**KASSU EXAMINATION – 2024**

**AGRICULTURE PAPER 1 (443/1)**

**MARKING SCHEME**

**SECTION A (30 Marks)**

1 Role of Agriculture

* Provide market for industrial goods
* Provide raw materials that are used in industries
* Source of income

(1mk)

2 Mixed cropping is the growing of two or more crops in the same field but in specific sections at the same time while intercropping is the growing of two or more crops in the same field at the same time.

 (1mk) – Marks as a whole)

3 Physical weathering agents

* Temperature
* Wind
* Water
* Ice/glaciation

 ( ½ x4 = 2mks)

4 Farming practices that destroy soil structure

* Using heavy machinery on wet soils
* Over cultivation
* Burning of vegetation
* Too much use of agro-chemicals

 ( ½ x 4 =2mks)

5 Effects of siltation in dams

* Causes water pollution
* Interferes with hydro- electric power generation.
* Leads to decline in fish production in dams
* Reduction of water volume

 ( ½ x 4= 2mks)

6(a) Methods of classifying weeds

* Basing on growth cycle
* Basing on plant morphology

( ½ x 2= 1mk)

b) Disadvantages of controlling weeds by tillage:

 - Tillage destroys soil soil structure

 - Tillage creates suitable conditions for weeds to germinate

 - It laborious and expensive especially if the land to cultivate is large.

 - Excessive cultivation leads to loss of water and soil erosion

 - Excessive cultivation leads to damage to crop roots

 - Perennial weeds may not effectively be controlled.

 ( ½ x 2 = 1mk)

c) Factors that affect selectivity of herbicides

 - Stage of plant growth

 - Plant morphology and anatomy

 - Herbicide characteristics

 - Herbicide concentration

 - Formulation

 - Method of application

 - Mode of action

 \_ Environmental factors

 ( ½ x 4 = 2mks)

7 Methods of hardening off seedlings

* Gradual reduction of shade
* Gradual reduction of watering per day.

 ( ½ x 2 = 1mk)

8 Disadvantages of minimum tillage;

* Leads to development of hardpan layer
* Build up of weeds
* Encourages build up of diseases and pests
* Reduced water infiltration.
* Where burning was used to clear land, soil fertility will be lost

( ½ x 4 = 2mks)

9 Characteristics of trees recommended for agroforestry:

* Fast in growth
* Deep rooted
* Nitrogen fixing
* Good by products
* Should not be heavy feeders

( ½ x 4 = 2mks)

10 Reasons for staking tomatoes,

* Enhance production of clean fruits
* Helps in controlling diseases
* Facilitates spraying of the crop/weeding and harvesting of the crop/ pruning
* Prevent infestation by soil borne pests.

 ( ½ x 3= 1½ mks)

11 (a) An invoice is issued to inform the buyer of goods delivered and debits the buyer. (1mk)

 b) A Local purchase order is issued to a trading business to supply specified goods. (1mk)

12 Disadvantages of Farm Yard manure:

* They have low nutritive value per volume, hence used in large quantities (bulky)
* Its laborious in application and transport
* They spread weeds
* They lose nutrients through leaching and volatilization if poorly stored
* If used when not fully decomposed the crops cannot benefit since it releases nutrients slowly and it also scorches the plants.
* Its not easy to determine the nutrient present in the manure.

 ( ½ x 4 = 2mks)

13 reasons for seed selection:

* To get seeds which are free from pests and diseases
* To get seeds which are suitable to the environment, ecological conditions
* To get seeds which will give high yields
* To get materials which are pure
* To be able to get seeds which of the right shape and size
* To get and use seeds which have high germination percentage.

 ( ½ x 4 =2mks)

14 Advantages of mixed stand pasture:

* Livestock are able to get high quality pasture both in forage quality and quantity
* Avoid total loss resulting from pest and disease attack
* There is maximum use of soil as different crops have different nutrient requirement
* There is better weed control
* There fewer cases of bloat in animals which graze on mixed pastures
* There is economic use of nitrogen fertilizers as legumes legumes will fix nitrogen from the air
* Fodder plants can be grown with plants for human consumption ie legume grown with millet.
* ( ½ x 2 = 2mks)

15 (a) It encourages forking of carrots which reduce quality. ( ½ mk)

 (b) Pests that affect cabbages are:

 - Cutworms

 - Aphids

 - Cabbage sawfly

 - Mouse birds

 - Caterpillars

 ( ½ x 2= 1mk)

16 It depends on cultivated crops such as maize. ( ½ mk)

17 Advantages of organic mulch

* Organic mulch improves soil fertility by releasing nutrients after decomposition
* Organic mulch produces humus which improves soil structure and water retention capacity
* Organic mulch controls soil erosion by covering the soil
* Organic mulch insulates the soil thus modifying soil temperature.
* Organic mulch is cheap to acquire.
* The material is locally available. ( ½ x 3 = 1 ½ mks)

**SECTION B (20 MARKS)**

18. (a) Cut-off drain

 (b) it discharges its water into

* Natural water ways
* Artificial water ways
* Rocky ground
* Grass land

(c) Two other physical structures

* Trash or stores lines
* Filter steps
* Bunds
* Gabion/ porous dams
* Ridging
* Dams and Reservoirs
* Teracess

19. Farm records

(a) Master roll record/ labour record (1mk)

(b) Pieces of information contained in a invoice

* Date of transaction
* The people involved in the transaction
* Type of goods and services
* Price per unit of the goods.
* Type and quantities of goods delivered
* Total amount of money involved
* Invoice serial number
* Terms of payment

( 1x 4 = 4mk)

20. (a) Q- Individual hooked pegs method (1mk)

 R – Ring and pegs pegging method (1mk)

 (b) Reasons for pegging

* To ensure lateral growth and aped to form the frame for wide plucking table. (1mk)

 (c) Methods of pruning coffee

* Single stem pruning (1mk)
* Multiple (1mk)

21 (a) P2O5 applied per hectare from 200kg of DSP

 40

**80Kg/hac P2O5**

=

200

X

 100

 (1mk)

(b) K2O applied per hectare from 150 kg of nutrients of Potash

60

=

**90Kg/hac K2O**

150

X

100

 (1mk)

(c) N applied per hectare from 150kg/hac sulphate of ammonia

**30Kg/hac K2N**

 20

=

150

X

 100

 (1mk)

 b) Filler material in the double supper phosphate (DSP) is:

 Active ingredient is :

 80kg/hac of P2O5

 1 Bag of 100kg DSP has 40%P2O5

 Filler material is 60 kg. Therefore the 200kg of fertilizer has a filler material of,

 60 x 2 = 120kg. (1kg)

 c) Complete compound fertilizer is that fertilizer which has the three of the primary macro nutrients ( N P K) while incomplete fertilizer is that which has only one of the primary macro nutrients (N P K). (1MK) Mark as a whole.

**SECTION C (40 MARKS)**

22. (a) Bean production under the following sub headings planting

* Should be planted at the onset of rains and planting may be delayed during the long rains to avoid rotting before harvesting.
* Planting is done by placing 2 or 3 seeds per hole.
* Planting is done in shallow furrows
* Planting is done manually and dibbing method can be used.
* Spacing used is 30 – 45cm x 15cm
* The seed rate is 50 – 60 kg/hac
* Ammonium phosphate should be applied at the rate of 250 kg/hac
* Fertilizer is placed in the furrow before planting.

(ii) Filed Management practices

* Gapping
* This should be done immediately after germination
* Weeding should be done before flowering to void knocking down flowers
* Weed when the field is dry to avoid spreading diseases
* Shallow weeding is done and the field should be kept clean.
* Hard weeding is done
* Thining – done tro remove excess seedlings to avoid overcrowding for green pod production

 (iii) Pest control

* To produce high yield and quality beans pests should be controlled
* The common pests are aphid’s ben bruchid, spotted borer, American bollworm and golden ring moth etc.
* Methods used to control include, spraying with appropriate insecticide
* Cultural measures can also be used
* Disease control
* Common diseases includes bean rust anthracnose, blight mosaic and angular leaf spot. These are controlled by planting health materials uprooting spraying with appropriate fungicides and destroying infected crop residues.

(b) Procedures of harvesting pyrethrum

* Pick flowers selectively by picking only those with horizontal petals (ray flower) with two three rows of disc florets open.
* Picking intervals is 14 – 21 days.
* Flowers are picked by twisting the heads and ensure no stems are attached
* Put picked flowers in open woven basket to allow ventilation
* Tins or polythene bags should not be used.

(ii) Precaution observed when harvesting pyrethrum.

* Put picked flowers in woven basket
* Avoid use of tins or polythene bags because this encourages fermentation.
* Avoid picking up wet flowers
* Do not compact flowers during picking because it encourages heating up and fermentation.

(c) Factors determine choice of irrigation method

* Topography/slope of the land
* Soil type
* Tyre of crop to be irrigated
* Amount of water available
* Distance of the source of water to the field
* Capital available, skills available
* Climatic factors of the area
* Technology available

23. (a) Negative effects of biotic factors

* Pests – attcatk crops by eating plant parts
* Piecing and sucking sap and introducing disease micro – organism.
* Weeds – compete for growth requires space, nutrients, moisture and light.

(b) Functions of farm manager

* Short-term planning for quick decision to avoid losses
* Long-term planning collecting relevant information gathering
* Information gathering
* Budgeting
* Compairing standards
* Detect waekneses and coustraints and find ways of overcoming them.
* Keeps up to date farm records and uses them in daily running of the farm.
* Implements farm decisions
* Guiding and supervises the implementation of the farm plan.
* Compares performance of the farm with that of other farms.
* Makes predictions of the farm business
* He is the accounting officer of all financial transactions of the farm.

(c) Cultural measures of controlling pests

* Timely planting
* Timely harvesting
* Proper tillage
* Close season
* Trap cropping
* Crop rotation
* Planting resistant crop various
* Filed hygiene
* Alteration of Environment condition.
* Crop Nutrition
* Destruction of the alterative hosts
* Use of clean planting materials
* Proper spacing
* Use of organic manure
* Irrigation, flooding of fields
* Chemical control

24. (a) Factors determining elasticity of demand

 - The availability of substitutes

 - Degree of necessity

 - The number of uses a product can be put to

 - Time lag

 - Time span

 - Proportion

 ( 1 x 8 = 8mks)

(b) Advantage of timely planting

* Disease and pest control
* Benedict from nitrogen flash
* Weed control
* Maximus rainfall by the crop
* Crop matures early when market prices are high/high demand.
* No competition for labour/ get cheap labour
* Crop will be harvested during appropriate weather condition

(c) Effects of land fragmentation and sub-division

* Time is wasted while travelling from and holding to the other
* Control of weeds and pests is difficult
* Difficulties of following a sound farm plan arising from the distance between fragments.
* Difficulties in the supervision of the scattered plots
* Control of livestock parasites and diseases
* Difficulties in carrying out various soil conservation measurers
* It is difficult for the farmers to restrict grazing in one holding only due to size and shape of parcel.
* Difficulties in offering agricultural extension advice.
* Agricultural productivity remains poossr whih results in low standards of living.