Name : ………………… Adm. No. : ……………………..

School : ………………… Sign : ……………………..

Date : …………………….

443/1

AGRICULTURE

PAPER 1

THEORY

OCTOBER/ NOVEMBER 2013

KILUNGU DISTRICT 2013

FORM FOUR ENTRANCE JOINT EXAM

INSTRUCTIONS

1. This paper consists of three sections A, B and C
2. Answer all the questions in section A and B in spaces provides
3. Answer any two question in section C

For examiner’s use only

|  |  |  |  |
| --- | --- | --- | --- |
| Section | Questions | Max. score | Candidate’s score |
| A | 1 – 20 | 30 |  |
| B | 21-24 | 20 |  |
| C |  | 20 |  |
|  |  | 20 |  |
| Total |  | 90 |  |

FORM III AGRICULTURE PAPER 1

ENTRANCE JOINT EXAMS (SECTION A – 30MKS) ANSWER ALL QUESTIONS

1. Give two factors that influence planting depth of crops (1mk)
2. Give two benefits of correct plant population in annual crops (1mk)
3. State two ways through which one would acquire land (1mk)
4. List four disadvantages of overhead irrigation (2mks)
5. (a) What is solifluction? (1mk)

(b) State two factors affecting solifluction (1mk)

1. State three ways by which biological agents can enhance the process of soil formation (1 ½ mks)
2. State four advantages of adding organic manure to sandy soil (2mks)
3. State 2 forms in which nitrogen is absorbed by crops (1mk)
4. State 4 ways of harvesting water in the farm. (2mks)
5. State 2 roles of good soil aeration in crop growth (1mk)
6. Outline three reasons for root pruning in agroforestry seedlings ( 1 ½ mks)
7. State two reason why settlement schemes were established in Kenya (1mk)
8. State two factors that must be considered when constructing cut off drains (1mk)
9. State two effects of low temperature on crop production (1mk)
10. (a) What is land fragmentation in farming (1mk)

(b) State two causes of land fragmentation in Kenya since independence (1mk)

1. List four benefits that a farmer may devine agro-forestry trees (2mks)
2. Give 4 factors that determine the number of times secondary cultivation is done on a seed bed. (2mks)
3. Give the meaning of the following field practices carried out on a nursery bed.
4. Pricking out (1mk)
5. Hardening off (1mk)
6. State four disadvantages of using agro-chemicals in crop production (2mks)
7. Give two reasons as to why agriculture is said to be an art (1mk)

Section B (20marks)

Answer all questions

1. The diagram below is a presentation of a cross section through a compost heap. Study it and answer questions that follow

Diagram

1. (i) Name the part labeled 1 – 6 (3mks)

(ii)Give the importance of 5, 4 and 3 (3mks)

1. Why is it advisable that;
2. A long sharp pointed stick is driven into the heap at an angle (1mk)
3. A compost pits are preferably done in drier areas (1mk)
4. The diagram below shows an experiment set up using different soil types A, B and C. the observation is made after 24 hours.

Diagram

1. State what the experiment was designed to study (1mk)
2. Name the soil type labeled A, B and C (3mks)
3. State three ways in which soil structure influences crop production (3mks)
4. The illustration below shows two broad varieties of tomato

Diagram

1. Identify the two broad varieties (2mks)

J -

K-

1. State two characteristics of K which makes them popular amongst farmers (2mks)
2. Give one major reason as to why a farmer may opt to produce variety J. (1mk)
3. Below are diagrams of irish potato tubes after being subjected to some conditions in preparation for planting

Diagram

1. Which process of potato treatment is illustrated above? (1mk)
2. State two conditions necessary for the above process (1mk)
3. Give two reasons for carrying out the above practice (1mk)

Section C (40mks)

Answer any two questions

1. (a) Discus five importance of crop rotation (10mks)
2. Explain five factors determining the stage and time of harvesting crops (10mks)
3. (a) Discuss five qualities of good silage (5mks)

(b) Discus the advantages and disadvantages of overhead irrigation (8mks)

(c) Outline the safety measures in the use of chemicals to minimize environmental pollution (7mks)

1. (a) Explain 10 cultural measures used in the control of weeds in a field of a named cereal crop (10mks)

(b) Explain six physical or structural methods of soil erosion control (6mks)

(c ) State four characteristics of a fertile soil (4mks)

Name : ………………… Adm. No. : ……………………..

School : ………………… Sign : ……………………..

Date : …………………….

443/2

AGRICULTURE

PAPER 1

THEORY

OCTOBER/ NOVEMBER 2013

KILUNGU DISTRICT 2013

FORM FOUR ENTRANCE JOINT EXAM

INSTRUCTIONS

1. This paper consists of three sections A, B and C
2. Answer all the questions in section A and B in spaces provides
3. Answer any two question in section C

For examiner’s use only

|  |  |  |  |
| --- | --- | --- | --- |
| Section | Questions | Max. score | Candidate’s score |
| A | 1 – 19 | 30 |  |
| B | 20-23 | 20 |  |
| C |  | 20 |  |
|  |  | 20 |  |
| Total |  | 90 |  |

FORM III AGRICULTURE PAPER 1

ENTRANCE JOINT EXAMS (SECTION A – 30MKS) ANSWER ALL QUESTIONS

1. Name the:
2. Bacteria that causes anthrax in cattle (1mk)
3. Protozoa that causes gall sickness in cattle (1mk)
4. Give four qualities of creep feed (2mks)
5. Name the tool used together with each of the following tools (2mks)
6. Canula
7. Wood chisel
8. Screw driver
9. Brace
10. Give two harmful effects of leas in poultry (1mk)
11. Name four structural features in a fish pond (2mks)
12. (a) What is dry cow hierapy (1mk)

(b) When is dry cow hierapy carried out? (1mk)

1. State four factors that determine the nutrient requirement in cattle (2mks)
2. Give two reasons for carrying out each of the following routine management practices
3. Docking in sheep rearing (1mk)
4. Tooth clipping in piglet (1mk)
5. Define the term hybrid vigous in livestock breeding (1mk)
6. State two functions of foot bath in cattle dip (1mk)
7. State two disadvantages of using barbed wire in the farm (1mk)
8. State three tools that are required when transplanting vegetable seedlings (1 ½ mks)
9. Give three maintenance practices of knapsack sprayer (2mks).
10. Name two factors that dictate the description of livestock in kenya (1mk)
11. State two methods of bloodlers method of castrating bull calves (1mk)
12. State six predisposing factors of livestock diseases other than injury (3mks)
13. Name two methods of mating (1mk)
14. (a) What is a notifiable disease? (1mk)

(b) Name any two notifiable disease (1mk)

1. Give two uses of droppers in fencer (1mk)

Section B 20mks

1. The illustration below shows a livestock production equipment. Study it carefully and answer questions that follow

Diagram

1. Identify the equipment (1mk)
2. What is the importance of warm water in the equipment (1mk)
3. Describe the procedure followed when using the equipment in collecting the semen. (2mks)
4. The diagram below illustrates a bee hive. Study it carefully to answer questions that follow

Diagram

1. Name the bee hive (1mk)
2. Identify the parts labeled L and M(1mk)
3. State the functions of the part labeled K and N(1mk)
4. Name the tool used for detaching honey combs during honey harvesting (1mk)
5. Study the illustrations below and answer questions that follow.

Diagram

1. Identify the specimen (1mk)
2. State the intermediate host of A and B (1mk)
3. State the final host of A and B (1mk)
4. Explain any three control measures of A (3mks)
5. Study the diagram below and answer the questions that follow

Diagram

1. Name the operation usually carried out on part C (1mk)
2. Why is the activity in (a) above necessary? (1mk)
3. Give two ways of carrying out the operation named in (a) (2mks)
4. Name the routine management practice carried out in part D (1mk)
5. Name the method used in carrying out the routine management practice carried out on part D (1mk)

Section C (40mks)

Answer any two questions from this section in the spaces provided

1. Describe the measures used to control livestock diseases in the farm and give disease controlled in each case (20mks)
2. (a) Describe the management of piglet from birth upto winning (10mks)

(b) Describe the factors considered when siting farm structures in the farm (10mks)

1. (a) Outline any ten general methods of maintaining farm tools, equipment implements and machines (10mks)

(b) Describe the lifecycle of a two host tick (7mks)

(c ) Name any three tick borne diseases (3mks)

MARKING SCHEME

443/1

AGRICULTURE

PAPER 1

THEORY

OCTOBER/ NOVEMBER 2013

KILUNGU DISTRICT 2013

FORM FOUR ENTRANCE JOINT EXAM

1. Factors influencing planting depth of the crops

* Soil type
* Soil moisture content
* Size of the seed
* Type of germination 2 x ½ (1 mk)

1. Benefits of correct plant population in annual crops

* High quality produce
* High yields/production/quality yields
* Eases weed control
* Aids in soil and water conservation
* Eases control of pests and diseases (2 x ½ ) ( 1 mk)

1. Ways through which one may acquire land

* Inheritance
* Settlement by the government
* Buying
* Compensation
* Leasehold/tenancy
* Gifts and donations (2 x ½ ) ( 1 mk)

1. Disadvantages of overhead irrigation

* Expensive to install and maintain
* Promotes fungal diseases
* May encourage erosion on sloppy land
* Wastage of water (2 x ½ ) ( 1 mk)

1. Solifluction

Gravitational flow of surface material saturated with water (1 mark)

b) Factors affecting solifluction

* Slope of the land
* Nature of the material
* Climate
* Vegetation cover
* Human activities
* Forces within the earths crust

1. Ways by which biological agents can enhance the process of soil formation

* Decomposition of plants and animals remains by soil micro organisms
* Roots applying pressure on rocks as they penetrate through the soil
* Mans activities e.g. cultivation and mining
* Mixing up of soil burrowing animals e.g. worms and termites
* Pressure exerted on rock by large animals as they walk 3 x ½ = 1 ½ marks

1. Advantages of adding organic manure to sandy soil

* Adds nutrients
* Increases microbial activity in the soil
* Improves water holding capacity
* Buffers soil PH
* Moderates soil PH
* Moderates soil temperature 4 x ½ = 2 marks

1. Forms in which nitrogen is absorbed by plants

* Ammonium ions
* Nitrate ions

1. Ways of harvesting water in the farm

* Roof catchment
* Rock catchment
* Dams
* Weirs
* Gabion/ check dams
* Ponds
* Retention ditches

1. Roles of good soil aeration in crop growth

* Root respiration/ facilitate growth of crop roots
* Micro organism are provided with oxygen for respiration
* Gaseous exchange carbon (iv) oxide is given out than the soil and oxygen in the soil.

1. Three reasons why root pruning in agro-forestry seedlings is done

* Minimize damage to seedlings during transplanting of seedlings
* Seedlings to develop strong short and dense root systems
* Easier to lift seedlings during transpiration
* Encourage lateral root development that enhances survival rate of seedlings after transplanting

1. Reasons why land settlement schemes were established in Kenya

* Transfer land from white settlers to Africans
* Ease population pressure in African reserves
* To settle former employee of European farmers
* Solve unemployment problems
* Increase agricultural production through better method of land utilization
* Maintain production levels achieved by the settlers

1. Factors considered when constructing cut-off drains

* Where water is to be discharged
* Volume of water

1. Effects of low temperature on crop production

* Slows growth rate
* Can encourage disease spread and infection
* Improves the quality of some crops e.g. chemical content in tea and pyrethrum
* Lowers quality of some crops e.g. cotton

1. (a) Fragmentation

Situation in which a farmer owns several parcels of land in different areas.

(b) Causes of land fragmentation

Inheritance from different ancestors

Buying land elsewhere due to pressure on existing land.

Shifting cultivation

Compensation – if government takes ones land

1. Benefits that a farmer may derive from agro-forestry trees

* Source of wood fuel
* Source of income
* Aesthetic value
* Water catchment
* Wind breaks
* Source of food to livestock and men
* Source of timber
* Medicinal value

1. Factors that determine the number of times secondary cultivation is done on a seed bed.

* Sixe of the planting materials
* Slope of the land
* Soil moisture content
* Condition of the soil after primary cultivation

1. Meaning of the following field practices
2. Pricking out – Removing of extra seedling from the nursery and transferring them to a seedling bed.
3. Hardening off – Exposing of seedlings while in the nursery bed to the prevailing conditions in the seed bed.
4. Disadvantages of using agro-chemicals in crop production

* Expensive
* Poisonous to man and livestock
* High residual effect
* Pollute the environment
* Requires skills to apply

1. Reasons why agriculture is said to be an art

* Land tillage
* Construction of structures
* Operation of machines

1. (a)
2. –
3. Foundation materials e.g. maize stalks
4. Kitchen refuse, leaves, grasses
5. Farm yard manure / any well rotten manure
6. Ash / potassium fertilizer
7. Top soil
8. Leaves cover / trash
9. Importance of

5-Provides source of micro organisms

4- Enrich the manure with K and P

3- Provides food for micro organisms that brings about delay

(b) (i) Long sharp pointed stick checks the temp of the manure during its formation to avoid over heating

(ii) Done in drier area to prevent entry of too much water causing water logging, poor decomposition and leaching of nutrients

1. (a) To compare porosity and water holding capacity of soil

(b) A - Sandy soil

B- Loam soil

C – Clay soil

( c) Determine amount of water and air in the soil

* Determine circulation of air in the soil
* Influence the water – holding capacity of a soil

1. (a) J- Processing variety

K- Fresh market variety

(b) Fast growing

High yielding

(c ) Good keeping quality

1. (a) Chitting/ sprouting

(b) Humidity / moist environment

Diffuse light (avoid darkness)

(c ) Ensure uniform growth after selection

Ensure growth starts immediately after planting

Break seed dormancy

1. (a) Importance of crop rotation

* Maximize utilization of nutrients
* Control soil borne pests and diseases build up
* Control weeds
* Improve soil fertility
* Improve soil structure
* Control of soil erosion

(b) Prevailing market price/ profits

* Markets demand
* Weather conditions
* Use of the crop
* Concentration of chemicals

1. (a) Qualities of good silage

* Have a pit of 4.2 or below
* Free from moulds and butyric acid
* Greenish to yellow in colour
* Fine textured with no slimyness
* Order of predominance of organic acids should be lactic acid, succinic acid and termic acid
* From high quality, forage and cut at the proper stage of growth

(b) Advantages of overhead irrigation

Water evenly distributed

Less wastage of water

Practiced on slopy areas

Foliar sprays can be applied with irrigation water reducing

Easy to move sprinkler systems from one place to another

Disadvantages

Expensive to install

Encourages fungal diseases e.g blight

Causes soil erosion

May require establishment of wind breakers

Requires skills to maintain

(c ) Safety measures in the use of chemicals to minimize environmental pollution

Read manufacturers instructions

Keep herbicides in safe place out of reach of children

Wear protective clothing

Label containers well to avoid confusion

Dispose empty containers properly

Never blow blocked nozzles

Spray towards the direction of the wind

Wash the body thoroughly after spraying

Never eat/ drink while spraying

Wash spray equipment thoroughly after spraying

Don’t pour chemical residueinto water sources or pastures

1. (a) Proper / correct spacing

* Mulching
* Flooding
* Early planting
* Application of manure and fertilizers
* Crop rotation
* Clean seedbed
* Cover cropping
* Use of clean planting materials
* Timely cultivation

(b) Stone lines

* Trash
* Weirs
* Cut off drains
* Gabions
* Terraces
* Soil bunds

(c ) Characteristics of a fertile soil

* Properly drained
* Good water holding capacity
* Good depth
* Appropriate PH
* Free from pests and diseases
* Good structure and texture
* High levels of plant nutrients in their suitable proportions

MARKING SCHEME

443/2

AGRICULTURE

PAPER 2

THEORY

OCTOBER/ NOVEMBER 2013

KILUNGU DISTRICT 2013

FORM FOUR ENTRANCE JOINT EXAM

SECTION A (30MARKS)

1. (a) Bacillus antirasis

(b) Anaplasma marginale

(1 x 1= 1mk)

1. –
2. Highly digestive
3. High in energy value
4. High in palatability
5. Have high digestive crude protein
6. Rich in minerals

(4 x ½ = 2mks)

1. –
2. Trocat
3. Mallet
4. Bit
5. Screw

(4 x ½ = 2mks)

1. –
2. Cause wound
3. Cause anaemia
4. Cause irritation
5. Cause cannibation

(2 x ½ = 1mk)

1. –
2. Inlet furrow
3. Drainage pipe
4. Strong wall
5. Dam crest
6. Spill way

(4 x ½ = 2mks)

1. (a) Practice of administering antibiotics in the teat canal to control mastitis in a lactating animal (1 x 1 = 1mk)

(b) End of lactation period (1 x 1 = 1mk)

1. –
2. Body wt
3. Age of the animal
4. Level of production
5. Sate of heacte
6. Activity o the animal (2 x ½ = 1mk)
7. (a)

* Facilitate maturity
* Even distribution of fat
* Prevent blowfly infestation
* Prevent fouling of wool
* Prevent contamination of urinary tract ( 2 x ½ = 1mk)

(b)

* Prevent injury to feets of mother
* Control mastitis
* Prevent piglets from injury each other (2 x ½ = 1mk)

1. Increased performance resulting from crossing into unrelated animals with superior characteristics (1 x 1 = 1mk)
2. (i) Washing the feet of animal before getting in clips wash
3. Hold chemical that control foot rot (2 x ½ = 1mk)
4. (i) Cause injury in the animals

(ii) They expensive to establish (2 x ½ = 1mk)

1. (i) Gardeness trowel

(ii) Garden line for appropriate spacing

(iii)Fense for digging holes

(iv)Wheelbarrow to transport seedling

(v)Shovel for manure (3 x ½ = 1 ½ mk)

1. (i) Clean after use

(ii)Unblock nozzles

(iii)Store properly

(iv)Lubricate pump handle (3 x ½ = 1 ½ mks)

1. (i) Hair or body cover

(ii)Climatic conditions

(iii)Place of origin (2 x ½ = 1 ½ mk)

1. (i) Use of burdizzo

(ii)Use of rubber ring and elastrator pliers (2 x ½ = 1mk)

1. (i) Age of animal

(ii) Sex of animal

(iii)Colour of animal

(iv)Change of climate

(v)Hereditory

(vi)Size of herd

(vii)Physiological condition e.g. fatigue, pregnancy e.t.c (6 x ½ = 3mks)

1. (i) Natural mating

(ii)Artificial insemination

(iii)Embryo transplant ( 2 x ½ = 1mk)

1. (a)A disease whose outbreak must be reported to government authority (1 x 1= 1mk)

(b) (i)Rinder pest

(ii) Anthrax

(iii)Foot and mouth

(iv)Black quarter

(v)Rabies (2 x ½ = 1mk)

1. (i)Reinforce barbed wires

(ii) Prevent small animals from increasing through barbed wire

(iii)Adds bearly to fence (aesthetic value).

Section B (20mks)

1. (a)Artificial vagina (1 x 1 = 1mk)

(b)Warm water provides suitable temperature for ejaculation (1 x 1 = 1mk)

(c)(i)Restrain cow in a crush

(ii)Grab the penis of the teaser bull when it moulds the cow

(iii)Direct the penis into the artificial vagina

(iv)Due to warm water bull ejaculates of semen is collected

(v)Release the cow and the teaser bull (4 x ½ = 2mks)

1. (a) Kenya topbar hire (1 x 1 = 1mk)

(b)L- Loop for hanging hive

M- Top bar ( 2 x ½ = 1mk)

(c ) K- Cover the hive / top bar

W- Entrance of bees ( 2 x ½ = 1mk)

1. Hive tool (1 x 1 = 1mk)
2. (a) A- Tapeworm

B- River fluke

(2 x ½ = 1mk)

(b) A- Cattle / pig

B- Fresh water snail (2 x ½ = 1mk)

(c) A- Man

B- Cattle/ goat/ sheep (2 x ½ = 1mk)

(d)(i)Burn pasture to destroy / kill eggs

(ii)Proper cooking of meat to destroy the bladderworm

(iii)Proper inspection of meat to destroy heavily infested carcasses

(iv)Rotational grazing to break their life cycle by destroying eggs

(v)Use of pit latrines to break their life cycle by not exposing eggs to intermediate host

(vi)Ploughing of pasture to bury and destroy embryo with eggs

3 x 1 = 3mks

½ mk = statement

½ mk = explanation

1. (a) Identification

(b) so as to record the performance of an individual animal

Eases tracking down the animal (1 x 1 = 1mk)

(c ) (i) Ear tagging

(ii)Ear notching

(iii)Ear tattooing (2 x 1 = 2mks)

(d)Castration (1 x 1 = 1mk)

(e) Open method / surgical method (1 x 1 = 1mk)

SECTION C(40MKS)

1. Measures used to control livestock diseases
2. Administering prophylactric drugs on routine bases to avoid infection e.g. use of coccidiostats
3. Vaccination e.g. to control anthrax
4. Quarantine to control notifiable diseases e.g. black quarter
5. Isolation of sick from health e.g. contagious diseases hence pneumonia
6. Drenching / deworming to control internal parasites that may cause anaemia
7. Use of antihelmintines e.g. nilson to control tape worms of round worms which may lead to death.
8. Proper treatment of sick animals by use of antibiotics to prevent spread of diseases e.g. mastitis
9. Control vectors e.g. ticks which transmit diseases like east coast fever
10. Proper housing to prevent exposing animals to pneumonia and foot rot
11. General hygiene in the farm by disinfecting utensils, tools and equipment and burying carcasses to prevent spread of diseases e.g. anthrax
12. Mass slaughtering / culling to prevent spread of incurable diseases e.g. Newcastle
13. Proper feeding/ nutrition to prevent nutritional diseases like milk fever
14. Proper breeding to prevent spread of breeding diseases like brucellosis
15. Hoof trimming to control foot rot
16. Docking to prevent blowfly infestation
17. Castration to prevent breeding diseases like viginitis

10 x 2 = 20mks

1 mk for Measure / method

1 mk for correct disease

1. (a) Management of piglets

* Ensure piglets are breathing by removing mucous from nostrils
* Take piglets away from cannabalist mother after birth
* Tie cut to disinfect the umbilical cord
* Weigh each piglet and record
* Remove and dispose after birth
* Remove and dispose any dead piglet
* Put piglets in warm pen e.g. creep area
* Feed sow and weaner meal to piglets 2 – 3 days after birth
* Let piglets suckle colostrums
* Get rid of excess piglets/ provide foster mother
* Provide farrowing crate to prevent mother from crushing piglets
* Infect piglets with iron to prevent anaemia
* Carry out teeth clipping
* Treat sick if any immediately
* Vaccinate against common diseases
* Castrate male ones not intended for breeding
* Provide clean water
* Deworm piglets
* Clean them daily to remove dirt

1. 1 = 10mks)

(b) Siting farm structures

* Location of homestead should be near homestead for security
* Accessibility – easily reached for management practices
* In secure places to prevent theft
* In well drained area to prevent dampness
* Direction of prevailing wind – site structures which produce bad smell on lee ward side
* Site related structures close to one another e.g. calf pen and milking parlons
* Farmers sire structures where they prefer e.g. for pauramic view
* Gently sloping areas are preferred for easy drainage of water to prevent waterlogging
* Nearness to other social amenities e.g. electricity, telephone boosters e.t.c for easy access of these facilities
* Government policy / regulation e.g. accommodate construction of structures like road reserves
* Type of enterprises on the farm which need a structure e.g. granary when growing cereals
* Flexibility of the structures for modification to accommodate another enterprise without incurring much cost.

(10 x 1 = 10mks)

1. (a) General methods of maintaining farm tools, equipments implements and machines

* Clean after use to remove dirt
* Lubricate moving parts to reduce friction
* Oil metallic parts to prevent rust
* Paint wooden/ metallic parts to prevent rust
* Tighten loose nuts and bolts to avoid damage of implement
* Store properly to avoid theft
* Repair damaged / broken parts
* Replace worn out / damaged parts
* Check and adjust tyre pressure accordingly
* Check and add water in radiator if necessary
* Check and add oil if necessary
* Check and add fuel if necessary
* Read manufacturers instructions and follow them strictly on replacement of certain pasrts e.g. air cleaners
* Use it for the correct purpose

(10 x 1 = 10mks)

(b)Life cycle of two host tick

* Adult lay legs on the ground
* Eggs on the ground hatch into larvae
* Larvae climbs on the first host
* Larvae sucks blood on first host and becomes engorged
* Larvae moults into nymph when still on first host
* Nymph sucks blood on first host and get engorged
* Engorged nymph drops to ground and moult into adult
* Adults climbs on second host where they feed and mate
* Adult females drop to ground to lay eggs and cycle begins again

(7 x 1 = 7mks)

(c ) Tick borne diseases

1. Red water
2. Heart water
3. East coast fever
4. Gall sickness
5. Rift valley fever