

UNIVERSITY OF KWAZULU- NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF GEOGRAPHY
EXAMINATION: NOVEMBER 2013
MODULE NAME & CODE: SOIL EROSION AND LAND DEGRADATION
ENVS315H2

DURATION : 3 HOURS

TOTAL MARKS: 300

INTERNAL EXAMINER: DR N NGETAR
EXTERNAL EXAMINER: PROF S GRAB
UNIVERSITY OF WITWATERSRAND

INSTRUCTIONS: ANSWER ANY THREE QUESTIONS.
ALL QUESTIONS CARRY EQUAL MARKS.

1. Compare and contrast surface and sub-surface erosion, paying attention to the processes and mechanics leading to their occurrence. (100)
2. With the aid of annotated diagrams, discuss the various methods of soil rehabilitation related to erosion and the factors that must be taken into consideration when selecting each method. (100)
3. Legislation and international agreements are some of the tools used to redress land degradation in South Africa. Discuss these tools and the challenges faced in their implementation. (100)
4. Discuss the physical and chemical properties of soil and demonstrate how they contribute to soil erosion processes. (100)
5. Soil Survey and land use planning are essential inputs in proper land management. Describe two types of soil survey methods and the procedures involved in soil survey for decision making and land use planning. (100)
6. “.....soil erosion strikes at the very roots of South Africa’s existence, and is the most urgent problem facing the country at the present time” Clarke (2002: 208). Is this assertion still true today? What are direct and indirect consequences of soil erosion in South Africa? (100)

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1. Discuss the potential influence of climate change on soil erosion and land degradation. Explain ways in which climate induced land degradation can be reduced or prevented. (100)
2. Evaluate the importance of Erosion Hazard Assessment as a predictive method of soil loss modelling. (100)
3. Wind erosion is listed as a form of land degradation in South Africa. Explain the processes of wind erosion and comment on the seriousness of this problem in South Africa. Which areas are affected and what methods would you suggest to control its effects? (100)
4. Discuss the factors that influence infiltration and runoff. What measures can be undertaken to increase infiltration and reduce surface runoff? (100)
5. Critically evaluate the assumption that water erosion is the result of energy created by falling rain and moving water. (100)
6. Preventative methods of land degradation are preferable to restorative/remedial methods. Do you agree with this view? Justify your view with reference to examples. (100)