



**UNIVERSITY OF SWAZILAND  
MAIN EXAMINATION PAPER**

**PROGRAMME: BSC IN AGRICULTURAL & BIOSYSTEMS  
ENGINEERING**

**COURSE CODE: ABE 401**

**TITLE OF PAPER: LAND EVALUATION AND PLANNING**

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

**SPECIAL MATERIAL REQUIRED: NONE**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO  
OTHER QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

**SECTION I: COMPULSORY QUESTION****QUESTION ONE**

- a. Explain the meaning of following components of the land capability and suitability classification structures: Give examples where possible.
- Land capability subclass /3 marks
  - Land suitability order /2marks
  - Land suitability class /3 marks **8 marks**
- a. Based on the available data on land characteristics give land capability subclasses and suitability classification for maize production for the five land parcels on Table 1. (The crop requirements include: pH range 5.5 – 6; Rooting depth 25 - 30cm; well drained soils).
- 20 marks**
- b. Where land is not suitable for maize production indicate the limiting factors and recommend corrective measures if possible. **12 marks**

**Table 1 Land Parcels**

LAND CHARACTERISTICS	LAND PARCELS				
	A	B	C	D	E
SOIL DEPTH (CM)	55	40	85	100	60
SLOPE (%)	10	39	4	1	5
EROSION PROBLEMS	Moderate	Severe	Slight	None	None
WETNESS PROBLEMS	None	Moderate	Slight	None	Severe
SOIL PH	Slightly acid	Medium acid	Neutral	Slightly acid	Medium acid
CAPABILITY SUBCLASS					
SUITABILITY FOR MAIZE					

**[40 marks]**

**SECTION II: ANSWER ANY TWO QUESTIONS FROM THIS SECTION****QUESTION TWO**

- a. Using examples, explain what is the difference between major and minor land improvements? **10 marks**
- b. Describe two factors that should be considered when undertaking a social impact analysis of land use. **10 marks**
- c. Organizing the work plan is one of the major steps in developing a land use plan. Explain why it is important citing some of the tasks that should be accomplished at this point. **10 marks**

**[30 marks]****QUESTION THREE**

- a. Poor health and nutrition is one of the most common symptoms of land use problems in rural areas.
- i. Describe two possible underlying causes for the problem. **8 marks**
- ii. What possible solution (in form of a land use planning project) could be applied to solve the problem? **4 marks**
- iii. Name any two factors that would enhance its success at local level and at national level. **8 marks**

**[20 marks]**

- b. Discuss how the knowledge of the following factors may be useful when developing a land use plan;

i. Land tenure

**4 marks**

ii. Land resources

**6 marks.****[10 marks]**

**QUESTION FOUR**

a. Explain the meaning of the following terms and describe the importance of each in a land evaluation exercise:

- Land quality /5marks
- Land mapping unit /5marks
- Multiple land use /5marks
- Compound land use /5marks

**20 marks**

b. Explain why evaluation and monitoring are an important component of a land use planning exercise

**10 marks**

**[30 marks]**