours

Marks: 100

Instructions:

- Answer any **four (4)** questions
 - Where applicable illustrate your answer with diagrams.
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Question 1

Define a model, why we use models in geomorphology and give example of any model, specify inputs and outputs. (25)

Question 2

- Define an empirical model and explain why RUSLE is an empirical model. (5)
 - Write down RUSLE model equation, outlining all parameters. (10)
 - Why is it important to measure slope in geomorphological investigations? (10)
- (25)

Question 3

- What are limitations of using models in geomorphology? (6)
 - Explain how the model is made suitable to be used locally (4)
 - Define Water Erosion Prediction Project and how the input data can be acquired. (10)
 - Why is WEPP referred to as a physically based model? (5)
- (25)

Question 4

- Define processes that are dependent on hillslope. (10)
 - How are those processes mentioned in (a) above controlled? (10)
 - Describe how runoff plots operate. (5)
- (25)

Question 5

- a) What are cartographic maps used for in geomorphology? (5)
 - b) Differentiate between DEM and topographic maps and explain their uses in geomorphology. (8)
 - c) Interpret the attached figure 1 and label at least 4 landforms that you can see. (12)
- (25)**

Question 6

- a) In drainage basin morphometry, what parameters are taken into calculated? (10)
 - b) Use the figure 2 attached to delineate the drainage basin of your choice. (10)
 - c) Define stream orders concept and why it is important in drainage basins analysis (5)
- (25)**

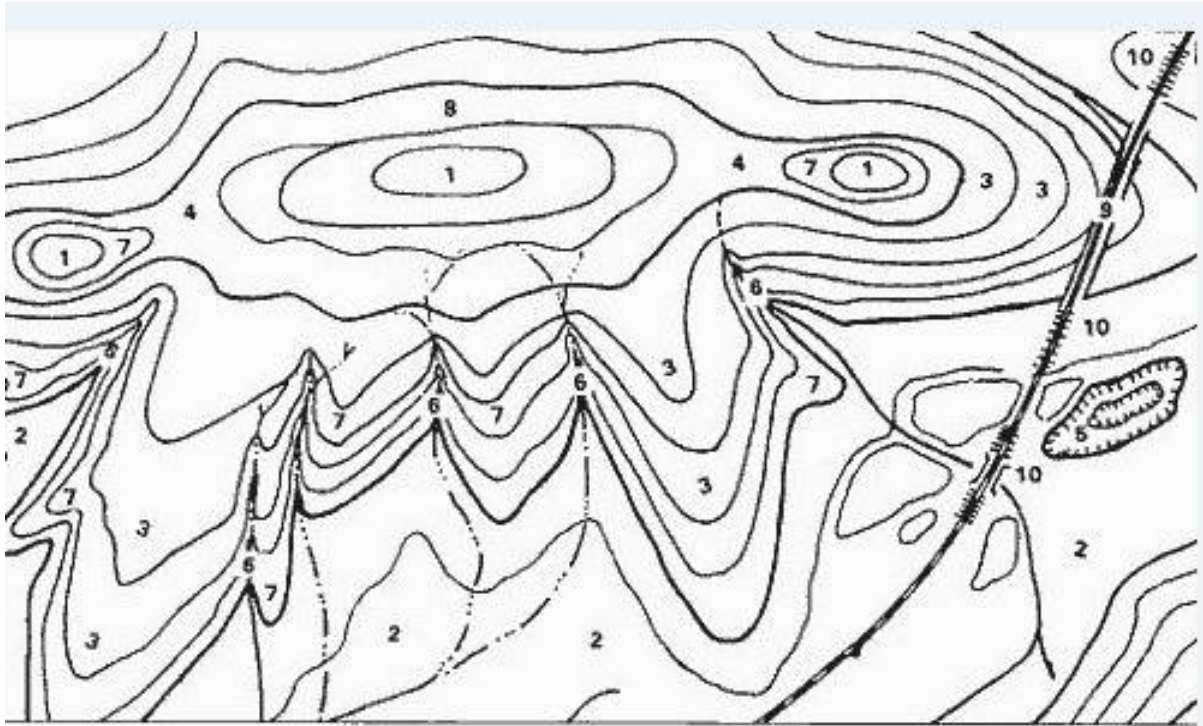


Figure 2

