BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCES

DEPARTMENT: NATURAL RESOURCES

PROGRAMME: Natural resources Management

COURSE CODE: NR222: Natural Resources Management

DURATION: 2 HOURS TOTAL MARKS: 70

INSTRUCTIONS TO CANDIDATES

Answer **THREE** questions out of the following five questions. You must answer question **One** from **SECTION A** and any **Two** questions from **SECTION B.**

SECTION A (COMPULSORY) [30 Marks]

1.(a) What do you understand by the term "Soil degradation"? **[2 Marks]**

(b) Write down **Two** (2) major threats to sustainable natural resources management in Zimbabwe. **[2 Marks]**

(c) Clarify how population pressure triggers land degradation. **[2 Marks]**

(d) Enlighten how acidification contributes towards soil degradation. **[2 Marks]**

(e) (i) What do you understand by the term "Soil erosion"? **[2 Marks]**

(ii) Write down the formula for the Universal Soil Loss Equation (USLE). **[2 Marks]**

(iii) Differentiate between "Erosivity" and "Erodibility" as key factors that contribute towards soil loss in the USLE estimation above. **[2 Marks]**

(f) (i) Which of these factors does not lead to forest degradation?

A Fire damage
B Deforestation
C Agroforestry
D All of the above
E. None of the above **[1 Mark]**

(ii) The major disadvantage of Community based natural resources management is that the approach is:

A Exclusivity
B selectivity
C Inclusivity
D All of the above
E None of the above **[1 Mark]**

(iii) Choose the correct answer. An appropriate technique developed for estimating soil erosion in Zimbabwean croplands is called:

A Land use management plan
B Participatory rural appraisal
C Universal soil loss equation
D Soil loss estimation model for southern Africa
E None of the above **[1 Mark]**

(iv) Choose the correct Answer. In the USDA land capability classification structure,

A Class I is a highly suitable class
B Class II is moderately suitable
C Class III marginally arable
D Class IV is unsuitable
E Class V a water body **[1 Mark]**

(v) What name do you give to international arrangements by different nations to protect natural resources and the environment? Choose the best answer.

A Statement
B Ruling
C Convention
D Consent
E Communique **[1 Mark]**

(g) Briefly describe the main arguments against conventional planning or management approaches in natural resource management in rural areas of Zimbabwe. **[3 Marks]**

(h) Show how bush encroachment contributes towards land degradation in Zimbabwe. **[4 Marks]**

(i) Suggest ways by which invasive alien plant species can be managed in Zimbabwean natural forests. **[4 Marks]**

SECTION B [40 marks]

2. (a) Briefly explain what you understand by the term "Pressure - State - Response Model" as used in natural resources management. [4 Marks]

(b) Demonstrate how this model is applied in conventional planning, implementation and management of natural resources programs in Zimbabwe. [6 Marks]

(c) What are the merits and demerits of the conventional approaches in natural resources management? [10Marks]

3. (a) What do you understand by the term "Desertification"? [4 Marks]

(b) Briefly explain the negative impacts of artisanal mining on natural resources in rural areas and suggest ways by which they can be reduced. [6 Marks]

(c) Describe **Five** (5) common anthropogenic activities that trigger desertification and suggest ways by which they can be managed. [10Marks]

4. (a) Outline the structure of the SLEMSA soil estimation model as a tool for assessing soil erosion in crop land in Zimbabwe. [4 Marks]

(b Briefly mention the circumstances under which the SLEMSA model was developed. [6 marks]

(c) What are the strengths and weaknesses of the SLEMSA model as a tool for natural resources management? [10Marks]

5. Discuss the strengths and weaknesses of land capability

OR

land suitability evaluation systems as strategies for inventory and assessment of natural resources for management in Zimbabwe. [20Marks]

END OF PAPER