



1ST SEMESTER 2012/2013

PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: B.Sc. AGRONOMY 4

COURSE CODE: CP 401

TITLE OF PAPER: AGROFORESTRY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION 1

- (a) What is biomass transfer? (3 marks)
- (b) Explain how *Tithonia diversifolia* is able to improve soil fertility, and what are the limitations of its use for this purpose. (6 marks).
- (c) How are barrier hedges able to control soil erosion? (5 marks)
- (d) Discuss the failure of the taugya system in some countries. (6 marks).
- (e) Discuss the consequences of fuelwood shortages in Africa. (5 marks).

[25 MARKS]

QUESTION 2

- (a) Define the term agroforestry. (3 marks).
- (b) What are the major elements of the definition of the agroforestry approach to land use. (3 marks).
- (c) Give reasons why trees or shrubs are often the dominant component of all agroforestry systems. (4 marks)
- (d) How can the dominance referred to in (c) above be reduced? (3 marks)
- (e) Distinguish the 'barrier effect' from 'cover effect' with reference to utilization of trees in crop production. (4 marks).
- (f) Briefly, outline the role of trees in environmental protection. (8 marks).

[25 MARKS]

QUESTION 3

- (a) Using a suitable table survey the major land use practices commonly found in the tropics and subtropics indicating their major limitations on one hand and how agroforestry has a potential to reduce these limitations, on the other. (10 marks).
- (b) Distinguish the ecological or biological and socio-economic advantages of the agroforestry approach to land use from agricultural monocultures. (10 marks)
- (c) How can you tell that trees improve soil fertility? (5 marks)

[25 MARKS]

QUESTION 4

- (a) Give a list of 'services' that can be expected from trees and shrubs dovetailed on farmland. (10 marks).
- (b) Identify the most important agroforestry practices that are widely applicable or present in Swaziland. (8 marks).
- (c) Give desirable characteristics of trees and shrubs that can be used in soil and water conservation. (7 marks).

[25 MARKS]

QUESTION 5

- (a) What are improved fallows? (5 marks)
- (b) What are the biological benefits of improved fallows. (5 marks)
- (c) Which are the main factors that influence the nutritive value of fodder trees. (3 marks)
- (d) What are the inherent and desirable characteristics of MPTS for fuelwood production? (6 marks)
- (e) How can you reduce competition for water in agroforestry systems? (6 marks)

[25 MARKS]