KAKAMEGA CENTRAL COUNTY JOINT EXAMS
443/1 AGRICULTURE
MARKING SCHEME PAPER 1

Answer ALL questions in this section in the spaces provide

1. State three physical characteristic used in soil classification (1 ½mks)
   - Colour
   - Texture
   - Structure

   First 3 x ½ = 1 ½ mks
2. Give two types of metal pipes used on the farm to convey water (1mk)
   Galvanized iron
   Aluminum pipes

   ½ x 2 = 1mk (first two)

3. List four methods of drainage (2mks)
   Pumping
   Combiered beds
   French drains
   Underground drain pipes
   Open ditches
   First four ½ x 4 = 2mks

4. Distinguish between minimum tillage and sub-soiling as used in agricultural production (2mks)
   Minimum tillage is the application of a combination of farming practices aimed at least soil disturbance while sub-soiling is the process of cultivating the soil for the purpose of breaking up hard pans formed due to continous use of heavy machinery in land preparation.
   1 x 2 = 2 marks (Mark as a whole)

5. Name the branches of horticulture that deal with the following (1 ½ mks)
   a) Growing of flowers – Floriculture
   b) Growing of pineapples - Pomology
   c) Growing of cabbages – Olericulture

   ½ X 3 = 1 ½ mks
6. Name two methods used in preparation of compost manure (1mk)
   Indore method / pit method
   Four Heap system / Stack method

   ½ x 2 = 1mk (first two
7. Name three types of farm records that a sheep farmer should keep (1 ½)
   Inventory records
   Breeding records
   Feeding records
   Health records
   Marketing records
   Labour records

   ½ x 3 = 1 ½ mks (first 3
8. Give thre symptoms of sulphur deficiency (1 ½ mks)
   Stunted growth

Leaf chlorosis
Production of antocyanin / Pinurple pigments
Thin stems
Reduced nodulation in legumes

½ x 3 = 1 ½ mrks (first 3)

9. Name three vegetative materials used in propagation of pineapples (1 ½ mks)
   Slip
   Sucker

First 3 x ½ = 1 1/2mks

10. State three materials used to prepare rooting mixture to fill polythne sleever (1 ½ mks)

    Double super phosphate (DSP)
    Sulphate of potash
    Subsoil

½ x 3 1 ½ mks (First 3)

11. Give three disadvantages of mulching in crop production (1 1/2)mks)

- Breeding ground / hiding place for crop pests
- Traps light shows hence cannot reach the soil
- Fire risk
- Expensive to acquire / transport / apply

12. State three that result in tomatoes due to application of too much nitrogenous fortilisers (1 ½ mks)

- Prologed maturity
- Cracking of fruits before maturity
- Blossom –end rot
- Excess vegetative growth hence poor fruit formation

½ x 3 = 1 ½ mks (First 3

13. Outline four causes of land fragmentation and subdivision in Kenya (2mks)
    Shifting cultivation

- Traditional system
- Population pressure on a limited area of land
- Traditionally land may beoffered to settle debts
- Accumulation of land holding
- ½ x 4 = 2mks (first four)

14. Differentiate between settlement and resettlement as used in agricultural economics (2mks)
    Sttlement – occupation of land which was previously unihabitate / planned and controlled transfer of population from one are to another which is uninhabited or sparsely habitat
    Resettlement – process of transferring people from devisely populate areas to sparsely populate areas

1 x 2 = 2mks (mark as a whole)

15. Stare four factors influencing mass wasting / solifluction (2mks)

- Slope of the land
- Climate
- Vegetation cover
- Human activities
- Forces within the earths crust
- The nature of the material

½ x4 = 2mks (first 4)

16. Name four types of terraces (2mks)

- Broad – based terraces

- Narrow – based terraces
- Bench terraces
- "fanya juu" terraces

First 4 x ½ = 2 (First 4)

17. A) State five environmental factors that affect the selectivity and effectiveness of herbicides (2mks)

- Wind
- Rain
- Soil
- Light
- Temperature

½ x 5 = 2mks (first five)

b) State three methods of weed control in padly rice (1 ½ mks)

- Flooding
- Uprooting
- Use of herbicides (eg butachlor, propanil)

½ x 3 = 1 ½ mks (first 3)

SECTION B (20MARKS)

Answer all questions in this section

18. The diagrams below illustrate common weeds on the farm. Study them carefully and answer the questions that follow

Fig D	Fig E	Fig F
Thorn apple/ Datura stramonium	Double thorn	Nut grass/ cyperms rotundus

Name the weeds illustrated by figures D, E, and F

Figure D (1 mk)

Figure E (1mk)

Figure F (1mk)

b) Why is control of weed F difficult (1mk)

- Has underground bulbs

1 x1 = 1mk

19. The diagrams below illustrate methods of crop propagation. Study them carefully and answer the questions that follow

Figure K	Figure L
Aerial / marcotting layering	Tip layering

1 x 2 = 2marks

b) State two methods of budding (2mks)

-Top budding

-Patch budding

-T – budding

(First two 1 x 2 = 2mks)

20 a) What is plant population? (1mk)

The ideal number of plants that can comfortably be accommodated in a give are without overcrowding or wasting space (1mk)

b) Patricia was advised to plant her maize crop at a spacing of 90 x 30cm. calculate the plant population if her plot measures 93m x 42 m. (2mks)

Show your working (3mks)

Plant population = Area of land / Spacing of crop

= (93 x 42)m / (0.90 x 0.30)m

= 3906 / 0.27 = 144.66

= 145 plants

1 x 3 = 3mks

20. The diagram below illustrates a soil profile

Study it carefully and answer the questions that follow

a) Name the layers represented by numbers 2,3,4, and 5

2 Top soil / Horizon A

3 Sub soil / Horizon B

4 Substratum / weathered rock / Horizon C

5 Parent rock / Horizon D

½ x 4 = 2mks

b) State two characteristics of the layer marked 2 (2mks)

- Uppermost soil layer beneath the superficial layer

Darker due to high humus content

Well aerated

Soil micro- organisms are present (for decomposition)

Well drained

Most plant roots are present

Rich in nutrients

2 x 1 = 2mks (first 2

21. The diagrams below illustrate common crop pests on thefarm. Study them carefully and answer the question that follow

Fig P — Quelea birds / Quelea quelea aethiopica

Fig S — Flour weevil

a) Name the pest illustrated in figure P and S (2mks)

Quelesa birds / Quelea aethiopical / sudna Dioch ref. birds alone

S Flour weevil Ref Weevil alone

2 x 1 2mks

b) State two control methods of the pests in fig P (2mks)

- Poisoning
- Usie of explosives
- Breeding and growing resistant sorghum varieties (goose neck varieties)

1 x 2 = 2mks (first 2)

SECTION C (40 MARKS)

23 a) State and explain how soil loses fertility (12 mks)

- Leaching
- -Soil erosion

- Monocropping
- Continues cropping
- Burning of vegetation cover
- Change in soil pH
- Accumulation of salts

Stating 1x6 = 6mks

Correct Explain = 1x6 = 6mks

b) Outline four problems associated with manure use in agricultural production (4mks)

- Bulkiness

–Spread disease /pests/ weeds

Laborious in application / transport

- Should be used if fully decomposed to avoid scorching crops
- Loss of nutrients due to poor storage

1 x 4 = 4mks (first four)

c) Give four characteristics of plants suitable for green manure (4mks)

- Highly vegetative / leafy
- Fast growth rate
- Quick rotting /decomposition
- Hardy / ability to tolerate poor soil conditions
- High nitrogen content / legumes

1 x 4 = 4mks (first four)

24 a) Explain the factors considered in choosing seed rates (8mks)

- Number of seeds per hole- When 2 or more seeds are planted per hole, higher seed rate is required than when only one seed is planted per hole
- Spacing- At closer spacing, more seeds are used than at wider spacing
- Germination percentage – less seed id used when its germination percentage is higher. Seed of lower germination percentage is required in larger amounts.
- Seed purity – when planting seed which is pure or with a high germination percentage, less seed is required. More seeds are required wnen using impure /mixed seed.
- Purpose f the crop – crop for silage making is spaced more closely than one meant for grain production. This would require use of more seeds. Maize to be used for silage making requires more seeds than one for grain production

2x4 = 8 mks (Any 4 points well explained (Mark well explained points)

b) Describe the production of cabbages under the following sub headings

i) Nursery establishment and management (6 mks)

- Site cabbage nursery iin an are where Brassica family crops have not grown for the last 3 years
- Prepare nursery bed to fine titlh.
- Remove all roots/ stones/ perennial weeds during preparation
- Make shallow drills 10cm apartand drill in seeds evenly and cover with soil
- Apply mulch and remove when seedlings emerge
- A thin shade is constructed over the nursery
- Water seedlings regularly when dry
- Harden off seedlings 2 weeks before transplanting

Any (1 x 6 = 6mks)

ii) Transplanting (6mks)

- Seedlings are ready for transplanting one month after sowing
- Healthy / vigorously growing seedlings are selected

- Lift seedlings with a lump of soil around the roots
- Water the nursery bed 48 hours before transplanting
- Plant seedlings at the same depth as they were in the nursery
- Firm soil at the base of each seedling
- Transplant early in the morning / late in the evening/ during a cloudy day

Any (1 x 6 = 6mks)

25. a) Give the reasons for top dressing pastures (5mks)
    - Replenish soil nutrients and ensure proper nutrient balance
    - Improve the nutritive value of the crop
- To amend / correct the physical and chemical properties such as soil structure / moisture holding capacity
- To increase the herbage yield
- To enable the soil micro –organisms to break down organise residues into available nutrients

(Any 5 x 1 = 5mks)

b) Outline the advantages of zero grazing (stall feeding) (5mks)
- Quick accumulation of manure
- Allows the higher stocking rate
- Requires little land
- Animals produce high yields due to less wastage of energy
- Easy to control diseases and parasites
- Animals make use of feeds without wastage

(any 5 x 1 = 5mks)

d) State and explain five physical measures of controlling crop pests (10mks)
- Suffocation
- Use of scarecrows
- Use of electromagnetic radiation
- Use of physical barriers
- Flooding
- Proper drying of produce
- Physical destruction of pests
- Use of lethal temperature

Correct stating 1 x 5 = 5mks

Correct explanation 1 x 5 =5 mks

(First five well stated and explained points 2 x 5 = 10mks

END