

UNIVERSITY OF KWAZULU-NATAL

SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES  
DISCIPLINE OF HORTICULTURAL SCIENCE

EXAMINATION: JUNE/JULY 2014

SUBJECT, COURSE & CODE: Orchard management (AGPS 307)

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**DURATION: 3 HOURS**

**TOTAL MARKS: 100**

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**External Examiner: Dr. Mduduzi Ngcobo**

**Internal Examiner: Dr. Samson Tesfay**

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**NOTE: THIS PAPER CONSISTS OF THREE (3) PAGES, PLEASE SEE THAT YOU HAVE THEM ALL.**

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**ANSWER ALL QUESTIONS.**

1. As a potential grower of an orchard crop you are aware that you should comply with standard principles in orchard planning and establishment for orchard sustainability and success. Since an orchard is a long term investment, outline the criteria you would consider site-selection, planting, establishment, harvesting and marketing.

[10]

2. Growing a temperate fruit requires certain amount of chilling units (CU). Discuss climate, chilling units, bud dormancy in relation to orchard site selection, orchard establishment and fruit yield. (Hint: chilling versus cultivar selection).

[10]

3. Elaborate the critical objectives of tree pruning and thinning, in relation to biomass partitioning and fruit yield.

[10]

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4. What is your understanding of the following factors and their relation to improve plant growth? Explain each point.

- 1.1. Soil texture
- 1.2. Soil pH
- 1.3. Cation Exchange Capacity (CEC)
- 1.4. Nutrient availability for plant uptake

[10]

5. Good agricultural practices (GAP) mainly touches on different strategic agricultural management practices required to produce quality fruit with optimum yield. Consequently, this has a main effect to fruit postharvest quality. In contrast, explain the consequences in fruit quality due to inappropriate postharvest handling.

[10]

6. Outline the strategic decision making tools of fertilization as they are required as a prerequisite for orchard fertilizer management.

[10]

7. How does the orchard floor management link to fertilizer and pest control management practices? Elaborate its function on fruit production.

[10]

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8. Briefly define the following terms

- A. Irrigation scheduling
- B. Gravimetric soil water measurement
- C. Field capacity
- D. Permanent wilting point
- E. Fertigation

[5x2]

9. Compare and contrast fruit maturity in relation to fruit harvesting time as it affects postharvest fruit quality.

[10]

10. Illustrate and discuss the key physiological processes during the fruit postharvest life.

[10]