SECTION A (30 Marks)

Answer all question

1. a) Fragmentation

   - Refers to a situation in which a farmer owns several pieces land located in different areas (1x ½ = ½ mk
   b) causes of land fragmentation
   i) Inheritance- where an individual inherits land from different ancestors
   ii) People buying pieces of land elsewhere due to pressure on existing land
   iii) Compensation – when the government takes part of one's land for public use the owner may be compensated by giving him and the piece of land elsewhere (2x ½ =1mk

2. 4 advantage of using organic matter for mulching
   i) conserves soil moisture
   ii) Reduces growth of weeds
   iii) Regulates soil Temperature
   iv) controls soil erosion
   v) Adds nutrients when it decomposes /Buffers soil PH
   vi) Improves soil structure when it decomposes
   vii) Increases water holding capacity after decomposition
   viii) Increases microbial activity
   ix) Improves water infiltration into the soil

3. 4 Reasons for crop Rotation
   i) Maintains soil fertility
   ii) controls pests / diseases
   iii) Controls weeds
   iv) Reduces chances of soil erosion
   v) Makes maximum use of soil Nutrients

4. Two disadvantages of growing one type of annual crop
   Continually on the piece of land
   i) Build up of pests /Diseases
   ii) Depletion of certain / some types of Nutrients
   iii) Build up of weeds that are characteristic to that crop
   iv) Destruction of soil structure

5. 4 Factors determining the number of cultivation
   When preparing land
   i) Soil moisture
   ii) Size of planting material
   iii) Time available to carry out the operation before planting
   iv) Type of machinery available
   v) Cost of operation
   vi) Gradient of land
   vii) Cropping history of the land
   viii) Skill of the operator
   ix) Type of soil

6. a) Explaining the meaning:

   i) Marginal Returns

   The Extras Revenue /Output earned from each additional unit of input (1x ½ = ½ mk)

   ii) Gross National product (G D P) - The sum total of all goods and services produced in a country in one year (1x ½ = ½ mk)

   iii) Opportunity cost

   -The return foregone when a resource factor is taken from to best alternative use (1x ½ = ½ mk)

   iv) Per capital income

The income per person per year in a county (1x ½ = ½ mk)

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8. 2ways in which soil PH affects crop production

i) Determines the type of soil micro-organisms present

ii) Determine the availability of certain nutrients in the soil

iii) Determine the presence of certain pests and diseases in the soil

iv) Determine the type of crop to growth

v) Determines the type of fertilizers to apply (2x ½ =1mk)

9. 2 mechanical methods of separating soil particle
According to size in soil analysis
i) Use of sieves
ii) Graduated cylinder / clear bottle and water

10. 4 factors affecting quality of Hay
i) Stage at which the grass is harvested
ii) Efficiency in preparation
iii) Storage conditions
iv) Species of crops used in making hay
v) Length of drying period
vi) Prevailing weather conditions when drying

11. One cause of swellings on Beans
i) Nematode attack
ii) Root nodule

12. 2 factors which influence soil productivity
1) Soil dept 4) water holding capacity
2) Drainage 5) soil PH (2x ½ =1mk)
3) Aeration

13. 4 factors influence solifluction
- i) The slope of land
ii) The nature of the material
iii) Climate
iv) Vegetation cover
v) Human activities
vi) Forces within the earth's crus

14. 4 factors affecting selectivity of herbicicides
i) Stage of growth of plant
ii) Plant morphology and anatomy

iii) Mode of action
iv) Environmental factors

15. 4 Benefits of Agroforestry
i) Source of wood fuel
ii) Source of income
iii) Environmental benefits
iv) Labour savings

v) Aesthetic value
vi) Source of food
vii) Source of timber
ix) Medicinal value

16. 2- Types of product –product Relationships
i) Joint products e.g. milk and butter; pork and brustler, honey and wax, Grains and straws; Beef and hide
ii) Competitive product- Dairy and beef wheat and maize
iii) Supplementary product – poultry and vegetable
iv) complementary products – dairy and pigs, crops and livestock minor crop in the main crop interplanted
e.g. beans and coffee, beans and maize

17. 4 activities carried out by young farmer club
i) Organizing and participating in annual Y F C rallies and camp
ii) Participating and competing in A S K show activities e.g livestock judging, plouging contests
iii) Planting trees
iv) Organizing agricultural field days for local communities
v) Participating in agricultural exchange program me but locally and internationally

18. 4 deficiency symptoms of phosphorus
i) Started growth
ii) Reduced branching in stems /roots
iii) Dormant lateral back
iv) Purple colouration of leave
v) Reduced formation and development of seeds flower, fruits and tubers in crops
vi) Weak stems
vii) Premature leaf fall

19. 2 characteristics of a Good Rootstock
i) Healthy iv) Adaptable to different soil conditions (2x ½ =1mk)
ii) Compatible with different scions
iii) Resistant to soil borne diseases and pests

SECTION B (20 Marks)

Answer all the question in the space provided

20. I) Identify-A-Weaver bird (1x ½ = ½ mk
ii) 2 ways – bird causes damage
i) Eats grass
2) Causes the grains to fall off
3) Exposes maize cobs to rain leading to rotting
4) Strips the leaves (2x ½ 1mk)
iii) 4 methods of control

1) Trapping
2) Growing different crops on the same farms
3) Scaring /Bombing
4) Poisoning
5) Destroying the nests
6) Killing

21. i) 2 practices not carried out
1) Pruning
2) Stacking (2x ½ =1mk)
ii) 2 problems of not carrying out the management practices
1) Pest control would be difficult

2) There would be low production
3) Harvesting would be very difficult
4) Disease control would be difficult
5) fruits would be small in size
6) Wastage of chemicals while spraying
7) Fruits will be soiled

22. i) Identity the weed
- Black jack /bidens pilosa (1x ½ = ½ mk
ii) 2 reasons for controlling the weed
1) Avoids competition for nutrients moisture light
2) Black jack seeds contaminate some crops
3) May be alternate host to some pests e.g. Aphida, white flies which attack crops like beans
4) The seeds of the weed may prickle and irritate the workers 2X ½ =1MK
III) One herbicide to control in maize plantation
-M C P A
-2, 4, D 1x ½ = ½ mk
iv) Stage of growth of maize to apply a pre-emergence herbicide - Al 10-15cm High /2-5 leaf stage /2-4wks
1x2= ½ mk

23. i) cut- off drain
An open trench with an embarkment on the lower side (1x ½ = ½ mk
ii) Procedure of constructing cut- off drain
1) Measure and mark the layout
2) Dig and remove the soil from the channel as heap it on the lower side of the drain (2x1=2mks)
iii) Factor determines width & depth
of the cut-off drain
i) Expected volume of ran off
ii) Soil type 1x ½ = ½ mk

24. i) purchase order from Agro- vet shop to Lutonyi Farm

Lutonyi Farm Address√
p.o Box 1020
KIMILILI
Date 10-1-2010√
No.....√

LOCAL PURCHASE ORDER

TO: Agro- vet shop (Address)√
p.o. Box 400
BUNGOMA

Please supply the following items√

Items No √	Particulars √	Unit √	Quantity√
1	Dairy meal	70kg bag	20
2	Bran	70kg bag	16
3	D. S. P (Fertilizer) √	50kg bag √	18 √
4	Seed maize	2kg bag	45
5	shearing knife	medium size	8

Ordered by _____signature√
Authorized by _____signature√
Farm Manager

Guide to marking scheme

Mark any 8 correct points x ½ =4 marks

ii) Value of each item purchased and Total value of the order

a) Valued of items purchased

1) Dairy meal kshs 1,100x20 = kshs 22,000√

2) Bran kshs700 x 16 = kshs 11,200√

3) D S P (fertilizer) kshs 1,500 x18 = kshs 27,000√

4) Seed maize kshs 300 x45 = kshs 13,500√

5) Knives Kshs 300 x8 = kshs 2,400√

b) Total value of order = kshs 76,100√ (4x ½ =2mks

25. i) Experiment Testing
- Capillarity in soil samples A,B and C (1x ½ = ½ mk
ii) 3 soil sample A- Sand√ B- Loam √ 3x ½ =1 ½ C-Clay√

iii) characteristic Texture – soil samples A and C
A- coarse/rough 1x ½ = ½ mk
C- Smooth /sticky when wet 1x ½ = ½ mk
iv) Improvement of soil structure A - Add organic matters /manure 1x ½ = ½ mk

SECTION C (40 Marks)

Answer any Two questions from this section in the spaces provided after question 28

26. i) Trees on boundaries – These are used as live fences
ii) Homesteads - Trees grown around the homestead as wind breakers and for shade
iii) River bank – Grown to protect against river bank erosion and catchment areas
iv) Terraces - Trees stabilize the Terraces and provide organic when leaves decompose
v) Slopes - farm the contour hedges which create barriers against soil creep
Mention site – 1mk
Explanation – 1mk 5x2=10mks
b) 5 factors considered in choosing type of irrigation
i) Capital availability – This determines the type of irrigation to be used Drip and overhead irrigation require
high initial capital for installation and maintenance
2) Topography – surface irrigation require flat land
3) Water availability – surface irrigation require s large quantities of water while drip and overhead irrigation
require little water
4) Type of soil – surface irrigation is best suited for clay soil because they hold water for a long time
5) Type of crop- The crops to be irrigated should have high value to justify the irrigation cost
6) Availability of clean water – Drip irrigation and overhead require clean water to avoid blockage

27. a) Production of Tea use of pegging method
i) After the seedling has attained a height of 30cm
2) Cut back the main stem to 15cm above the ground
3) Allow lateral branches to grow to about 50- 70cm

4) Then peg the branches at a slanting angle /30-450

5) Tip off the tips of pegged branches
(5x2=10mks)
b) Tomato growing under
i) Transplanting
1) Water the nursery thoroughly to lift the seedlings easily
2) Select only healthy and vigorous seedlings
3) Lift the seedlings with a lump of soil attached to the roots
4) Add /spoonful of phosphoric fertilizer /handful of well rotten manure to the planting hole
5) Place and mix well with the soil
6) Place the seedling in the planting hole at the same depth as it were in the nursery
7) Place and firm the soil around the base of seedlings
8) Water the seedlings as appropriate
9) Apply mulch /erect shade around the seedling
10) Transplant on a cloudy day or Late in the evening when it is not too hot
11) Transport the seedlings carefully
12) Transplant the seedlings at 4-6 weeks /4-6 true leaves stage
(10x1=10mks)

27 b) ii) Tomato diseases and the control measures
i) Tomato blight
A fungal disease caused by a fungus
Phytophthera infestans
Control by spraying fungicides like ridomil, dithane m45
ii) Bacterial wilt
A bacteria disease caused by a bacterium pseudomonas solanacearum
CONTROL MEASURES:

- Uproot and burn infected plants (Rogueing

- Use certified seeds

- Crop rotation

iii) Blossom- end Rot

This is a physiological disease caused by calcium deficiency in young stage, too much Nitrogen application in
young stage, infrequent watering

Control measures

- Top dress with correct quantity of Nitrogen

- Top dress with calcium Ammonium Nitrate,

- Regular watering

- Application of mulch
iv) Control of vectors e.g. Tobacco white fly

They transmit viral diseases

Control: - use suitable pesticides

v) Damping off disease

A fungal disease Attacks Tomato seedling in the Nursery
Control measures
i) Reduce shade
ii) Reduce frequency of watering
iii) Apply fungicides
1 mark for disease/ condition 5x1=5marks
1 mark for control measure 5x1=5 marks
Total =10marks

28. a) Marketing Functions
1) Buying and assembling from producers
2) Transporting and distributing to ware houses and consumers
3) Storage
4) Packing
5) Processing
6) Grading and standardization
7) Packaging
8) Collecting market information
9) Selling
10) Bearing risks and uncertainties

b) Various Land Tenure systems practised in Kenya
1) Leasehold /Tenancy/Landlordism
This gives legal rights to an individual to own and use land at a payment for a specific period of time
2) Company /concession
This is where a company and government enter an agreement on the use of land for a specific period of time
3) Communal land Tenure
This is where the whole community has the right to the use of land
4) Individual ownership /Individual owner operator/ True hold ownership
This is where land is owned by an individual farmer who either operates it or leases it to another person to
operate
5) State Land /Government ownership
Here the state /government controls land use
6) Co-operative land Tenure
Here land is owned by a group of members who run it on cooperative basis

Awarding of marks
1 mark for Land Tenure system 5x1=5marks
1 mark for explanation 5x1=5marks
Total= 10mark