

UNIVERSITY OF KWAZULU-NATAL NATAL, PIETERMARITZBURG CAMPUS
EXAMINATIONS: November, 2014
School of Agricultural, Earth & Environmental Sciences

ENVS 722: APPLIED GEOMORPHOLOGY

DURATION: 3 HOURS

TOTAL MARKS: 300 Marks

Internal Examiner: Prof. H.R. Beckedahl
External Examiner: Prof. S. Grab

INSTRUCTION(S):

Answer **three** questions in the answer book provided: **ONE question** from Section A and at least **ONE question** from Section B. The third question should be **EITHER** from Section B **OR** from Section C. Each question carries 100 marks. This paper consists of two pages.

Section A (answer ONE question)

Question 1

Review the importance of managing groundcover in the ongoing debate between the use of 'high-tech' *versus* 'appropriate technology' for the conservation and rehabilitation of areas threatened by wash processes.

Question 2

Critically assess the role of applied geomorphology in the rehabilitation, conservation and management of fluvial environments in the context of development projects.

Question 3

Karst environments pose particular challenges to the Applied Geomorphologist. Justify this assertion.

Question 4

Evaluate the problem posed by storm surges which have become a problem along the eastern coastline of South Africa in recent years. You should pay particular attention to issues of causality and possible mitigation.

Section B (answer AT LEAST one question)

Question 5

EITHER: A) You have been appointed as an applied geomorphologist by the KZN Conservation Services to give specialist input into the multi-disciplinary team involved in a scoping exercise (prior to them initiating the full EIA process). The brief is to outline the feasibility of constructing a visitor centre incorporating a 50 seater auditorium at the old trading post at the base of Sani Pass, Cobham Reserve, in the Ukhahlamba Drakensberg

Park. This will be built adjacent to the new border post, and would abut against the lowermost sandstone outcrop at the base of the slope. You are asked to:

- i) identify the key geomorphic implications of the proposed development, and
- ii) outline the criteria which should be adhered to, should the above proposal be carried out.

OR

B) You have been retained as a consulting geomorphologist by Berg Construction Ltd.. A proposal has been made to upgrade the existing access road into Lesotho via Sani Pass by widening it and constructing an all-weather surface on it. Discuss any THREE of the potential major geomorphic problems which need to be considered by the developers before commencing with the proposed construction.

Question 6

Critically evaluate three techniques which may be utilized in designing and/or protecting urban developments located on a floodplain, paying attention to the geomorphic criteria as well as the overall ecological and human considerations involved.

Section C (answer AT MOST one question)

Question 7

Discuss the validity of Hart's (1986) view that the over-emphasis placed on macro-landscape models has retarded the development of Slope Geomorphology by at least 50 years.

Question 8

It has been argued by several prominent geomorphologists that applied work, which by its very nature deals with short time frames, has little to offer the theoretical development of the discipline as a whole. Discuss.

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