

P515/2
Principles and practices of Agriculture
Paper 2
Theory paper
June/July 2023
3 hours.



ACEITEKA JOINT MOCKEXAMINATIONS, 2023

Uganda Advanced Certificate of Education

Paper 2

3 hours

Instructions to Candidates

- This paper consists of sections **A, B, C, D** and **E**
- Question 1 in section A is Compulsory
- In addition, select four other questions. Selecting one question from each section B, C, D and E
- Any additional question(s) will not be marked.

SECTION A COMPLUSORY (20 MARKS)

1. An experiment was carried out to investigate the behavior of plant tissues in sucrose solution. Five different plant tissues of the same volume (5cm^3) were each placed in different concentrations of sucrose solution. After equilibrium was reached, the volume of the tissues were measured. The results were shown in the table 1 below. Study the table and answer the questions that follow.

Table 1

Plant tissue	Sucrose concentration Mol l^{-1}	Initial volume cm^3	Final Volume cm^3
A	0.1	5.0	5.0
B	0.2	5.0	3.0
C	0.3	5.0	7.0
D	0.4	5.0	6.0
E	0.5	5.0	5.0

- (a) (i) Describe the behavior of the plant tissues in their respective sucrose solutions. (5 marks)
 (ii) Explain the behavior of each of the plant tissues discussed in (a)i above. (10 marks)
- (b) Suggests what would happen to tissues A if it were transferred to a sucrose solution of 0.3 mol l^{-1} ? (2 ½ marks)
- (c) What conclusion can you draw from the above results regarding water movement into and within a plant? (2 ½ marks)

SECTION B (CROP PRODUCTION)

- 2.(a) Discuss the dangers associated with use of pesticides in agricultural production. (10 marks)
- (b) Outline the precautions to be taken by the farmer to ensure safe use of pesticides. (10 marks)
- 3.(a) Describe the steps followed when growing mushrooms in an urban setting. (10 marks)
- (b) Outline the requirements for proper mushroom growing. (5 marks)
- (c) What precautions should be taken while growing mushrooms. (5 marks)

SECTION C (Agricultural engineering)

- 4.(a) Explain the factors that affect the quality of water on the farm (10 marks)
- (b) Describe how you would care and maintain water storage tanks on the farm.
- 5.(a) Why are storage structures necessary on a farm? (06 marks)
- (b) Explain the factors to be considered when constructing crop storage structure. (14 marks)

SECTION D (Animal husbandry)

- 6.(a) Explain the factors that affect the utilization of feeds by farm animals. *(12 marks)*
- (b) Outline the conditions that favor the multiplication of microbes in the rumen. *(4 marks)*
- (c) What is the role of the rumen microorganisms in the digestive system of ruminants? *(04 marks)*
- 7.(a) Describe the characteristics of a good semen diluent. *(04 marks)*
- (b) Describe the procedure of inseminating a cow using any given method. *(10 marks)*
- (c) Why is artificial insemination not widely used in Uganda today? *(06 marks)*

SECTION E (Agricultural Economics)

- 8.(a) Explain the land management systems and practices that limit agricultural production in Uganda. *(12 marks)*
- (b) Explain how government land reforms may improve agricultural production. *(08 marks)*
- 9.(a) Describe the types of production functions experienced in farming. *(12 marks)*
- (b) Explain how the production function can be used to determine the most profitable levels of production. *(08 marks)*

END

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