KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

BAHATI GIRLS HIGH SCHOOL
AGRICULTURE
PAPER 1
MARKING SCHEME

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BAHATI GIRLS KCSE TRIAL AND PRACTICE EXAM 2015

AGRICULTURE

PAPER 1 / 443/1

MARKING SCHEME

1. How plant nutrients may be lost
   - Leaching
   - Soil erosion
   - Volatilization
   - Burning
   - Denitrification
   - Plant uptake ***(4 x ½ = 2mks)***
2. Characteristics of a good root stock
   - Healthy/free from pests and diseases
   - Resistant/tolerant to soil diseases and posts
   - Adaptable to different soil condition. ***(2 x ½ = 1mk)***
3.
   - Saves time and money
   - Make it easy to have sound farm plan
   - Makes supervision easy
   - Facilitates mechanization
   - makes it easy to carry out soil conservation measures. ***(3 x ½ = 1½)***
4. Methods of stalk borer control
   - Intercropping
   - Early planting
   - Crop rotation
   - Burning plant residues/rogueing
   - Use of appropriate chemical/insecticides.
5. Form in which Nitrogen is absorbed
   - Nitrate ion (NO_3^-)
   - Ammonium (ion) (NH_4^+) ***(½ x 1 = 1mk)***
6. Factor that should be considered when designing a crop rotation programme
   - Include grass ley to give land rest
   - legume crops to be included to fix nitrogen
   - Heavy feeder should come first in a newly opened land
   - Crops from same family should not follow each other.
   - Deep rooted crops should alternate with shallow rooted crops ***(4 x ½ = 2mks)***
7. Advantages of drip irrigation
   - Economic/efficient use of water/require little water.
   - Less growth of weeds between the rows
   - Discourages fungal diseases
   - Does not cause erosion
   - Water under low pressure maybe used. ***4 x ½ = 2mks***
8. Reasons for forage conservation – to avoid wastage
   - Excess forage can be sold
   - To ensure enough supply throughout the year ***3 x ½ = 1mk***
9. Aspects of rainfall
   - Rainfall distribution (pattern)

- Rainfall reliability
- Rainfall amount
- Rainfall intensity ***(4 x ½ = 1mk)***

10. Managent practices to obtain optimum plant population
    - Thinning
    - gapping ***(2 x ½ = 1mk)***
11. Sites for Agro forestry
    - Boundaries
    - River banks
    - Homesteads
    - Steep slopes
    - Terraces/eroded areas
12. Types of crop to be grown
    - Type of soils
    - Capital availability
    - Topography/slope of the land
    - Amount of water available to use
    - Size of land to be irrigated
13. Benefits of packaging
    - Makes handling more convenient and enhances efficiency
    - Prevent physical deterioration
    - Prevent theft/tampering and substitution maintaining quantity and quality
    - Promotes/act as advertising medium
    - Facilitates easy labeling/measurements and attachment of sales instructions and prescription. ***(4 x ½ = 2mks)***
14. Information in a invoice
    - date of transaction
    - People involved in transactions
    - Type and quantities of good delivered
    - Price per unit of the goods
    - Total amount of money involved
    - Terms of payment
    - Invoice serial number ***(4 x ½ x 2mks)***
15. Ways of increasing soil fertility
    - Use of organic manure
    - Liming
    - Drainage
    - Use of fertilizer
    - intercropping with legumes (***4 x ½ = 2mks)***
16. Reasons for proper digging of grains
    - To reduce moisture content hence prevent rotting
    - Harder seed coat minimizing pest/disease damage
    - Prevent growth of fungus/aflatoxin poisoning
    - Increase keeping quality
    - Prevent sprouting while in the store (***4 x ½ = 2mk)***
17. (a) Alum(Aluminium sulphate) ***(1mk***)
    (b) Soda ash (sodium bicarbonate) ***(1mk)***
    (c) Chlorine ***(1mk)***

SECTION B

18. (a) Budding/bud grafting/T budding ***(1mk)***

(b) Help exclude water and air
Make tight contact between bud and rootstock ***(2 x 1 = 2mks)***

(c) Root stock (1mk)

(d) Should be healthy/free from pest and disease attack
High resistance to soil bone disease
Well adapted to wide rang of soil conditions
High compatibility with different scion ***(2 x 1 = 2mks)***

19. (a) Ridging ***(1mk)***

(b) Irish potatoes, sweet potatoes, yams (any tuber crop) ***(2 x 1 = 2mks)***
- Sugar cane and bananas (on the furrows)

(c) Proper drainage
- Easy harvesting
- soil is well aerated
- Facilitates expansion of tubers ***(3 x 1 = 3 mks)***

20. (i) Trelishing
(ii) Passion fruit (Any other relevant crop)
(***1mk)***
(iii) To obtain clean fruits
(iv) Easy harvesting, weeding
(v) Easy penetration of light
(vi) Control soil borne tests and diseases
(vii) Easy penetration of spray ***(2 x 1 = 2mks)***

21. $10000m^2 \longrightarrow 200kg$ √ 1

(a) $(5 \times 4)m^2$

$$\frac{200kg \times 20m^2}{10000m^2}$$ √ ½

$= 0.4kg$ √ ½

(b) 30: P_2O_5 (phosphorous pentoxide) ***(1mk)***
10 : K_2O (Pattassium oxide) ***(1mk)***
Acc. P_2O_5 and K_2O respectively.(Award double tick at the end)

SECTION C : (40 MARKS)

22. - Voluntary (open) membership upon payment of registration fee.
- Equal rights i.e one man one vote
- Principle of share limit – one member can buy shares from the co-operative up to a certain maximum (to avoid domination).
- Interest on shares - Money accruing capital should be distributed as dividends to members on basis of share contributions.
- Open withdrawal - members are entitled to their share contribution upon withdrawal.
- Loyalty - members of a producer co-operative must sell their produce through their co-operative only.
- Education to members should be continuous to keep members abreast with co-operative affairs.
- Co-operative principle – should have structures at local level, district, national and international.
- Non-profit motive - attention should be drawn to the fact that co-operatives are non - right making organizations.
- Collective bargaining - negotiate for better prices collectively ***(10 x 1 = 10mks)***

22. (b) Cotton

Variable costs		
Labour	100 x 25	2,500 √ ½
Seeds	100 x 1	100 √ ½
SSP Fertilizer	2000 x 1	2, 000 √ ½
SA Fertilizer	1,500 x 1	1, 500 √ ½
Sprays	500 x 1	500 √ ½
Total	**variable cost**	**6,6000 √ ½**

Gross margin per Ha = in come from produce - Total variable costs
= (2500 x 10) - 6,600
= Kshs.18,400 √ ½

Groundnuts

Labour	50 x 25	1,250 √ ½
Seeds	1000 x 1	1,2000 √ ½
SSP	1,500 x 1	1,500 √ ½
Spray	200 x1	200 √ ½
Total Variable Cost		**3,950 √ ½**

Income 2000 x 12 24,000 √
Gross Margin Per Ha = (24,000 - 3950) = Kshs.**20,050 √**
The farmer should grow groundnuts because it has a higher gross margin compared to groundnuts √

23. (a)
- Clear the vegetation
- Plough the seed bed (to eradicate all perennial weeds)
- Harrow the land to a fine tilth
- Prepare land early during the dry season.
- Roll the seed bed to firm it
- Select a suitable variety/cultivar
- Plant the seeds at the on set of the rains
- Apply phosphate fertilizer during planting
- Drill/broadcast the seeds evenly.
- Drug gunny bags to cover the seeds
- control weeds by uprooting
- Apply full doses or split doses of nitrogenous fertilizers at the right time.
- Control field pests/control moles by trapping or flooding ***(10 x 1 = 10mks)***

(b)
- Reduce quality of farm produce
- Compete for growth factors (nutrients light with crops)
- Act as alternate host for pests and diseases
- Stinging weeds a cause considerable irritations
- Control increase costs of production
- Some block navigation
- Block irrigation channels
- Poisonous to animals
- Some are allelopathic (i.e release some toxins)
- Reduce pasture quality ***(8 x 1 = 8mks)***

(c)
- Liquids
- Powders
- Granules
- Dusts ***(2 x 1 = 2mks)***

24.
- Healthy planting materials/certified seeds /clean planting materials
- Field hygiene /burning crop residues

- Proper spacing to control rosette virus and damping off disease
- Proper drying of legumes and purses seeds to avoid invasion by weevils.
- Timely harvesting to avoid attack by storage pests when crops have overstayed in the field.
- Resistant varieties (example Ruiru II against CBD)
- Crop rotation
- Early planting
- Pruning to create unfavourable micro-climate
- use of sterilized equipment - avid contamination by pathogens
- Enhanced plant nutrition to enable plants resist opportunistic infections.
- Close season to break life cycle of pathogens.
- Rouging (uprooting and burning diseased/infected plants). ***10 x 1 = 10mks)***

(b) (i)
- Control perennial weeds by cultivating during dry spell
- Plant early so the crops are able to establish in time and out compete weeds.
- Uproot weeds
- Conduct hand weeding
- Selective herbicides can be occasionally used on large scale holders.

(3 x 1 = 3mks)

(ii)
- Harvest 3 months after planting
- Harvest brown pods by uprooting the whole stalk
- Harvest early in the morning or late in the evening (to avoid dehscinglex of pods and subsequent shattering of grains). ***(3 x 1 = 3mks)***

(iii)
- Market through National Cereals and Produce Board.
- Market locally by selling to individuals and hotels
- Selling in open Air market
- Bidding for tenders in schools, colleges and other private institutions.

(Any other 4mks)