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**UNIVERSITY OF SWAZILAND**  
**FINAL EXAMINATION PAPER**

**2<sup>nd</sup> SEMESTER 2016/2017**

**PROGRAMME:** **B.Sc. AGRIC & BIOSYSTEMS ENGINEERING YEAR 4**  
**B.Sc. AGRIC. ECON. & AgBMgt YEAR 4**  
**B.Sc. AGRICULTURAL EDUCATION YEAR 4**

**COURSE CODE:** **CPR210**

**TITLE OF PAPER:** **FIELD CROPS**

**TIME ALLOWED:** **TWO (2) HOURS**

**INSTRUCTIONS:** **ANSWER QUESTION 1 AND 2 AND ANY OTHER TWO QUESTIONS**

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COURSE CODE: CPR210 (M) 2016/2017

**QUESTION 1 - COMPULSORY**

- Identify and discuss the grain-filling stages of a maize plant and highlight important aspects of management at each stage.(10 marks)
- Discuss the nutritional value of dry beans for human and animal consumption. (5 marks)
- Describe the climatic and soil requirements for the production of cotton in Swaziland. (5 marks)
- What are the human health benefits of sweet potatoes and concerns? (5 marks)

**[25 Marks]****QUESTION 2 - COMPULSORY**

- Discuss the importance of plant density on growth and yield.(5 marks)
- Discuss the factors that affect plant density. Use examples where necessary.(5 marks)
- What is plant geometry? List and describe the types of planting patterns that are commonly and give examples in each case of crop types for which they are used.(5 marks)
- Name and give reasons for certain cultural practices usually carried out after the crop has emerged to obtain the optimum plant density.(5 marks)

**[25 Marks]****QUESTION 3**

Maize and soya bean were produced as sole crops and together in an intercropping system. In all other ways, management practices were the same. The following yields were obtained.

Crop	Sole Crop Yield (t/ha)	Intercrop Yield (t/ha)
Maize	1.36	1.06
Soya bean	1.23	1.04

Data from IRRI Annual report, 1975.

- Calculate the Land Equivalent Ratio (LER). (10 marks)
- Interpret this LER in terms of land required to produce the same yield as that obtained from a unit of land sown in intercrop. (15 marks)

**[25 Marks]**

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**QUESTION 4**

- (a) Explain the advantages of ridging in potato production. (5 marks)
- a) Why are the vine cuttings in sweet potatoes preferred to roots as planting materials in propagation.(5 Marks)
- b) Explain why nitrogen fertilizers are not a requirement in root crops. (5 marks)
- (b) What characteristics are crops selected for? Describe how several of the characteristics influence cropping system development. (10 marks)

**[25 Marks]**

**QUESTION 5**

Discuss constraints to the production of maize in Swaziland and make recommendations of actions that may be taken at both farm level and nationally to overcome these constraints.

**[25 Marks]**