

MAD 2003

BINDURA UNIVERSITY OF SCIENCE EDUCATION

DEPARTMENT OF BIOLOGICAL SCIENCES

BScBZH/HBScED/BScED

PRINCIPLES OF ECOLOGY BZH114/ ECOLOGY (BZH 201)

EXAMINATION

2 HOURS (100 MARKS)

INSTRUCTIONS

Answer **FOUR** questions. You **MUST** answer **QUESTION 1** (Section A) and any **THREE** questions from Section B. Each question carries **25 MARKS**. Where a question contains subdivisions, the mark value of each subdivision is given in brackets. Illustrate your answers where appropriate with large, clearly labelled diagrams. You should not spend more than thirty minutes on each question.

SECTION A (COMPULSORY)

1. Table 1 shows composition of forest community species in two forest stands.

Forest community species	Forest stand 1	Forest stand 2
Species 1	12	35
Species 2	0	0
Species 3	5	11
Species 4	17	0
Species 5	10	6
Species 6	0	0
Species 7	9	1
Species 8	0	1
Species 9	0	1

(a) Determine Simpson index value and species richness for forest stand 1 and 2.

[20 marks]

(b) Comment on the Simpson index values obtained in 1(a) above.

[5 marks]

SECTION B.

2. (a) Describe the types of survivorship curves. [15 marks]

(b) Describe the patterns of dispersion within a population's geographic range. [10 marks]

3. Discuss animal defences against predators.
4. Write short notes on any **FIVE** of the following:
 - (i) Fundamental and realized niche
 - (ii) Gause's competitive exclusion principle
 - (iii) Mark-Recapture method
 - (iv) Nitrogen fixation
 - (v) Eutrophication
 - (vi) Global warming
5. Describe and explain the hydrological cycle.
6. Discuss the main stages of primary succession.

END OF EXAMINATION QUESTION PAPER