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KABARAK HIGH SCHOOL
AGRICULTURE
PAPER 1
MARKING SCHEME

SCHOOLS NET KENYA
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

KABARAK HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

AGRICULTURE

PAPER 1 / 443/1

MARKING SCHEME

SECTION A

1.

- Leaching
- Plant uptake
- Volatilization
- Continuous cropping
- Change in PH
- Accumulation of salts
- Burning
- Monocropping 4 x ½ = 2mks

2.

- Induce lodging
- Difficult to carry out field operation
- Reduce yields
- Low quality produced/small cobs 2 x ½ = 1mk

3.

- When there is no alternative
- When the commodity is free
- When there is unlimited supply/plenty supply 3x 1/2 = 1 ½ mks

4.(a)

- Joint products
- Competitive products
- Supplementary products
- Complementary products 3x1/2= 1 1/2mks

(b)

- Physical relationship between input ant output (½ mk)
    - Unlimited amount of resources should be allocated in that the marginal returns in those resources is the same in all alternative in which they are put. (½ mk)

5.

- To settle landless
- Ease population pressure
- Increase agricultural production
- Improve people's standard of living 4x ½ =2mks

6.(a)

- Health/fitness of workforce
- No. people in labour market
- Amount to be paid as wages

- Ability/skills of labour
- Incentive /working condition
- Skills available 2 x ½ = 1mk

(b)

- Diversification
- Selecting more certain enterprises
- Contracting
- Insurance
- Input rationing
- Flexibility in production methods
- Adopting modern methods 3x ½ mks=1 ½ mks

7. (a)

- Improve soil fertility by fixing **N** in the soil
- Break down plant and animals tissue causing decomposition which leads to release of nutrients for crops 2 x 1/2=1mk

(b)

- Water holding capacity
- Aeration
- Drainage
- Capillarity
- Fertility 3x1/2 = 1 1/2mks

8. It is the removal of old stems usually after 4-6years. (1mk)

9.

- Promotes formation of soil aggregates thus improve soil aeration
- Helps to raise PH which helps to promote nitrogen fixation by bacteria

In increases caution exchange capacity (CEC)

-Strengthens plants cells
-Used during cell division
Necessary in protein synthesis 4 x1/2 = 2mks

10.

- Produce large quantities of seeds.
    - Seed remain viable for a long time
    - Have effective mechanism of dispersal
    - Some have the ability to propagate both by seeds and vegetatively
    - Have elaborate rooting system

    - Some have underground structures difficult to control
    - Some are able to survive with limited nutrients
    - Some weeds are allelopathic
    - Some are able to compress their life cycle. 4 x ½ = 2mks

11.

- Putting rats guard/vermin proof
- Ensure store is clean
- Clear the vegetation around the granary
- Timely harvesting to prevent attack in field

- Proper drying of grains 2 x 1/2= 1mk

12.

- Pomology/Pomoculture/fruits production
- Olericulture / Vegetable production
- Floriculture/flower production 3x1/2 = 1 1/2 mks

13.

- Mass production of propogules
- Establishment of pathogen free plants
- Require less space and fast
- Possible to propagate crops that have no viable seeds.
- Maintains the genetic potential of plants 3x1/ = 1 1/2mks

14.

- Destroys soil structure
- Loss of soil moisture
- Exposes the soil to agents of erosion
- Causes nutrients imbalance/ Change in soil PH 4x1/2 = 2mks

15.

- According to pasture stand
- According to pasture establishment
- According to ecological zones 2x1/2=1mk

16.

- Receipt

- Delivery mote
- Invoice
- Purchase order
- Statement 4x1/2 = 2mks

17.

- Release nutrients slowly
- May be a source of crop paste & diseases
- May be a source of weed seeds
- Bulky 4 x1/2 =2mks

SECTION B

18. If 1 ha require 42 kgN
∴ 2 ha requires 42 x 2 = 84kgN√ 1mk
21kgkgN is contained in 100kg SA
∴ 84 kg contained $\frac{100kgSA \times 84kg\ N}{21kgN}$
400kgN √ 1mk
50kg bag cost 1.500/=
400kg cost $\frac{1500 \times 400}{50}$√ 1mk
$\frac{12,000/=}{}$

19. (a) X – Maize weevil/Sitophilouszeamais ½ mk
Y – Squirrel 1/2mk
(b) X - Dry grain stage (1mk)
stored grains

Y – seedling stage
Grains at planting time. (1mk)

(c) X timely harvesting
Use of resistant varieties 1 x 1 = 1mk
Y – Trapping and killing
Scaring / use of scare crows
Poisoning/use rodenticides 1x 1=1mk

20. (a) Staking (1mk)

(b) Tomatoes - watermelon
Pumpkins garden peas
Some bean varieties 3x1/2 = 1 ½ mks

(c) Production of clean fruit
Facilitates spraying and harvesting of crops
Control disease outbreak e.g. blight
Prevent infestation of soil borne pests 3x1/2=1 ½ mks

21. Profit and loss acc of Mr. Ongero's farm for the two year ended 31/12/12

Expenditure	Shs	Cts	Income	Shs	Cts
Opening valuation	6,000	00	Sales & receipts		00
Purchase and	5,000	00	Pig sales	7,000	00
expenses	8,000	00	Piglet sales	4,000	00
Wages	4,000	00	Maize sales	3,000	00
Equipment	3,200	00	Closing valuation	4,000	
Pig feeds				18,000	00
Drugs			Net loss	8,200	00
Total	26,200	00	Total	26,200	00

Marks allocation
Correct columns – Income – 1/2mk

- Expenditure 1/2mk
Correct title – 1/2mk
Correct entries – income inside 1/2mk.
Expenditure 1/2mk
Correct totals – Both sides 1/2, 1/2, =1mk
Correct net loss – 1/2mk
Total (4mks)

(ii) Net loss (1mk)

(c) (i) Altitude – 0 – 2200m a.s.l
Temperature – 24oC
Rainfall – 600 – 1800mm
soil – Deep, fertile & well drained
Soil PH – 6.0 – 7.0 2x1=2mks

(ii) – Seeds are prepared by sorting, cleaning and dressing to control soil borne pests & diseases
- Select certified seeds that have 100% germination potential 2x1=2mks

(iii) Clear the land to remove vegetation cover
Prepared during dry season

Plough the land deeply to remove perennial weeds
Harrow to obtain a medium tilth. 3 x 1/3mks

(iv) **Weed control** – field should be weed free; **pests & diseases control**- use appropriate methods
of control
Top dressing - apply CAN @ 200kg/ha
Thinning – Remove extra plants to reduce over crowding (3x1=3mks)

(v)

- Ready for harvesting 4-9 months depending on the altitude & cultivar grown
- Harvest directly by breaking the cobs from maize stalk
- Harvest indirectly by stalking
- Harvest manually by use of combine harvester 2 x1 =2mks

22. (i) Furrow irrigation 1x1 =1mk

(ii)

- Reduce fungal diseases eg blight
- Cheap to establish & maintain
- Require little skills. 2x1=2mks

SECTION C

23.(a)

- Avoid picking wet flowers
- Flowers should be put in oven baskets
- Avoid any form of contamination
- do not compact the flowers in the basket to avoid fermentation
- Dry the flowers soon after harvesting

(b)

- Ensure transplanting of tomatoe seedlings that are healthy & vigorous growing
- Enables the provision of best growth conditions for seedlings before transplanting
- Facilitates planting of small seeds which develop into strong seedlines that are easily transplanted
- Routine management practices are easily and timely carried out in the nursery
- Reduces the period taken by tomato seedlings in the field. 4x1=4mks

24. Suitability to the ecological zone

- Selected planting materials should be favourable to the prevailing ecological conditions.

Purity of the material.

- planting material should be clean and free from foreign materials.

Germination percentage

- This is a measure of germination percentage of seeds. Seeds should have a high percentage. Lower seedrates are used for crops with higher germination percentage.

Certified seeds

- These are seeds which have been tested & proved to have 100% germination potential. Free from diseases and pests.

Stating – 1mk
Explanation – 1mk

(b)

- To control soil erosion – Mulching & cover cropping greatly reduce the chances of erosion
- To maintain soil structure – continuous cultivation destroys soil structures hence should be avoided.

- To prevent conserve moisture – continuous cultivation exposes the soil to the heat of sun thus enhancing evaporation of available moisture
- To prevent exposure of humus to adverse conditions such as sun's heat that causes volatization of N
- To prevent root disturbance & underground structures.
- To reduce the cost of cultivation /ploughing by reducing the number of operations. 4x2 = 8mks

(c)

- Roof catchment
- rock catchment

- Use of weirs
- Use of dams
- Use of ponds 3x1 = 3mks

25. (a)

- Timely planting
- Timely harvesting
- Proper tillage
- Close season
- Trap cropping
- Crop rotation
- Planting resistant crop varieties
- Field hygiene
- Alteration of environmental conditions
- Crop nutrition
- Destruction of alternative host
- Use of clean planting materials
- Proper spacing
- Use of organic manure
- Irrigation 1x10 =10mks

(b) –Addition of organic matter
- Addition of lime/liming
- Including grass leys in crop rotation
- Cultivating soil at correct moisture content
- Mulching using organic mulch
- Agro forestry
- Organic farming. 1x5=5mks

(c) (i) Temperature; should be between 15-27oC;warm temp. Required for root zone & cool temperature required for aerial shoots.

(ii) Relative humidity; - Requires high humidity which lower transpiration rate.

(iii) Light intensity; requires high light intensity for root production

(iv) Oxygen supply; Plenty of O 2 required for root formation.

(v) Chemical treatment; rooting hormones e.g. auxins promote production of the roots

(vi) Leaf area; Soft words required a lot of leaves for photosynthesis, hardwood cuttings produce roots better within leaves; 1x5= (5mks)