

# GATUNDU FORM 4 EVALUATION EXAM

## AGRICULTURE PAPER 1(ONE

443/1

### MARKING SCHEME

#### SECTION A (30 MRKS)

1. Difference between olericulture and pomoculture

- Olericulture –Growing of flowers
- Pomoculture –growing of fruits

2 Physical weathering agent

- Wind
- Water
- Temperature changes (1 ½ mrks)
- Moving ice /glaciers
- 

3 Methods of farming

- mixed farming
- Nomadic pastoralism
- shifting farming
- Organic farming
- agro-forestry

4. Variable and fixed cost in broiler production

a) Variable cost

cost of the feed

cost of drug

b) Fixed cost

- cost of feeders and waterers
- Cost of structure/Depreciation of poultry house
- Cost of chicks

5. Advantages of crop rotation (2mrks)

- Improve soil structure
- Control soil borne pest and diseases
- Ensure maximum utilization of farm labour (2mrks)
- Aids in weed control
- Improve soil erosion
- Security in case of failure on one crop

-Add nitrogen through N-fixation by Rhizobium bacterial when legume are included

6. Factors considered when classifying crop pests

- crop attacked /mode of felling
- whether field /storage pest/stage of attack (2mrks)
- Crop part attacked
- science classification e.g. insect mite, rodent

7. Reasons why water logged oil is unsuitable for most crops ( 1 ½ marks)

- It is not aerated (as water expels air)
- It lacks micro-organism
- It is always acidic
- Low temperature

8. Advantage of tissue culture (2mrks)

- Used to establish pathogen free plant
- Used in mass production of propagules
- It is fast and require less space than use of cutting
- Used to propagate plants that don't produce seeds

9. Observable indicators of economic development of a nation (2mrks)

- Development of infrastructure
  - Housing status of the citizen
  - Increase in recreation facilities
  - Ratio of teachers to students
  - Improvement in the level of technology
  - Number of patients per doctor
- (more illustration )

10 Three indicators of well decomposed manure (1 ½ mrk)

- Absence of bad odour
- Material are light in weight
- Manure is blown in colour

11. Condition where opportunity cost does not exist (2mrks)

- where there are no alternative
- If anything is given for free

12 Management practices that promote high herbage yield in pasture production (2mrks)

- Top dressing
- Reseeding
- Topping
- Pest control
- controlled grazing

13. Reasons why primary cultivation should be done early before the onset of the rains. (1 ½ marks)

- Give time for the soil organism to act on organic mater
- Allow gaseous exchange to take place thus carbon dioxide diffuses out of the soil .
- Allows other operations to take place in time .

14 Two examples of farm records that are general in nature (1mrk)

- Production records
- inventory
- field operation records
- Breeding records
- Feeding records
- Heath record
- Marketing record
- Labour record

15. Roles of nitrogen in plants (2mrks)

- vegetative growth
- Chlorophyll formation
- Build up of protoplasm
- Improves leaf quantity in leaf crops such as tea and cabbage

16. Benefits of possessing a land title deed to farmer .(2mrks)

- Can be used as security for credit
- Encourage long term investments
- Reduce land disputes
- Motivates the farmer to conserve soil and water

## **SECTION B (20 MRKS)**

**Answer all the question in this section in the space provided.**

17The diagram below illustrates a feature observed after digging the soil several metres Study it carefully and answer the questions that follow.

- Soil profile(1mrk)
- Transitional zone (1mrk)

- c) Because sometimes minerals are leached from the soil and accumulate in the layer b (1mrk)  
 d) Ways in which the knowledge of the above feature would be of benefit to a farmer(2mrks)

- Decides what crop to grow
- How best to cultivate the land

18a) Tissue culture

- b) Banana & passion fruits  
 c) Three ingredients used when preparing tissue culture  
 -Sugar (1 ½ mrks)  
 -inorganic minerals  
 -Vitamins

19a) Profit and loss account for Mr Juma 's farm for the year ended on 31<sup>st</sup> March 2015v

Purchase and expense ₦		Sales and receipts ₦	
	ksh		Ksh ₦
Opening valuation	100,000	Sales of milk	13,000
Calves	72,000	Sales of cereals	33,000
Hired labour	21,000	Sales of vegetable	9,300
Rent	9,000	Sales of poultry	1,800 v ₦
Feed	5,300 v ₦		
Seed	1,700	Sales of fruits	700
Fertilizer	4,700		
Pesticides	1,250	Closing valuation	90,000
Depreciation	650		
Repair and maintenances	950		
Interest on loans	200		
Total	216,750 ₦	Total	147,800
		B/F/loss	68950
		Total	216,750

NB v ₦ = 1 ½ marks (entries) = 3

$$₦ = \frac{1}{2} \times 8 = 4$$

b) loss ( ½ mark) 7 marks

20a) Maize stalk borer(1/2 mark)

B-)millet(1/2mrk)

- Sorghum
- sugarcane

c) crop rotation (3mrks)

- early planting
- Rogueing
- clean seedbed
- planting clean seeds

- trap cropping
- proper nutrition
- proper spacing
- timely planting

### **SECTION C (40 MRKS)**

#### **Answer any two questions in this section in the spaces provided ( 6 marks)**

21a) Six advantages of rotational grazing (6mrks)

- The livestock make maximum efficient use of pasture.
- it reduces the buildup of pest and diseases.
- animals waste is distributed evenly in all paddock or field
- Excess pasture can be harvested and conserved
- It is possible to apply fertilizers and control weeds , pest and diseases in the pasture that are not in use
- It allows a resting period for the pasture to regenerate before been grazed on again (6mrks)

b) Eighty ways in which soil fertility can be maintained. (8mrk)

- adding manure to the soil to enrich it with nutrients.
- using inorganic fertilizers which releases nutrients in forms that are readily available to plants.
- practicing crop rotational to ensure balanced nutrients use.
- using appropriate tillage, for instance minimum tillage.
- regulating soil ph through liming
- controlling soil erosion
- practicing a forestation and reforestation
- By irrigation which increases availability and uptake of plant nutrients and reclaims saline soil
- through mulching
- By weeding to reduce competition for nutrients.
- By practicing inter cropping preferably with legume to enhance nitrogen fixation.

c) Six factors considered when drawing a farm plan. (6mrks)

- size of the land
- environment factors
- the current trend in labour market
- farmers objectives and preference
- possible production enterprises
- existing market condition and price trends
- availability and cost of farm inputs
- government regulation /policy
- security
- communication and transport facilities (6mrks)

22a) Factors that influences the type of irrigation to be used in a farm (8mrks)

- topography
- Soil type
- type of crop to be irrigated
- amount of water available
- distance of the source of water to the field
- capital available, skill available
- climate factors of the area

b) Six reasons for pruning coffee (6mrks)

- To train the plant so that it can have the required shape
- To remove the diseased and the unwanted parts of a plant such as extra suckers ,leaves ,branches ,flowers or even stems
- To control cropping
- To facilitate picking to ease penetration of the spray
- To control pest and diseases.

c) 6 ways in which labour productivity can be improved on a farm (6mrks)

- Training the labour force
- Efficiency supervision of labour
- Mechanizing farm operation or providing more efficiencies tool and equipment.
- Giving incentive such as proper housing, transport, bonuses and medical services.
- Proper regulation of the workers
- assigning task to workers according to their skills, ability and interest.

23 Importance of agro forestry in soil and water conservation (6mrks)

- Improve soil fertility through nitrogen fixation
- add organic matter to the soil which increases water infiltration
- Acts as wind break preventing wind erosion
- Provide shade to crop reducing evapotranspiration
- Trees intercept the rain drop reducing erosion rate
- Tree roots hold soil particle preventing their movement

b) Procedure of silage making

- Prepare silo before harvesting the crops
- Harvest crop at appropriate size
- Wilt the crop for 6-12hours
- fill the silo with crop compacting every 10-12 layer
- Check the temperature regularly to ensure correct ensiling temperature
- Cover the ensiled material with polythene paper
- Cover the silo with thick layer of the soil to maintain a ridge/hump to prevent rain water entering the silo

-Dig a trench all around the silo to drain water away to rain water /seepage.

c) Effects of over application of nitrogenous fertilizer

-Occurrence of blossom and rot diseases

-Delayed maturity of plants

-Fruits crack when young .

-Grow more vegetative parts and produces less fruits

-Scorching effective on leaves

# GATUNDU FORM 4 EVALUATION EXAM

## AGRICULTURE PAPER 2

443/2

### MARKING SCHEME

#### SECTION A (30MRKS)

##### 1. Appropriate tools for

###### a) removing metal chippings in the files

-wire brush (1x1) (1mrk)

###### b) Cutting wood along grains

-rip saw 1x1(1mrk)

###### c) Branding

- Branding iron 1x1=1mrk

##### 2. Characteristic of boran cattle

-Compact, deep and wide body

- Long, wide, drooping rump

-Large hump and dewlap

-Usually white in colour hence radiates heat

-Slow growth rate and late maturity

-Resistant to high temperature

-Cows weigh 410-450kg, bulls 550-650 kg (4x1/2 =2mrks)

Used to improve zebu

##### 3. Function of useful bacteria in livestock production

-Digestive of grass and fibre in the rumen

-Fermentation of yoghurt/milk products 2x ½ =1mrk

##### 4. Function of lipids

-Consistent of body cell/part of body cell

-carries fat soluble vitamins A,D,E, K

-Insulate body /prevent body heat loss

-Provide energy stored in reserves 4x ½ (2mrks)

##### 5. Ways of reducing friction in moving parts of farm tools

-oiling



-Greasing

2x ½ =(1mrk)

6. Types of fences used n mixed farm

-Electric

-plain wire

-Barbed wires

-Wooden fence

-Woven wire fence/chain link

-Stone /brick fence/block fence

7. Method of out breeding

-out crossing

-Cross breeding

- Grading up /Up grading

3x1/2=1 ½ mrk

8. Reason for tailing in sheep production

-Prevent blowfly infection

-Prevent soiling of wool with urine and feces

- Facilitate even distribution of fat in the body

2x ½ =(1mrk)

9. Parts of cow s udder

- Lobule

- alveolus

-lobe

- teat cistern

-teat canal

-gland cistern

-teat sphincter muscles

-annular fold

10. Ways of transmitting livestock diseases

-open wounds

- Body contact with affected animals

-Inhalation of pathogens

-Insect vectors

-Ingestion of contaminated food and water

-Contaminated surgical instruments

5x ½ =2mrks

11. Features of improved grain bin

- Raised above ground
- Have rat guard on supporting posts
- Have impermeable wall to guard against rain water .
- Proper ventilation to control variations.
- Have proper roofing to protect grain from sunlight and rain 4x1/2=(2mrks)

12. Types of calving complications (3x1/2 =1 1/2mrks)

- Breech presentation
- One or both forelegs bent backward
- head twisted backward to either side
- Whole reproductive tract twisted

13. Advantages of zero grazing

- high milk yield
  - quick accumulation of manure
  - easy control of parasite and diseases
  - less wastage of feed
  - Large number of animals reared in a small area/allow high stocking rate .
- 4x1/2=(2mrks)

14. Function of queen bee

- lay eggs
  - Production of pheromone which keeps colony together
- 2x 1/2 =(1mrk)

15 Symptoms of anaplasmosis

- constipation/hard dung
- fever
- paleness of gum eye lips --Fast breathing and heart beat
- yellow urine, animal do not chew cud
- No milk flow from udder

4x1/2=(2mrk)

16 Terms

- a) Caponisation -sterilizing male bird
- b)bullock –mature castrated male cattle
- c)Episplasis-a combination of inferior gene which individually could express themselves

**SECTION B**

A)Type of cooling system

- Air cooled system 1x1=1mrk

b) parts

- J-Finned cylinder
- K-crank case
- L-metal cowling
- M-fly wheel(blower)

4x ½ =(2mrk)

c) Problem associated

- uses heavy lubricating oil which are expensive
- get hot quickly
- Cooling not adequate when carrying heavy load

2x1(2mrks)

18. Method of extracting honey

a) heat method

b) Why x should not be heated directly

- To prevent destroying honey by heat 1x1=(1mrk)

c) Parts

- W-Honey combs
- Y-water

2x1=(2mrks)

d) Other method of honey extraction

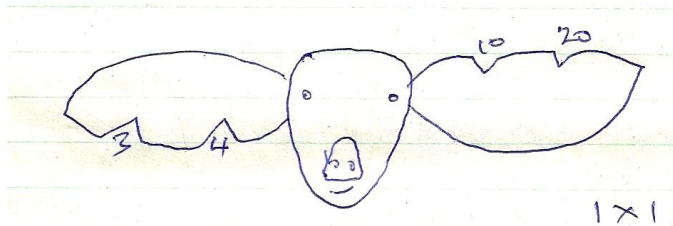
- Crushing and straining
- Centrifugal method 1x1=1mrk

1x1=(1mrk)

19 a) practice illustrated

- Ear notching 1x1=1mrk

b)Illustration for number 37



c) Other method of identifying piglet

- Ear tagging
- Ear tattooing

2x1=(2mrks)

20a) activity shown

- Hand milking

1x1=(1mrk)

b) Activity carried out before the operation

- Restraining animal
- Providing food
- Washing udder of animal
- wiping udder dry
- Testing for mastitis

1x1=(1mrk)

c) Procedure of carrying out practice

- (i) -Assemble milking equipments
- (ii)- Provide food
- (iii) -Put cow in milking shed and restrain it
- (iv)-Wash udder using warm water
- (v)-dry the udder with clean towel
- (vi)-Use strip cup to test mastitis
- (vii)-Milk animal /strip the teat dry
- (viii)-Dip teats in antimastitis solution
- (ix)-apply milking jelly /milk salve on teats
- (x)-Release cow

3x1=(3mrks)mark as whole

Stop marking where procedure is broken

SECTION C (40 MRKS)

21. a) Management practice on a fish pond to ensure maximum fish harvest

- Control stocking rate
- Control water pollution
- Supply adequate food regularly
- Provide appropriate feed
- Ensure constant in flow and out flow of water /aerate water
- Control predators
- Harvest fish at the correct maturity age .
- Maintain appropriate water level always

7x1=7mrks

b) Importance of farm mechanization

- Farm operation are achieved on time
- Large areas can be covered within short time
- Reduce drudgery /makes work easier and enjoyable
- Increased efficiency /better job done mechanically
- High yield due to timely operation
- Pest and disease outbreak controlled in a shorter time
- Encourage farmer to consolidate land

- Farmer benefit from economic of scale
- Uses less labour

6x1=6mrks

c) Short term maintenance practice on a tractor 7x1=(7mrks)

- Check level of engine oil using a dip stick
- Check fuel tank to ensure there is enough fuel
- Check level of electrolyte in battery and adjust accordingly
- Check level of water in radiator and top if necessary .
- Grease /oil moving parts
- Check for belt tension and condition and adjust accordingly
- Check the air cleaner to ensure there is no dirt /check level of oil
- Check the tyre pressure before work and adjust accordingly
- Tighten loose nuts ,bolt and pins
- Remove dirt from sediment bowl

22a) Features of a piggery unit

- Farrowing pen; to ensure safe farrowing and safety of piglet; hence should be provided with farrowing crates and heat source;
- Gilt pen; for keeping young female up to service age
- Boars pen; for breeding boar should be spacious for exercise
- Weaners pen; to house piglet after weaning
- In pig pen; for pregnant sow awaiting farrowing
- Running yard; for sunbathing and dunging
- Feed store for storing pig feed
- Water trough; for watering pigs
- Record room; for keeping feed and weight records
- Roofing; for their protection against extreme weather conditions.
- Feed troughs; for feeding pigs.

-10x1=(10mrks)

b) Factors that influences the work of the output of a draught animal

- Age of the animal –very young and very old have lower out put compared to mature animal
- Level of training –Well trained animals are more efficient than poorly trained ones –They are able to follow simple instructions
- Method or harnessing –Well harnessed animal are more efficient than poorly harnessed animal
- Body condition – A well fed draught animal is strong and healthy hence it has a higher work output compared to one that is poorly fed
- Weather condition –Adverse temperature (very high ,very low reduces the work output of draught animal .The animal work best under suitable weather condition

- Duration/ hours of work –Overworked animals tend to have a low work output ,draught animal should be given sufficient time to rest
- Condition of working implement, well maintained Implement are easy to work with and this improves the work output of the animal

Any 5x2=(10mrks)

23a)Methods of controlling tick (10x1=(10mrks)

- Use of natural enemies e.g. ants and birds
- self licking to dislodge ticks
- Burning infected pastures land to expose eggs to the sun
- Top dressing pastures with lime
- Fencing off pasture land.
- Keeping animals away from infected pasture to stave ticks .
- Rotational grazing help to break life cycle .
- Deticking from livestock and killing them .
- Spraying with acaricides or dipping in acaricides
- Hand dressing using pye-grease.

b)The management of grower up to the point of lay

- Feed the grower on adequate growers mash per bird per day .
- Supplement the grower s mash with grains and greens .
- Introduce soluble grit /oyster shells at 20<sup>th</sup> week
- Provide adequate clean water and libitum.
- Adjust floor space; allowance; as the bird age appropriately
- Give a booster vaccine against new castle disease at 20 weeks of age at the 18<sup>th</sup> week ,vaccinate against fool pox
- Drench the birds regularly against internal parasites.
- Dust the bird with the appropriate pesticides against external pests .
- Control predator such as rat /cats .
- Feeders and waterier should be cleaned and disinfected daily .
- Maintain foot bath at the entrance of the poultry house .
- Keep the litter as dry as possible /turning it regularly .
- Introduce the layer mash from the 18<sup>th</sup> week and increase gradually .
- Provide roosts /perches for the birds to perch on from the 9<sup>th</sup> week .
- Birds start laying at 18-21 weeks of age depending on the breed .

Any 12x1=12mrks)