

**P515/1
PRINCIPLES AND
PRACTICES OF
AGRICULTURE**

**Paper 1
(Theory)
2026
3 hours**



UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Advanced Certificate of Education

PRINCIPLES AND PRACTICES OF AGRICULTURE

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INSTRUCTIONS TO CANDIDATES

*This examination paper consists of two sections; **A** and **B**. It has **six** items.*

*Section **A** has two **compulsory** items.*

*Section **B** has two parts; **I** and **II**. Respond to **one** item from **each** part.*

*Respond to **four** examination items **in all**.*

*Any additional item(s) responded to will **not** be scored.*

***All** responses **must** be written in the answer booklet(s) provided.*

SECTION A

Respond to **both** items from this section.

Item 1

Peter is the proprietor of *PN Agricultural Produce Ltd.*, a company that deals in agricultural produce in a trading centre neighbouring St. Joseph's Secondary School. On 25th January 2026, the company delivered the following products to the school; 700 kg of beans; 1.6 tonnes of maize flour; 750 kg of maize grain; 2.5 tonnes of rice; 645 kg of ground nut seeds; 420 kg of soya bean seeds and 50 bunches of bananas. While still at the school, Peter asked if he could supply them with more quantities subsequently because he still had a lot of unsold produce at the store. Unfortunately, the school could only buy those quantities because it has other suppliers of the same commodities.

On his way back to his store, he suffered a huge loss because the truck was involved in a motor accident that caused a lot of mechanical damage. He is looking for money to rent a truck to make deliveries to other clients and promises to pay back when the school eventually pays him. The prospective lender wants evidence that Peter's company indeed delivered the goods for which the school owes him before he can accept to lend him the money. Peter only saved the details of the transaction on his phone. A week later, the school also realised that the rice had stones mixed with the grains and that the beans were of various colours and sizes while the maize grains had developed moulds.

Task:

- (a) Generate an appropriate document that Peter should present to the lender as evidence that he transacted with the school.
- (b) Analyse the actions that Peter should take to address the shortcomings in the marketing of his produce.

Item 2

Shanitah has been a rabbit farmer for over three years and rears male and female rabbits of different qualities. Some females have four to six teats while others have narrow hind quarters with a thin pelvis. Some males have an empty scrotal sac with testes retained in the abdominal cavity while others have thin chests and weak hind quarters. Most of them reach slaughter age at 18 months and generally have a slow growth rate. She feeds the young ones on the leaves of mature elephant grass. She tried to increase the size of her farm enterprise using the existing herd but the productivity still remained low.

In a bid to improve the productivity, she bought a pure strain of female rabbits with brown coloured fur from a breeding centre. When these reached breeding age, she went back to the same breeding centre and hired a pure strain of male with grey coloured fur and allowed the males and females to breed. The offspring had brown coloured fur. She then allowed these offspring to interbreed and their offspring had fur colour in proportion of three brown coloured to one grey. A client has placed an

order for young rabbits with half the number brown and the other half grey. Shanitah would like to use some of the rabbits in the second generation to meet the needs of the client.

Task:

- (a) Assess with an appropriate genetic method, the offspring that Shanitah will use to achieve the client's demand.
- (b) Evaluate the measures Shanitah can take to improve performance of her original stock.

SECTION B

Part I

Respond to one item in this part.

Item 3

Kapere rears cattle on a piece of farmland measuring 200 m x 150 m that he would like to enclose using a barbed wire. He intends to leave a spacing of 5 m between the posts and a gate of the same width, so he bought 180 fencing posts. On this farmland, he has a calf barn, cattle dip and other cattle houses.

His cattle are often observed crowding around the watering points. The calf barn has solid partition walls that reach the roof while the walls of cattle houses are always damp even during the dry season.

He wishes to replenish the dip wash in his dip tank of capacity 15,000 litres using 100 litres of an acaricide whose mixing ratio is 1:40 (acaricide: water).

He visits his farm regularly and notes a number of observations. After trimming the calves' hooves, some calves are seen with bleeding hooves. Some cattle have pale gums, swollen bellies and rough hair coat despite good feeding. Over time, a section of the grazing land became bare. Mature bulls are left to freely graze with breeding females.

The lactating cows are milked following a weekly schedule given below.

Table showing Kapere's weekly milking schedule

Day	Milking time	
	Morning	Afternoon
Monday	7:00am	3:00pm
Tuesday	8:00am	2:30pm
Wednesday	7:30am	3:30pm
Thursday	8:30am	4:00pm
Friday	6:40am	2:00pm
Saturday	7:45am	3:15pm
Sunday	8:15am	3:45pm

Milking each cow normally takes 15-20 minutes during which he pulls the teat between the thumb and the index finger. Kapere's farm productivity is less than what he projected when starting the farm.

Task:

- (a) Analyse the contribution of the practices and observations on Kapere's farm to the observed productivity on the farm.
- (b) Justify the interventions Kapere can take to increase productivity on his farm.

Item 4

Dorothy started a broiler chicken enterprise with a target to supply broilers during the Christmas festivities. She constructed a deep litter poultry house of 10 m x 10 m and prepared it by laying litter and placed 50 round feeders and 15 drinkers. She stocked the house with 1500 chicks at the beginning of September 2025.

Two weeks later, she realised that in the poultry house, the base of the walls and the litter close to the walls was always wet.

Occasionally, some of the chicks died and she would dispose these off at a nearby rubbish heap. Sometimes, chickens would be seen wing-spreading and panting.

To carry out routine practices on the birds, Dorothy would use her labourers to run in the poultry house and catch a few birds by their legs. Chicken droppings were scattered all over the litter.

Often times, she slaughters some of the birds and supplies the meat to a nearby restaurant. These are slaughtered by hanging upside down with the legs tied on a cross bar before cutting off their necks. The birds would be seen flapping their wings during the process.

Her clients always complained that they would find partially digested food in the crop and intestines after slaughter. Buyers of the meat also complain that the meat is not of good quality. Dorothy is disappointed with the returns from her enterprise. Dorothy's supplier of day-old chicks and feeds provided her with the information in the table below.

Table showing information about different parameters in broiler rearing

Parameter	Units	Recommended Number
Stocking density	Birds/sq.m.	6-8
Water supply	Birds/drinker	100
Feed supply	Birds/round feeder	20

Task:

- (a) Analyse the causes of poor performance of Dorothy's enterprise.
- (b) Appraise the measures Dorothy should undertake to deal with the problems at hand and improve performance of her enterprise.

Part II

Respond to one item in this part.

Item 5

Deng is a foreigner who came to Uganda in search of land to establish a sugarcane plantation. He bought land in Gulu on freehold basis. He observed that a few minutes after a gentle rain, water would flood on the surface of the land and that the shrubs that were growing in the land had their roots confined in the top 15cm of the soil. He hired labourers to clear the land but these took two months to finish the work since the land was very extensive.

He was advised to take samples of the soil to a soil laboratory before planting the sugarcane. Results showed that the sample taken had a hydrogen ion concentration of 0.01 mol/L

He prepared a seedbed for the sugarcane plants and obtained cuttings that were the top-most parts of the plants that were harvested and taken to the factory from one of the out-growers in the region. He planted the cuttings but a few months after sprouting, he realised that the stems of the new sugarcane plants were very short with reduced internodes. To increase vegetative growth during the dry season, he applied Urea fertilizer.

Weeds later attacked the sugarcane plants and he applied a herbicide to the part of the plantation with the highest infestation while labourers were used to weed the remaining part. Unfortunately the herbicide also killed the crop plants in the part it was applied to. The workers who did the weeding always complained of injuries inflicted on their legs and arms by the sharp edges of the plants.

He also observed pinkish oval insects beneath the sheaths of the plants among the surviving plants.

Towards harvesting, he irrigated the crop plants. The sugarcanes that were harvested five days later gave a drum-sound when struck. He harvested using machines that chopped the cane into very small pieces during harvesting. Generally, he was not impressed with the yield from his sugarcane.

Task:

- (a) Examine the factors that affected the yield from Deng's farm.
- (b) Evaluate the practices Deng should undertake to overcome the production issues on his farm in a bid to improve yield from his enterprise in subsequent seasons.

Item 6.

Janat bought a piece of land in Kabale by way of signing a land purchase agreement with the seller as evidence of ownership. The land was to be used for growing Irish potatoes. She however realised that in some parts of this land, the soils would dry up very fast after the rains while in others, pools of standing water could be seen on the soil surface. She cleared the land and prepared a flat seedbed in preparation for planting.

She bought 200,000 potato fresh seed tubers for planting and planted all of them two days later on her 150 m x 150 m piece of land. According to the area agricultural officer, Irish potato should be planted by sowing two tubers per hole at a spacing of 30 m x 75 cm. Planting was done a month after the rains stabilised.

A few weeks after crop emergence, weeds also emerged and she controlled them by spraying using a herbicide that she mixed with water in a basin and sprinkled to the leaves using a broom. Six weeks after emergence, leaves of many plants developed dark brown spots and tubers from these crops would be found rotten whenever they were dug out.

From the third month, she occasionally dug out one or two plants from different parts of the field to check the progress of the crop but these were found with pimple-like swellings on the roots so she bought a contact pesticide that she applied to the foliage to address the situation. She would also find some of tubers exposed and turning green in colour.

She harvested the crops during the heavy rains, using a hand hoe. She would find some tubers with buds during harvesting.

At one of the Harvest Money Expos at Kachwekano ZARDI, the yield from the same acreage of land was quoted to be more than two times what Janat obtained from her farm, according to the trainer.

Task

- (a) Examine the causes of low yield from Janat's farm.
- (b) Assess the measures Janat can take to address the challenges faced and increase yield on her farm.