

**RHODES UNIVERSITY
DEPARTMENT OF ENVIRONMENTAL SCIENCE**

EXAMINATION: NOVEMBER 2014

**ENVIRONMENTAL SCIENCE 302
PAPER 1**

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MARKS: 100
DURATION: 3 HOURS

External examiner: Dr. Patrick O' Farrell

INSTRUCTIONS

1. This paper consists of four (4) sections.
2. Answer each section in a separate answer book.
3. There are **six (6)** questions. Answer **ALL** questions.
4. Time management is very important. The value of the mark for each question should be used as a rough guide to the amount of time allocated to answer the question (100 marks in 180 minutes).
5. It is in the candidate's interest to write legibly.
6. At the end of the examination, place all answer books inside the book used to answer **SECTION A**.
7. This paper has **four (4)** pages.
8. The Oxford concise English dictionary may be used in this exam.

PLEASE DO NOT TURN OVER THIS PAGE UNTIL TOLD TO DO SO.

SECTION A
Adaptive Management of Natural Resources (25 marks)

Question 1: Answer any ONE of the following for 25 marks

EITHER

- a) Adaptive management is only appropriate in situations where uncertainty and controllability are high. Discuss with reference to at least two case studies of adaptive management. (25)

OR

- b) Discuss the challenges of attempting to implement adaptive co-management in a South African setting, and contrast this experience with at least one case study from another country. (25)

[Total=25 marks]

SECTION B
Collaborative Management of Natural Resources (25 marks)

Question 2: Answer any ONE of the following for 25 marks

EITHER

- a) Briefly explain the rationale behind community participation in natural resources management and with the aid of examples discuss the successes and challenges of community-based natural resources management approaches. (25)

OR

- b) An area has been earmarked for protection because it is has been declared a key biodiversity hotspot. However, the local communities are directly dependent on the area's wild natural resources for their livelihoods. As a conservation manager, **discuss the natural resource management approach** you would recommend to balance ecological integrity and local livelihood needs highlighting the key biophysical, social and economic aspects that inform your approach? (25)

[Total=25 marks]

SECTION C

Integrated Environmental Management (40 marks)

Question 3: Answer any TWO of the following for 5 marks each

Please describe what is meant by the following terms

- a) Semi-quantitative risk assessment approach (5)
- b) Environmental due diligence (5)
- c) Environmental Management System (5)

[Total =10 marks]

Question 4: Compulsory for 10 marks

Using appropriate examples, discuss the nature and purpose of Technology Assessment (10)

[Total=10 marks]

Question 5: Answer ONE of the following for 20 marks

EITHER

- a) Discuss the advantages to a business / organisation associated with the adoption of environmentally responsible business practices. Your discussion must make reference to relevant examples. (20)

OR

- b) Using an appropriate example, critically discuss the potential application and key steps of Life Cycle Assessment in the context of a manufacturing business. (20)

[Total=20 marks]

SECTION D

Emerging Topics in Environmental Science (10 marks)

Question 6: Answer ONE of the following for 10 marks

- a) Argue why food waste is an issue of environmental concern that will require increasing interdisciplinary policy attention and solutions. (10)

- b) In April 2013, Silaka Nature Reserve was temporarily closed due to conflicts between the conservation agency and local communities. Explain the relevance of this case study in aiding protected area management in South Africa. (10)

- c) Name and briefly define the four different approaches that have governed the management of protected areas over the last 150 years. Which of the four approaches do you think this year's World Parks Congress agenda speaks best to? Motivate your choice in one sentence. (10)

[Total=10 marks]

END OF EXAMINATION PAPER