

NAME _____

INDEX NUMBER _____

CANDIDATES SIGNATURE _____

DATE _____

**443/1
AGRICULTURE
PAPER I
JULY/ AUGUST 2011
TIME :2 HOURS**

**MAKUENI/ KATHONZWENI JOINT EXAMINATION
Kenya Certificate of Secondary Education.
AGRICULTURE
PAPER 1
JULY/ AUGUST 2011**

INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index number in the spaces provided.
- ❖ This paper consists of three sections A B and C.
- ❖ Answer any all the questions in section A and B in the spaces provided.
- ❖ Answer any two questions from section C.

This paper consists of 10 printed pages

Turn over

SECTION A (30MARKS)

Answer all the questions in the spaces provided

1. Name two types of planting materials which can be used in pineapple production. (1mark)

2. Give three causes of post harvest losses of maize in the farm (1 ½ marks)

3. State one characteristic of organic matter that enable it to perform each of the following roles in the soil:-

(i) Improvement of soil structure. (½mark)

(ii) Improvement of water holding capacity. (½mark)

4. State three ways in which soil PH influences soil fertility (1 ½ marks)

5. Mention four factors considered when selecting materials for planting (2marks)

6. State four ways of breaking seed dormancy (2marks)

7. State four factors which determine the depth of ploughing. (2marks)

8. State one reason for the following

(i) Inoculated seeds should not be dressed with chemical. (1mark)

(ii) Inoculated seeds should not be planted in a dry soil. (1mark)

(iii) During chitting irish potatoes should not be kept in a complete dark room. (1 mark)

9. State three roles of Magnesium to plants. (1 ½ marks)

10. A Kitale hybrid maize was packed and labelled as H823. State the meaning of H823 digits. (1 ½ marks)

11. Name four factors that should be considered when classifying pests (2marks)

12. State four information contained in a land title deed. (2marks)

13. Mention two advantages of using cultural measures in disease and pest control in crops. (2marks)

14. Differentiate between marginal cost and marginal revenue. (2marks)

15. State two methods of controlling maize stalk borer in a field of maize. (1mark)

16. Name four factors to consider when drawing a farm plan (2marks)

17. State four causes of land fragmentation in Kenya. (2marks)

SECTION B (20 MARKS)

Answer all the questions in the spaces provided.

18. Study the illustration below and answer the questions that follow:-

(a) What is the name given to the materials marked S (½ mark)

(b) If the seedling is coffee, name three ingredients used to make material S. (3marks)

(c) State two advantages of using polythene sleeves instead of raising seedlings directly on the ground (2marks)

19. The following is an illustration of a compost heap. Study it and answer the questions that follow

(a) Label the parts W, X, Y, Z.

(2 marks)

W _____

X _____

Y _____

Z _____

(b) What is the use of each of the parts labelled W, Y and Z

(1 ½ marks)

W _____

Y _____

Z _____

(c) Give three reasons why compost manure is not commonly used in the farms. (1 ½ marks)

20. The following is an illustration of a common weed of arable land.

(a) Identify the weed. (½mark)

(b) Why is it difficult to control the weed (1 mark)

(c) State one harmful effect of the weed on crop production. (1mark)

(d) Give two measures used to control the weed. (2marks)

21. (a) Define the term land reform. (1mark)

(b) Give two methods of land reforms practiced in Kenya. (2marks)

(c) State two objectives of land settlement which has been undertaken in Kenya (2marks)

(iii) Darkness produce long thin sprout that breaks easily. (1x3=3marks)

9. - Magnesium is part of chlorophyll molecule.
- It activates enzyme concerned with carbohydrates metabolism.
- It is required in synthesis of oil in certain plants e.g. ground nut, Soya beans. (½ x 3=1 ½ marks)
10. - 8- altitude where breeding was done (800 ft. a.s.l)
- 2- Type of crossing (double line crossing)
- 3- series of release (3rd series release) (3x ½= 1 ½ marks)
11. - Where pest is found/ field pest or storage pests.
- feeding habits/ type of damage.
- Crop attacked.
- Stage of development of pests at which causes damage.
- Stage of crop growth at which is attacked by the pest. (4x ½ = 2 marks)
12. - Number of title deed/ land parcel number.
- Size of land.
- Name and identity number of owner
- Type of ownership.
- Condition of ownership, if any.
- Seal and signature of the issuing officer.
- Date of registration. (4x ½ = 2 marks)
13. - Cheap/ little cost incurred
- Environmentally friendly.
- Production of healthy products. (2x1= 2 marks)
14. - Marginal cost is the extra cost incurred in the production of an additional unit of output while marginal revenue is the extra income obtained from the sale of an additional unit of output. (2x1= 2marks)
15. - Apply stalk borer dust/ granules in funnel/ recommended insecticide. Rej insecticide.
- Roquing/ removing and destroy affected plants.
- Practice early planting. (2x1= 2 marks)
16. - Size of the farm.
- Environmental factor.
- Current trend in the labour markets.
- Farmers choice and preference.
- Possible production enterprise.
- Security.
- Exciting market conditions and price trend. (4x½ =2 marks)
17. - Inheritance
- Compensation.
- Buying land elsewhere.
- Gift/ donation
- Repayment. (4x ½ = 2 marks)

SECTION B (20 MARKS)

18. (a) S – rooting medium (½mark)
(b)- Sub soil
- Double super phosphate (DSP)
- Sulphate of potash.
- Water.
- Air. (4 x ½ = 2 marks)
- (c) – Easy to carry / transport during marketing and transplanting.
- Conserves soil moisture.
- No disturbance of roots during transplanting / less transplanting stress. (3x1=3marks)
19. (a) W- stores/ maize stalk.
X- Green vegetation materials.
Y- Manure.
Z – Wood ash (4x½ = 2 marks)
- (b) W – form foundation of the heap
Y – Supply nutrients to micro organisms.
Z – Boosts the level of phosphorous and potassium in manure. (3 x ½ = 1 ½ marks)
- (c) - Lack of technical knowledge to prepare.
- Scarcity of organic material.
- Laborious/ tedious to prepare.
- Bulky to transport.
- It takes along time to prepare. (3x ½ = 3 marks)
20. (a) Cough grass/ Digetaria Scalarum 1x1 =1 marks)
(b) Because it has got under ground rhizome which grow up deep in the soil (1x ½ = ½ mark)
(c) It competes with the crop for nutrients, soil moisture and space resulting to low yields (1x1=1 mark)
(d) – Use of appropriate herbicides.
- Physical removal of the rhizomes/ digging it out using a forked Jembe. (2x1=2mks)
- 21 (a) Specific intergrated action programme to bring about effective control and use of land/ organised action taken to improve the structure of land tenure and land use. (1x1=1mark)
(b) – Land tenure reforms.
- Land consolidation.
- Land sub- division/ demarcation
- Land adjudication and registration.
- Settlement and resettlement. (2x1= 2 marks)
(c) – To settle landless people.
- To reduce / ease population pressure.
- To increase agricultural production.
- To improve people standards of living / create employment. (2x1= 2 marks)

SECTION C (40 MARKS)

22. (a) Nursery establishment
- Choose a suitable nursery site, considering accessibility/ source of water.
 - Dig the chosen site.
 - Remove roots or previous plants and stones from the site.
 - Break the soil clods to the desired tilth.
 - Make a raised or sunken nursery beds (depending on soil moisture/ measuring one metre wide and convenient length.
 - Plant seeds by drilling at spacing of 15cm x 3 cm.
 - Apply phosphate fertilizer or manure.
 - Cover the seeds to a depth of about 1cm.
 - Erect shade /apply some mulch on the nursery.
 - water the nursery thoroughly. (8x1=8marks)
- (b) – Done when seedlings develop two true leaves.
- Seedling are uprooted by use of a small stick.
 - Long roots are trimmed.
 - Holes are made with the same stick in the seedling bed.
 - The seedling is inserted into a hole carefully
 - Firm the soil around each seedling
 - Seedling are planted at a spacing of 4 – 5 cm away from each other.
 - The seedling are shaded and watered immediately to prevent witting. (6x1= 6marks)
- (c) – Erect a shade if it was not erected after pricking out.
- Water the nursery at least twice a day.
 - Watering should be done in morning and evening.
 - Remove weeds that may come up/ uproot the weeds.
 - Control pests and diseases when the symptoms of attack are noticed.
 - Hardening should be done gradually by removing shade and reducing the frequency of watering before transplanting.
 - Uproot with a lump of soil to transplant.
 - Transplant in a cool day or late evening.
 - Water after transplanting.
- ((6x1=6marks)
- 23 (a) - Forage should be cut when about 50% of the plants have flowered.
- Cutting should be done when at least 3 days of continuous sun shine is expected.
 - After cutting the crop is spread every day on the ground to dry.
 - Dry 2 – 3 days depending on the environmental temperature.
 - Dry the crop under controlled conditions in order to retain its nutritive value and the original crop colour/ prolonged exposure to the sun result in bleaching of hay.
 - Use tripod stand incase the weather conditions are not favourable to dry the crop.
 - Rapid drying is recommended to ensure high quality hay/ slow drying results in oxidation of soluble carbohydrate hence poor quality.
 - The hay is windrowed.
 - The crop is bailed/ gathered and tied.
 - Hay bales are then stored in a shed out of reach by rain, water and sunshine. (10x1=10marks)
- (b) – The silo is prepared before harvesting crop.
- Size of silo depends on quantity of crop to be cut
 - The crop is cut at the appropriate stage 8 – 10 cm above the ground level for regrowth.

- The crop is wilted 6 – 12 hours to above 65 – 75 % moisture content.
 - The crop is chopped up and put in the silo.
 - Compression of the material is done every 10 to 12 cm layer.
 - Fill the silo as rapidly as possible/ less than 2 days.
 - Ensiled material should have ‘ridge’ or hump appearance when ensiling is completed.
-
- The temperature in the silo should be checked regularly during ensiling period.
 - If the temperature are higher than 32. 2⁰C, water should be added and compaction reduced/ If the temperature is below 32. 2⁰ C compaction should be increased and dry matter or molasses added.
 - The ensiled material is covered with polythene sheet or a layer of dry grass to protect it from water and air.
 - The silo is covered with thick layer of soil to maintain a ridge appearance.
 - A trench is then dug all round the silo to drain off rain water. (10x1=10 marks)

24

(a) Problems of marketing

- Statutory interference by government in agricultural marketing hence causes loss to farmer.
- Poor training of people in marketing e.g. retailer and wholesalers.
- Bulkiness of most agricultural produce, making transportation difficult and expensive.
- High perishability of most agricultural produce leading to low quality.
- Seasonality of agricultural produce leading to price fluctuation.
- Inadequate storage facilities leading to heavy losses of produce.
- Poor infrastructure leading to high transport cost and spoilage of agricultural produce.
- Change in market demand due to time lag between production and marketing.
- Change of supply of agricultural produce leading to fluctuation of market prices.
- Inadequate market information to farmers leading to selling of farm produce when prices are low.
- Lack of capital to finance marketing function e.g. advertising and transportation.
- Competition with synthetic/ cheap products, leading to loss to farmers e.g. Cotton (10x1=10marks)

(b) Importance of budgeting.

- The farmer is able to predict the profitability of an enterprise.
- It enables the farmer to detect problems easily so that correction is done in good time before losses are incurred.
- Assist the farmer to make management decision especially when comparing two alternative projects.
- Helps the farmer in making effective change in organization.
- Ensure periodic analysis of the farm business.
- Help in estimating the required production resources such as labour and capital.
- Helps in deciding viability of an enterprise.
- Encourage the farmer to be efficient with the aim of meeting the projected target.
- Helps in controlling various aspects of production in the farm.
- Act as record to be used for future reference. (10x1=10marks)

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443/2
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PAPER 2
JULY/ AUGUST 2011
TIME: 2 HOURS

MAKUENI KATHONZWENI JOINT EXAMINATION
Kenya Certificate of Secondary Education.
AGRICULTURE
PAPER 2
JULY/ AUGUST 2011

INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index number in the spaces above.
- ❖ Sign and write the date of examination
- ❖ This paper consists of three sections A B and C.
- ❖ Answer any all the questions in section A and B in the spaces provided.
- ❖ Answer two questions from section C.

This paper consists of 10 printed pages.

Turn over

SECTION A (30 MARKS)

Answer all the questions in the spaces provided.

1. State two causes of a soft shell in an egg. (1mark)

2. Name one indigenous dual purpose breed of cattle reared in Kenya. (1mark)

3. Name two classes of amino acids. (1mark)

4. Differentiate between a roughage and a concentrate in animal nutrition. (2marks)

5. State four signs of farrowing in pigs. (2marks)

6. Give two precautions observed when feeding fish. (1mark)

7. Name an intermediate host for the following internal parasite. (2marks)

(i) Tape worm _____

(ii) Liver flukes _____

8. State three functions of copper in animal body.

(1 ½ marks)

9. State two methods of extracting honey from honey combs. (1mark)

10. State two causes of sudden stopping of a running tractor engine

(1mark)

11. Define the term out crossing as used in animal breeding.

(1mark)

12. Differentiate between mortality rate of a disease and a zoonotic disease

(2marks)

13. State two factors that enable ruminants to break fibrous food material.

(1mark)

14. State one use of the following tools

(2marks)

(a) Spoke shave

(b) Pipe wrench

(c) Stock and die.

(d) Wire strainer.

15. (a) What is dry cow therapy? (1 mark)

(b) When is dry cow therapy carried out. (1 mark)

16. Name four components of truss in a house. (2marks)

17. Name the:-

(i) Bacteria that causes anthrax in cattle. (½marks)

(ii) Protozoa that causes gall sickness in cattle. (½marks)

18. State four disadvantages of electric fence. (2marks)

19. State three maintenance practices carried out on masonry and plumbing tools (1 ½ marks)

SECTION B (20MARKS)

Answer all the questions in the spaces provided.

20. Study the diagram below and answer the questions that follow.

(a) Name the parts labeled A, B, C, and D.

(2 marks)

A _____

B _____

C _____

D _____

(b) Name one role of the part labelled C

(1mark)

(c) State the:-

(i) Appropriate hole depth of part A

(½mark)

(ii) Length of part labelled A

(½mark)

(iii) Height of the lowest wire strand above the ground

(½mark)

(iv) Ratio of concrete used to fill the fencing.

(1/2mark)

21. Study the illustration of power and exhaust stroke below and answer the questions

(a) Name the parts labelled G, H, J and K

(2marks)

G _____

H _____

J _____

K _____

(b) Briefly explain the mechanism represented above

(3marks)

(c) State two disadvantages of an engine with the structure above

(2marks)

22. The diagram below shows the reproductive system of a cow. Study it carefully and answer the questions that follow

(a) (i) Name the parts labelled A, B,C and D (2marks)

A _____

B _____

C _____

D _____

(ii) State a function of the parts labelled: - (2marks)

A _____

B _____

(b) Give two methods of mating in cattle. (2marks)

(c) How long is the oestrus cycle in cattle? (1mark)

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PAPER 2
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MARKING SCHEME

SECTION A

1. - Lack of calcium.
-Attack by diseases e.g. Newcastle. (2x $\frac{1}{2}$ = 1mark)
2. - Sahiwal (1/2mark)
3. - Essential/ dietary amino acids.
- Non essential amino acids. (2x $\frac{1}{2}$ = 1marks)
4. * Roughage is a feed with high fibre content and low energy content while concentrates is a feed with low fibre content and high protein content. (2marks) Mark as whole
5. - Restlessness.
- Loss of appetite.
- Enlarged udder.
- Swelling and redening of vulva.
- Udder and teats are full and enlarged.
- Muscle on either side of the tail relaxes. (4x $\frac{1}{2}$ = 2marks)
6. - Always feed them from the shallow end of the pond.
- Don't overfeed the fish.
- Ensure the food is adequate. (2x $\frac{1}{2}$ = 1mark)
7. - Tape worm – pig
- Liver fluke – water snail (2marks)
8. - Conversion of food.
- Improves growth rate
- Improves iron intake
- Helps in blood formation. (3x $\frac{1}{2}$ = 1 1/2 marks)
9. - Using heat method
- Crushing and straining/ squeezing.
- Use of centrifugal extraction (2x $\frac{1}{2}$ =1mark)
10. - Poor terminal connection.
- Faulty ignition system.
- Lack of fuel
- Short circuiting in the electrical system (2x $\frac{1}{2}$ = 1mark)

This paper consists of 5 printed pages

Turn Over

11. - Mating of two unrelated animals of the same breed. (1mark)
12. * Mortality rate: - Likelihood of an animal dying as a result of infection expressed as a percentage.
* Zoonotic disease: - A disease that can be passed from livestock to human.
(2marks) mark as a whole
13. - Presence of micro-organisms in the / bacteria in the rumen.
- Appropriate PH of the gut (Rumen)
- Ability of the animal to chew cud/ regurgitate (2x½ = 1mark)
14. (a) Spoke shave: - Smoothing/ plaining of concave curved edges. (½mark)
(b) Pipe wrench: - Holding, tightening and loosening metal pipes (½ mark)
(c) Stock and die: - Cutting threads in pipes. (½ mark)
(d) Wire strainer: - Tightening wire during fencing. (½ mark)
15. (a) Practice of administering antibiotics to control mastitis in a lactating animal. (1mark)
(b) End of lactation period (1mark)
16. - Cross tie
- Rafter
- Rafter batter
- Tie
- Strut. (½x4 = 2marks)
17. -Bacillus anthraxis
- Anaplasma marginale (½x 2= 1mark)
18. - Require regular charging.
- Expensive to construct and maintain.
- Less effective when it contacts vegetation.
- Dangerous to the farmer due to shock (½x 4= 2marks)
19. - Replace blade regularly
- Repair or replace broken handles.
- Use coolant oil to increase grip.
- Lubricate moving parts.
- Clean after use. (½x 5= 2 ½ marks)

SECTION B (20 MARKS)

20. (a) A- King post/ strainer post
B- Standered post
C- Dropper
D- Struss/ buitness/brace (½x4=2marks)
- (b) – Prevent wire sunking.
- Discourage animals from pushing through the fence (Any one = 1mark)
- (c) (i) 90 cm (½mark)
(ii) 3meters (½mark)
(iii) 10cms (½mark)
(iv) 1:3:5 (½mark)

21. (a) G- Spark plug
H- Crank shaft.
J- Connecting rod.
K- Crank case (½ x 4 = 2marks)
- (b) – Ignited gas cause build up of pressure in combustion chamber.
- Piston forced downwards/ moves upwards.
- Inlet part and trap is covered, fresh fuel and air is trapped and mixed in the crank case.
- Piston moves up to uncover the combustion chamber (3marks)
- (c) – Produce less power, cannot be used in heavy duties.
- Inefficient in burning fuel to produce power.
- They are air cooled hence limit the size of engine. (2x1=2marks)
22. (a) i) A- Oviduct/ fallopian tube
B- Ovary
C- Uterus/ womb
D – Vagina (½x 4 = 2marks)
- (ii) A- Passage of the Ova from ovary to uterus.
- Sites of fertilization. (Any one = 1mark)
- B – Production of ova
- Production of sex hormones e.g. progesterone or oestrogen. (Any one= 1mark)
- (b) – artificial insemination.
- Natural method. (2x1= 2marks)
- (c) 19- 23 days/ 3 weeks (1mark)

SECTION C

23. Management of a dairy calf.
- Clear mucus from the nostrils immediately after birth to ensure it is breathing.
 - If the calf is not breathing administer artificial respiration.
 - Cut and disinfect the umbilical cord using iodine.
 - Ensure the calf sucks the cow to get colostrum in the first 8hours
 - Feed the calf on colostrum for the first four days.
 - Introduce feeding whole milk after the 4th day
 - Feed with correct amount of milk upto weaning time/ feed the calf with milk equal to 10% of body weight.
 - Provide adequate clean water.
 - Introduce palatable solid food e.g. concentrates/ good quality grass in week 3
 - Weigh and record the calf regularly.
 - Put identification marks.
 - Treat sick calf.
 - Observe hygiene in calf pen.
 - Reduce amount of milk towards weaning gradually.
 - Provide proper housing/ well ventilated and spacious.
 - Control external parasites/ spray against ticks.
 - Control internal parasites appropriately/ drench/ deworm using the appropriate method.
 - Release the calf occasionally for exercise.

- Wean calf at week 8 – 16.
- Train the calf to bucket feed milk.
- Keep records on calf performance.

(Mark any 20 x 1 = 20 marks)

- 24 (a) (i) Causative agent: Protozoa – Trypanosoma spp. (1 mark)
 (ii) Transmission: - vector – borne/ through tsetse fly bites

(iii) Symptoms of attack

- Starry coat
- Undulant fever/ intermittent fever.
- Oedema
- Eating soil/ Geophagia.
- Abortion in females
- Anaemia
- Lack of appetite/ Anorexia
- Swollen lymph nodes
- High temperature/ fever
- Dullness
- Lachrimation / watery eyes.
- Loss of hair at the tail end.
- Drop in milk production.
- Diarrhoea.
- Emaciation.

(iv) Control measures

- Treat sick animals with appropriate drugs/ Trypanocidal drugs.
- Control the vector tsetse fly.
- Prophylaxis in areas where the disease is endemic.
- Confine game animals in the park and game reserves.

(b) Route of infection

- Oral / mouth
- Respiratory/ inhaling contaminated air
- Insect/ vector bite.
- Contacting infected animals or items

25. (a) – Gather all the milking materials and equipment.
- Put the cow in the milking shed/ crush.
 - Restrain the animals legs using a rope / hook clamp
 - Wash the udder thoroughly with warm water.
 - Wipe the udder dry using the second udder cloth.
 - Test for mastitis in each quarter of the udder.
 - Milk the cow using the appropriate technique.
 - Dip the teats in an anti- mastitis solution/ teat dip.
 - Apply milking salve on the teats
 - Release the cow.
 - Strain the milk to remove solid impurities
 - Weigh the milk.
 - Record the weight of the milk.

(Any12x1= 12marks)

- (b) (i) Strip hip: - For testing mastitis.
- (ii) Udder cloth: - Washing and drying the udder/ teats.
- (iii) Milk bucket: - To put milk/ receive milk from the udder during milking.
- (iv) Milk churn: - Storing and transporting milk
- (v) Milking salve/ milking jelly: - Applied on teats after milking to prevent cracking of teats/ prevent entrance of bacteria through the teat canal.

Any 4 points (Naming 1 mark Explaining 1 mark = 8 marks)