P515/2
PRINCIPLES
AND PRACTICES
OF AGRICULTURE
PAPER 2
July/August 2018
3 hours

MAKERERE MODERN SECONDARY SCHOOL
INTERNAL MOCK 2018
Uganda Advanced Certificate of Education

PRINCIPLES AND PRACTICES OF AGRICULTURE

Paper 2

3 hours

INSTRUCTIONS TO CANDIDATES:

- *This paper consists of sections **A,B,C,D** and **E.***
- *Answer Question* **1** *in section* **A** *and* **four** *other questions selecting* **one** *question from each of the sections* **B, C, D** *and* **E.**
- *Any additional question(s) answered* **will not** *be marked.*

SECTION A 20 Marks

Turn Over

Question 1 is compulsory

1. An ecological field study was conducted on a small fresh water body located in the center of a thickly forested area.
Measurements of some aspects of its biotic components were carried out for a duration covering one decade.

(i) the population changes of the residing haplochromis fish species expressed in thousands.

(ii) the biomass of accumulated decomposing plant materials, expressed in thousands of arbitrary units. (a.u)

(iii) the depth of light penetration of water body in arbitrary units. (a.u)

The table below gives the results of average estimates made. Study the data and answer the questions that follow.

YEARS	0	1	2	3	4	5	6	7	8	9	10
No. of estimated Haplochromis fish ($X10^3$)	36	76	60	82	104	120	114	60	20	26	28
Biomass $X10^3$ (a.u)	100	86	70	64	72	86	102	94	60	50	50
Depth of light Penetration (a.u)	38	27	48	43	15	10	12	25	55	25	30

a) Describe the changes in:
   (i) number of Haplochromis (2 marks)
   (ii) Biomass of accumulated decayed plant materials. (2 marks)
   (iii) depth of light penetration covering the period of research. (2 marks)

b) Explain the relationship between the Haplochromis population and:
   (i) Biomass of accumulated decayed plant materials. (3 marks)
   (ii) Depth of light penetration (2 marks)

c) Describe how you would in two days estimate the population size of Haplochromis in that water body. (3 marks)

d) A part from light intensity, explain other factors that may affect the abundance of fish in their environment. (6 marks)

SECTION B (20 MARKS)

CROP PRODUCTION

2. (a) Mention the characteristics of a good pasture plant. (6marks)

   (b) Explain how you would maintain a balance of pasture species in a pasture range. (6marks)

   (c) Describe how a pasture can be conserved as silage (8marks)

3. (a) Discuss the influence of living organisms in soil formation process. (14 marks)

   (b) Explain the causes of soil acidity. (6 marks)

SECTION C (20 MARKS)

ANIMAL PRODUCTION.

4. (a) Explain how you would maintain a dairy farm free of ticks. (8marks)

   (b) Outline the procedure to follow in hand spraying cattle during tick control. (6marks)

   (c) Give reasons why farmers would prefer hand spraying their animals during tick control. (6marks)

5. (a) Account for the popularity of small ruminants production in the tropics (8marks)

   (b) Suggest the key setbacks to small ruminant production and their remedies in the tropics. (12marks)

SECTION D (20 MARKS)

AGRICULTURAL ENGINEERING.

6. (a) Describe the characteristics of a good livestock house (12marks)

   (b) Outline the factors borne in mind when designing a building for housing farm processing machinery. (8 marks)

7. (a) Describe the events that take place during the strokes of the compression ignition engine. (8 marks)

   (b) What makes tractors with diesel engines more suitable for farm use. (5 marks)

   (c) State the differences between the compression- ignition engine and spark- ignition engine. (7 marks)

Turn Over

SECTION E (20 MARKS)

AGRICULTURAL ECONOMICS

8. (a) What do you understand by the term ***farm planning?*** (2 marks)

   (b) Outline the objectives for carrying out a farm plan. (10 marks)

   (c) Explain why sometimes farm planning does not bring out the expected achievements. (8marks)

9. (a) With the aid of illustrations, state and explain the laws of supply and demand and explain the relationship between supply, demand and price. (8 marks)

   (b) Explain the factors that may lead to an increase in supply of Agricultural commodities. (12 marks)

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