



2nd SEMESTER 2011/2012

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: BACHELOR OF SCIENCE IN HORTICULTURE
YEAR IV

COURSE CODE: HORT 407

TITLE OF PAPER: HYDROPONICS

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS

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BY THE CHIEF INVIGILATOR**

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS**Question 1**

- (a) Describe how you will prepare a standard nutrient solution for a flood and drain hydroponics system using Hydro grow nutrient powder with TDS of 850 ppm. [8 marks]
- (b) Calculate the electrical conductivity (EC) of the solution prepared above [5 marks]
- (c) What are the critical considerations in the nutrient formulation for hydroponics plants? [12 marks]
- [25 marks]**

Question 2

Describe briefly the commercial hydroponics production of lettuce using the nutrient solution technique. [25 marks]

Question 3

- (a) What are the factors affecting the choice of media for hydroponics production [10 marks]
- (b) What are the essential requirements in a commercial hydroponics production unit [15 marks]
- [25 marks]**

Question 4

Discuss the environmental requirements of hydroponically grown plants.

[25 marks]

Question 5

You have been employed by Amazing Farm to oversee their newly installed hydroponics system for cucumber production. The system has an injector sprayer of 1:128 ratio and you have potassium nitrate (13%N-0%P₂O₅-44%K₂O) and calcium nitrate (15.5%N-0%P₂O₅-0%K₂O) to supply 200 ppm of N and K with each watering. How many **grams** of each fertilizer would you weigh out to make a liter of concentrate? (Given %K and %P equals 1.2 and 2.3 of K₂O and P₂O₅ respectively, and 12 as the conversion constant C).

[25 marks]