



*"Investing in Africa's Future"*

**COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES**

**ANE 301 ENVIRONMENTAL AND ECOLOGICAL REHABILITATION**

**END OF FIRST SEMESTER EXAMINATIONS**

**NOVEMBER/DECEMBER 2017**

**LECTURER: PROF F TAGWIRA**

**DURATION: 3 HOURS**

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***INSTRUCTIONS***

1. Do not write your name on the answer sheet

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2. Use Answer Sheets Provided

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3. Begin your answer for Each Question on a New Page

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4. Credit is Given for Neat Presentation
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## ANE301 ENVIRONMENTAL AND ECOLOGICAL REHABILITATION

ANSWER ANY 5 QUESTIONS IN THIS PAPER. EACH QUESTION IS WORTH 20 MARKS.

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### Question 1:

Control of the water hyacinth has become a major challenge for East and Southern African countries.

- a) What are the challenges caused by water hyacinth? (4)
- b) Why is water hyacinth not a problem in South America where it originated from? (2)
- c) Give the different methods of solving the water hyacinth challenge. (9)
- d) Despite all the efforts we still have water hyacinth problem in our countries. Why? (3)
- e) What policies should be put in place to tackle water hyacinth challenge? (2)

### Question 2:

- a) What are the 4 natural factors that influence rate of erosion?(8)
- b) What happens if we do not control erosion? In other words list the consequences of soil erosion. (6)
- c) Explain the advantages of tied-ridging (6)

**Question 3:**

- a) Define the following terms: (8)
  - i. Bioremediation
  - ii. Phytoremediation
  - iii. Mycoremediation
  - iv. Nanoremediation
- b) When should you consider planting cover crops in mine rehabilitation? (2)
- c) Give 4 morphological and 6 physiological attributes of vetiver which make it good for treating contaminated water or soil. (10)

**Question 4:**

- a) List two ways in which nations can ensure that decommissioned mines are not left unrehabilitated at the end of mining. (4)
- b) Give six environmental issues which should be dealt with during and after mining. (6)
- c) Explain the general principles of rehabilitation of mines. (10)

**Question 5:**

- a) Explain what the following mean: (3)
  - i. The rehabilitated mine has achieved ecosystem stability
  - ii. Final landform must be hydrologically compatible with surrounding area.
  - iii. Top soil is important for rehabilitation and therefore must be conserved during mining.
- b) What 5 factors should be considered in land form design?(5).
- c) When you are ready for rehabilitation you should take soil sample for analysis. What characteristics should you analyze for which will help with mine rehabilitation? (4)
- d) Explain the importance of applying gypsum and lime to the soil. (8)

**Question 6:**

- a) Give the 5 components to solving an environmental problem. (10)
- b) Explain how Lake Washington was rehabilitated and give the important lessons we learn from this case study. (10)

**Question 7:**

- a) Explain 5 advantages and 5 disadvantages of phytoremediation. (10)
- b) Give 5 insitu remediation technologies (5)
- c) Why is community consultation and information important in remediation? (5)

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