

**527/1**

**UGANDA CERTIFICATE OF EDUCATION**  
**PRINCIPLES AND PRACTICES OF AGRICULTURE**  
**PAPER 1 - THEORY**

**SUGGESTED MARKING GUIDE**

**PART A (20 MARKS)**

- 1 (a) - B  
(b) - C  
(c) - B  
(d) - D

Award ½ mark each ½x4= (02 marks)

2. Drainage in water logged areas.  
- Terracing in hilly areas  
- Bush clearing in forested areas  
- Irrigation in arid and semiarid areas

**Award 1 mark for 1 point 1x4 = (04 marks)**

- 3(a).** – It enables a farmer to know whether the farm is solvent or insolvent  
It enables a farmer to acquire a loan/credit  
It is important for members to share dividends in case of cooperative basis.

**Award 1 mark for 2 point 1x2 = (02 marks)**

- (b).** A risk is a situation where a former has partial knowledge of the future events and can be insured against (OWETTE)  
**(Award 02 marks)**

1. Coat them with used Engine oil to avoid rusting  
- Paint them to avoid rusting  
- Sharpen cutting tools regularly  
- Hang them on racks to avoid rusting  
- Replace damaged parts immediately  
- Use tools for the right Job  
- Repair damaged parts immediately

**Award 1 mark for any 5 points 1x5 = (05 marks)**

2. - It avoids frictions between moving parts  
- It avoids rusting of metal engine parts

It acts as a cooling agent  
It acts as a cleaning agent because it has detergents  
It traps dust and metal filings as a result of tear and wear

**Award 1 mark for any 5 points 1x5 = (05 marks)**

3. (a). Individual money lenders
- Commercial banks
  - Insurance Companies
  - Cooperatives
  - Merchants or traders
  - Non-governmental organizations e.g. micro finance

**Award 1 mark for any 5 points 1x5 = (05 marks)**

- (b) Short grace period given
- High interest rates demanded
  - Natural hazards e.g. drought/floods
  - Poor health of the farmers or family member
  - Shortage of extension staff
  - Poor planning and management
  - Change in Demand
  - Insecurity/theft of the produce on the farm and during transit
  - Price fluctuation
  - High risks in Agriculture
  - Death of a farmer
  - Pests and diseases

**Award 1 mark x 10 points 1x10 = (10 marks)**

- (C). Farmers should be informed about available viable business
- They should be sensitized on how to manage firms
  - They should be taught on how to manage firms
  - They should ensure that collateral securities are presented before acquiring credit facilities
  - They should follow up credit/ farmers

**Award 1 mark for any 5 points 1x5 = (05 marks)**

7(a). It's able to work in areas of obstacles due to its free rolling action

- Its heavy and effective in heavy cultivation
- It's important in Soil and water conservation due to its poor ability to cover trash
- It requires less tractor power to pull
- It has a low maintenance cost since it has no shares to sharpen
- It is able to work in heavy sticky soils
- It's a quick and has a fast rate of doing work
- It ploughs well in areas covered with long loose rubbish as it rolls over them
- It loosens and mixes the soil rather than inversion
- It's easy to mount on a tractor
- It's able to work in hard soils

**Award 1 mark for any 10 points 1x10 = (10 marks)**

(b). Start the engine

- Drive the tractor forward and set in line with the plough
- Drive backwards towards the plough/reverse the tractor
- Set until lower links come in contact with the plough
- First connect the right lower links. This will give support the top link
- Adjust the top link level, pulling and pursuing the plough to ensure connection of the second lower link
- Connect the left lower link
- Fix and tighten the bolts and nuts
- Carryout proper setting and adjustments for proper ploughing
- Use hydraulic to lift the plough off the ground
- Drive the tractor off to the garden to plough

**Award 1 mark for any 10 points 1x10 = (10 marks)**

8 (a).– Ensure that the land being fenced is the right one

- Clear the area where a fence line is going to pass
- Use pegs to set the position of the posts
- Set them in a straight line using a sisal string
- Set the corner and gate posts together with their support at each end
- Dig post holes just wide enough to take the size of the post using a hole digger
- Fit the posts and struts in their respective holes
- The posts should be 2 meters above the ground
- Pour in concrete and mortar and ram frequently
- Fit in the standards and repeat the procedure
- Nail struts to .. and gate posts with long nails
- Stretch the wire using a wire strainer
- Fix the wires using U nails
- Repeat the procedure with the remaining strands of wire
- Fix droppers to avoid wire sag

**Award 1 mark for any 10 points 1x10 = (10 marks)**

(b). It facilitates rotational grazing and night paddocking

- Helps the farmer to isolate sick animals
- They avoid boundary disputes
- They make mixed farming possible
- Double fences are effective in control of ticks
- Live fences add beauty to land
- They confine farm animals for specific operations and management
- It restricts wandering animals from entering the farm
- They help to group animals according to their age which makes feeding easier

- They protect water points safe for farm use
- They reduce on labour requirement on the farm as livestock do not need to be followed
- They add value to farm land
- They help to seal off dangerous points e.g. holes and vallies
- They help to control breeding/random mating

**Award 1 mark for any 10 points 1x10 = (10 marks)**

9(a). – Livestock hunting for paratable pastures

- Poor conditions of livestock
- Wet areas containing marshy plants
- Presence of implantable plants and weeds
- A low portion of productive pastures
- Presence of a layer of un-decayed plant residues

**Award 2 marks for any 5 points 2x5 = (10 marks-block marks)**

(b). Fencing and division of the area into padlocks

- Controlled burning to reduce a layer of dead plants
- Application of lime to reduce acidity of soil
- Spray unpalatable pastures with molasses mixture to improve palatability
- Removal of poisonous weeds and plants
- Conservation of grasses in form of ... hay
- Ring banking of un wanted trees to open up the area
- Closer herding of livestock to give uniform grazing but avoid overgrazing
- Good distribution of water points to avoid over and under grazing
- Over sowing and spot sowing of nutritious grasses and legumes
- Application of fertilizers to improve soil fertility

**Award 1 mark for any 10 points 1x10 = (10 marks)**

- 10.a. They can grow in a variety of soils
- They reduce little labour and attention
- They can stay in the soil for a long period of time until required
- They are resistant to many pests and diseases
- They require processing before eating compared to cereals

**Award 2 mark for any 5 points 2x5 = (10 marks)**

(b). **by pricking out.** This is the removal of excess seedlings form the nursery bed to another nursery bed or seed box

- It is done to avoid completion
- **Hardening off:** This is the gradual exposure of seedlings of actual field condition/ to clamitise to field conditions
- **Watering:** This should be done twice a day i.e. in the morning and evening
- **Spray with Chemicals** to control pests and diseases

- Hand weeding to avoid competition

**Award 2 mark for any 5 points 1 mark mention, 1 mark explanation 2x5 = (10 marks)**

11a). Through dinitrification

- Through immobilization
- Through leaching
- Through burning
- Through leaching
- Through plant uptake

**(b).** Nitrogen  
agrobacter

16% CP

- -

and animals to form organic matter

- Purification of ammonification of organic matter to ammonium compounds
- Nitrification of Ammonium compounds to Nitrites and to Nitrates
- Dinitrification of nitrates to Nitrogen air

**Award 2 mark for any 7 points 2x7 = (14 marks-block marks)**

- Trough soil erosion

**Award 1 mark for any 5 points 1x6 = (06marks)**

fixation through free living bacteria  
and symbiotic bacteria rhizobium

- Absorption nitrates by plant  
roots

Feeding of animals on plant proteins

- Death and decay of plants

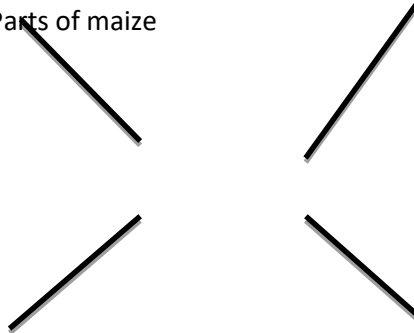
**2 (a). Using Pearson square method**

Ration reduced 16% CP

Ingredients

- Maize bran 42% Cp ingredients
- Cotton seed cake 28%

Maize 42% Cp 12 Parts of maize



Cotton Seed Cake 28% Cp

26 Parts of Cotton Seed Cake  
38 Total Parts

$$\text{Proportion} = \left( \frac{\text{Part}}{\text{Total Parts} \times 100} \right) \%$$

1 mark

$$\text{Proportion of maize} = \left( \frac{12 \times 100}{38} \right) \%$$

31.5% cp/=32% Cp 2 marks

Proportion of cotton seed cake

$$= \left( \frac{26 \times 100}{38} \right) \% \quad 1\text{mark}$$

68.4%/=68% Cp 2 marks

Total 15 marks

(b). – Cost of the feed material

- Nature of final mixture ie mash/pellets
- Palatability of the feed
- Wholesomeness i.e should not cause disease
- Age of the animal
- Type of the animal i.e. ruminants/non ruminants

- Nutrient Composition
- Availability of the feed

**Award 1 mark for any 5 points 1x5 = 05**

13(a). – Restrain and slaughter the animal

- Hoist the animal to ensure complete bleeding
- Flay the animal carefully to avoid damage
- Wash hides in running water using a brush
- Hang to drain
- Carry out fleshing to remove non leather materials
- Suspend hides in poles to dry
- Trim hides to make them regular

- Fold hides along the spine with the hairy and part inside
- Tie hides in bales and transport for sale.

**Award 2 marks for any 6 points arranged in order  $2 \times 6 = 12$**

- b). Damage by parasites e.g.
- Physical and mechanical damage
  - Diseases e.g. ring worms
  - Bursae due to poor transportation
  - Careless branding
  - Poor feeding of farm animals

**Award 1 mark for any 4 points  $1 \times 4 = 04$**

- 14. Ensure that the milking shades and clean
- The milking utensils should be clean
- The milker man should be clean
- Bring the animal to the milking shade
- Give the animal something to eat
- Wash the teats of the animal using warm, water and soap
- Dry the teats using a hand towel
- Drop milk into the strip cup from each teat to test for mastitis
- Animals with mastitis should be milked last and milk poured away
- Apply milk salve/jelly on teats to reduce friction
- Milk quickly to take advantage of milk let down
- Filter milk using a milk sieve
- Put milk in a milk can and transport for sale

**Reject where students don't bring the animal to the shade**  
**Award 2 mark for any 10 points arranged in order  $2 \times 10 = 20$**