Names:.....**Index**.....

School Exam Number:.....**Signature**:.....

*Candidates should **NOT** write their Centre Name or Centre Number anywhere on this booklet*

P515/3
AGRICULTURE
PRACTICAL
Paper 3
16 August 2018
2 hours

ENTEBBE JOINT EXAMINATION BUREAU

Uganda Advanced Certificate of Education

PRINCIPLES AND PRACTICES OF AGRICULTURE

PRACTICAL PAPER

Paper 3

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2 hours

INSTRUCTIONS TO CANDIDATES:

Attempt **ALL** *questions in the spaces provided.*

FOR EXAMINER'S USE ONLY		
QUESTION	**MARKS**	**EXAMINERS' SIGN $ NO**
1		
2		
3		
4		
5		
TOTAL		

1. Specimens ***R_1, R_2, R_3, R_4, R_5*** and ***R_6*** are machine devices used to do farm jobs.

(a) Identify a particular farm job where each of the following can be used. *($1\frac{1}{2}$ marks)*

R_2 .....

R_4 .....

R_5 .....

(b) Give the adaptation feature(s) on these specimens that make it suitable for use on the job mentioned above. *(01 mark)*

R_3 .....

.....

R_5 .....

.....

(c) From your knowledge about machines, identify three classes / types of machines they belong and indicate where each specimen belongs. Use the table below. *(1 ½ marks)*

Type/ class	Specimen

(d) What maintenance practice would you recommend on **R_1** and **R_5** to ensure their efficiency? *(01mark)*

R_1 .....

.....

R_5 .....

.....

(e) Take the weight of specimen **R** and record it in Newtons (N)

R ..... *(01 mark)*

(f) If **R_6** has a mechanical advantage (M.A) of 0.25, and is used to transfer **R** to a foundation hole located 6metres away by moving through a distance of 3 metres.

(i) Calculate the effort that would be required. *(01 mark)*

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(ii) Calculate the velocity ratio of $\mathbf{R_6}$ *(01 mark)*

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(iii) Find the efficiency of $\mathbf{R_6}$. *(01 mark)*

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(iv) Suggest **one** reason why its efficiency is not 100%

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2. Specimens **J, K, L, M** and **N** were obtained from a farm animal.

(a) Give the possible identity of the farm animal from which they could have been obtained. *(½ mark)*

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(b) State at least **one** function of each of the specimens in the body of the farm animal. *(04 marks)*

J .....

K_1 .....

L_1 .....

M .....

(c) To what system do specimens **J, L_1** and **M** belong in the body of the farm animal? *(1 ½ marks)*

J .....

L_1 .....

M .....

(d) Observe **K_2**

(i) Describe its condition. *(01 mark)*

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(ii) What factor is responsible for its condition? *(½ mark)*

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(iii) Suggest what a farmer can do to avoid such a condition.

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(iv) How does that condition affect the normal physiological functioning of the animal? *(½ mark)*

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(e) Carry out close observation on **L_1** and **L_2**.

(i) State their differences. *(01 mark)*

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(ii) Give the importance of the state of specimen **L_2** is in the life of the farm animal. *(½ mark)*

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3. Specimens **F_1**, **F_2**, **F_3** and **F_4** are chicken feed ingredients.

(a) Categorise specimens **F_1**, **F_2** and **F_3** as animal or plant origin. *(½ mark)*

F_1 .....

F_2 .....

F_3 .....

(b) (i) A farmer wishes to mix 120kgs of a feed ration using the above ingredients, Take the weight of each specimen and calculate their ratios in the ration. *(1 ½ marks)*

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(ii) Calculate the quantities of each specimen that would be required to make the above feed ration. *(02 marks)*

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(c) Solution **H** was prepared from two of the above ingredients; carry out the following tests to identify the nutrients contained in the solution. *(04 marks)*

Test	**Observation**	**Deduction**
(i) To $1cm^3$ of extract **G** in a test tube, add 3 drops of iodine solution.		
(ii) To $1cm^3$ of extract **G** in a test tube, add $1cm^3$ of Benedict's solution & boil.		
(iii) To $1cm^3$ of extract **G** in a test tube, add 3 drops of dilute HCl, boil & cool. Then add 5 drops of dilute NaOH solution followed by $1cm^3$ of Benedict's solution & boil.		
(iv) To $1cm^3$ of extract **G** in a test tube, add $1cm^3$ of dilute NaOH solution followed by 3 drops of $CuSO_4$ solution.		

(d) Give **one** importance of the nutrients identified above in the diet of layer birds. *(01 mark)*

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4. (a) You are provided with specimens **A**, **B** and **C**. Examine them and describe the condition of each of them. *(1½ marks)*

A .....

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B .....

.....

C .....

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(b) Explain the factor in each case that could have led to the condition observed above. *(1½ marks)*

A .....

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B .....

.....

C .....

.....

(c) How could these conditions affect the normal yield and growth of the maize crop? *(03 marks)*

A .....

.....

B .....

.....

C .....

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(d) Categorise the conditions in **A** and **B** soil as physiological or pathogenical cause in each of the specimen. *(01 mark)*

A .....

B .....

C .....

(e) One of the specimens **D** or **E** could be used to correct the condition seen in specimen **B** above, giving a reason, select the specimen that would be ideal to correct that condition and suggest when this could be applied. *(03 marks)*

Specimen .....

Reason .....

.....

Time of application .....

5. (a) Specimen **Z** is a soil amendment. Carry out the following tests on the specimen using the following procedure.

(i) Obtain a small sample from **W**, wet it to make a paste, and call this sample $\mathbf{P_1}$ Feel sample $\mathbf{P_1}$ between your fingers and record your observation. *(02 marks)*

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(ii) Add an equal quantity of **Z** on $\mathbf{P_1}$ and mix to make a paste, call this $\mathbf{P_2}$, feel it between your fingers as above and record your observation. *(02 marks)*

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(iii) Explain the difference in the behaviour of the **two** samples above. *(02 marks)*

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(b) Carry out the following tests on $\mathbf{P_1}$ and $\mathbf{P_2}$ to determine their pH.

(06 marks)

Test	Observation	Deduction
(i) Put one spatulaful of $\mathbf{P_1}$ in a test tube, add $2cm^3$ of water shake and leave to settle for 2 minutes and then add 3 drops of universal indicator solution. Using a pH chart, give the pH of the solution.		
(ii) Repeat the above test using specimen $\mathbf{P_2}$		

END