

Arid Land Ecology & Management  
ENVT 3013  
Study Period 5 (Semester 2)  
Exam (Time Allowed – 2 Hours)  
November 2006

SECTION 1: SHORT ANSWER QUESTIONS (ALL questions are compulsory – total marks converted to 50% of exam)

(1) Briefly define what is meant by the following terms. (5 MARKS)

- (a) albedo
- (b) drought
- (c) southern oscillation index
- (d) arroyo
- (e) rill

(2) Animals exhibit a wide range of adaptations to desert environments. Give two examples each of:

- (a) novel and specific adaptations,
- (b) refinements of existing processes
- (c) common adaptations

(12 MARKS)

(3) Briefly define the following terms. (6 MARKS)

- (a) arid land
- (b) rangeland
- (c) pastoral land

(4) Peter Waite (1896) advocated a system for management of pastoral lands in the chenopod shrublands of South Australia. What particular strategies did he recommend) (5 MARKS)

(5) Briefly define the following types of arid-zone plant survival techniques, giving examples. (10 MARKS)

- (a) arido-passive
- (b) arido-active

(6) Why are there few stem-succulents in Australian deserts, compared to deserts elsewhere? (5 MARKS)

(7) Briefly define the term “woody weed”. (5 MARKS)

(8) Give three characteristics of arid lands that mean they require careful management. (6 MARKS)

(9) Briefly describe FOUR causes for desert climate development on a continent. (8 MARKS)

(10) Briefly describe the difference between (a) a run-on area and (b) a run-off area, and the

particular importance of these in rangelands. (8 MARKS)

(11) List and briefly define five common characteristics of arid zone soils, worldwide (5 MARKS)

(12) Name three plant families that are common in the Australian arid zone, and briefly describe some characteristics of the family that adapt it to arid climates. (6 MARKS)

(LONG-ANSWER QUESTIONS ON NEXT PAGE)

LONG ANSWER QUESTIONS (Choice: Answer TWO ONLY of the following three questions)

(20 MARKS each, a total of 40 marks, converted to 50% of test)

Remember to give your answers in full sentences & paragraphs, providing literature sources, and diagrams where appropriate.

- (1) Describe a range of traditional or new uses of arid lands, and discuss (a) why they are found in arid lands and (b) any associated environmental problems
- (2) Although the Australian deserts have many climatic features in common with deserts elsewhere, they also have some unique characteristics. With reference to Williams & Calaby (1985), Nicholls (1991) and Stafford Smith & Morton (1990), describe why this is so.
- (3) Describe, using diagrams, the similarities and differences between: (a) the succession model and (b) the state-and-transition model of vegetation, and how these have tended to determine the management of arid lands.