EXAMS AGRICULTURE PP1 MARKING SCHEME 2021

1. Two methods which can be used to detect mineral deficiency in crops.
   - Soil analysis
   - Leaf analysis
   - Observation of deficiency. (2 x $^1/_2$ mk= lmk)

2. Two conditions under which shifting cultivation is favourable.
   - Communal land ownership
   - Large piece of land
   - Sparse population. (2 x $^1/_2$ mk= lmk)

3. Two conditions under which seeds are seeded at a high seed rate.
   - When seed germination is low
   - When seed have low seed purity
   - Incase of closer spacing
   - When number of seeds per hole is higher. ($^1/_2$ x 4rnks = 2mks)

4. Three ways in which trees improve soil productivity.
   - Conserve moisture
   - Improves soil structure
   - Control soil erosion
   - Source of plant nutrients/organic matter fix Nitrogen e.g. legumes. (3x $^1/_2$mk=l$^1/_2$rnks)

5. Causes of hard pans by cultivation.
   - Cultivating at the same level throughout
   - Cultivating when wet using heavy machinery. (2x$^1/_2$mk=Imk)

6. Under which two conditions does opportunity cost not exist?
   - Where there is no alternative choice
   - Unlimited supply
   - When goods are supplied free (2 x 1 $^1/_2$ mk=lmk

7. Two roles of additives to silage making
   - To increase carbohydrates supply for proper fermentation
   - To increase nutrients value of silage
   - To increase the palatability of the silage. (2 x I $^1/_2$ mk=lmk)

8. Advantages of mixed farming
   - The farmer gets income throughout the year
   - Animals obtain food from the crop residue
   - There is proper utilization of labour
   - The two enterprises act as insurance for the other in case one project fails

9.

- They are several small vegetative materials
- There is uniformity in crop growth

10. **Agriculture as a science**

- Research and development of suitable crop varieties
- Research on the best method of pests and disease control
- Analysis of the soils to determine their suitability on crop growth

11 Give four characteristics of large scale farming system.

- ✓ High level of capital investment
- ✓ Large piece of land
- ✓ High labour
- ✓ High production

12. **Four farming practices which help to improve soil structure**

- Ploughing at the correct moisture content
- Crop rotation
- Addition of organic matter
- Cover cropping
- Mulching
- Addition of soil/amendments (4 x 4mk=2mks)

13. **Give four effects of top dressing on a pasture.**

- Improve drainage
- Allow the soil to exchange gases with the atmosphere better,
- Promote the development of soil micro-flora and micro-fauna, which are needed to break down thatch and grass clippings.
- Help repair lawn areas that have been damaged

14. **Reasons for inoculating legume seeds before planting.**

-To introduce nitrogen fixing bacteria to fix nitrogen for the plant
- To promote nitrogen fixation prior to planting. (2 x $^1/_2$mk=lmk)

15. **Reasons for prunning**

- To attain high yields.
- Improve on the quality of bananas.
- Helps to count banana weevil.
- Crop reaches bearing stage early. (2mks)

16. Hybrid 614
1st no: 6 refers to the altitude in thousands of feet above sea level.
2nd : 1 refers to the number of crosses.
3rd no: 4 refers numbers to the serried number (2 x ½ = 2mks)

17. **Give two ways in which pastures are classified.**
- The form in which they appear
- Nature of establishment

18. Four practices used to improve permanent pastures.
- Weed control/pest control.
- Topdressing with nitrogen/manure.
- Controlled grazing to avoid degeneration.
- Cutting back dry and unpalatable stumps. (4 x ½ = 2mks)

19. Advantages of tissue culture.
- The plantlets developed maintain parental characteristics e.g. uniformity.
- Disease free plants are obtained.
- Mass production of planting materials.
- High yielding crop clones are produced. (4 x ½ = 2mks)

20. Control of devils horsewhip mechanical means.
- Digging up.
- Cleaning.
- Collecting and burning. (3 x ½ = 1½mks)

SECTION B:

21. (a) (i) Silica dish
(ii) Humus rich soil
(iii) Wire gauge
(iv) Tripod stand (½ x 4 = 2mks)

(b) Step followed in carrying out the illustrated experiment.
- ✓ Weigh the silica dish.
- ✓ Collect garden soil from a depth of 20cm.
- ✓ Put the soil in the dish.
- ✓ Place the dish containing the garden soil over a (105°) in an oven for several hours.
- ✓ Cool the soil and weigh.
- ✓ Repeat the process until a constant weight is obtained.
- ✓ Place the dish with the soil over a source of heat. (½ x 6 = 3mks)

22.

(i) G – Cough grass.
H – Sodom apple. (1 x 2 = 2mks)

(ii) Economic importance
- ✓ Compete for resources with cultivated crops.
- ✓ It increases the cost of production.
- ✓ Lower the quality of pastures. (1 x 2 = 2mks)

(iii) It has deep underground structures difficult to remove, (1 x 1 = 1mk)

23.

i) American bollworm (1x1=1mk)

ii) Spraying with insecticides
Crop rotation (2x1=2 mks)

iii) Beans
Tomatoes (1x1=1mk)

24.

i) Staking (1x1=1mk)

ii)
- ✓ Production of clean fruits
- ✓ Easy to harvest/spray
- ✓ Increase yield as leaves are well exposed for photosynthesis
- ✓ Prevent/protects fruits from rotting due to contact with soil.

(4x1=4mks)

iii) Trellising (1x1=1mk)

25.

(a) identify the method of drainage.
- French ditch (lmk)

(b) Other methods of drainage:
- cambered beds.
- Open ditches
- planting of trees.
- Use of underground drain pipes.
- Pumping (3x1=3mks)

(c) Importance of drainage
- increase soil temperature
- Increase availability and activities of soil micro-organisms.
- Reduce soil erosion
- Reduce leaching of nutrients.

- Maintains soil structure. (4x 1 =4mks)

26. Study the process of chemical water treatment below then answer the questions that follow:

(a) A - softening of water at mixing chamber.
B - coagulation and sedimentation.
C - Actual filtration
D- chlorination (4x ½ =2mks)

(b) Chemicals added at part .B.
- Alum /aluminium sulphate- cause coagulation of particles in water.
- Soda ash /sodium bicarbonate — softening of water. (2x1=2mks)

(c) Factors which influence the quantity of chemical used in part D.
- chlorine added depend on:
- outbreak of water borne diseases
- Quantity of water to be treated. (2x1=2mks)

(d) uses of water in crop production
- irrigation
- solvent of nutrients in crops
- Processing of crop produce e.g. carrots. (3xl=3mks)

(e) Types of production functions.
- Increasing returns production function.
- Decreasing /decline returns production functions.
- Constant returns production function. (3xl=3mks)

SECTION C

27. (a) Cultural methods of weed control

(i) Correct spacing to deny weeds space for active growth but allowing faster crop establishment.
(ii) Mulching it smothers weeds
(iii) Flooding used to control non-aquatic weeds
(iv) Early planting gives crops ample time to establish early and smother weeds
(v) Application of manure and fertilizers encourage faster plant growth.
(vi) Crop rotation: helps to break the life cycle of certain weeds associated with certain crops.
(vii) Clean seedbed: proper land preparation during the dry period.
(viii) Cover cropping: Smothers weeds. (2 x5 = l0mks)
I mark for stating and I mk for explanation.

(b) Harmful effects of pests on crops.

(i) They damage the leaf tissue reducing the rate of photosynthesis. This results in retarded growth
(ii) Some transmit pathogens from one crop to another.
(iii) Pests cause would in crops resulting in secondary infections.
(iv) Some pests such as nematodes and moths damage plants roots, causing wilting of plants.
(v) Some pests such as squirrels unearth some seeds resulting in low plant population.
(vi) Pest destroys buds and shoots which are the growing points of crops leading to stunted growth.
(vii) Sucking pests deprive the plant of its cell sap resulting in stunted growth
(viii) Pests attack fruits berries, flowers and leaves thus lowering the quality and quantity of the produce.
(ix) Pests destroy seed embryo lowering their viability
(x) Some pests infect toxic substance which cause death to the plant tissue
(xi) Pests reduce the demand for a crop produce by lowering quality.
(2x5 = 10)

28. (a) Human factors influencing agriculture.
- Level of education and technology – A more knowledgeable farmer produces high yields of high quality than an illiterate farmer.
- Health/HIV/AIDS – Sick farmers are less productive.
- Economy – Farmers with high capital goods produce more than a farmer with little capital.
- Transport and communication – Good roads available easy transport of inputs and outputs hence high yield.
- Market forces of demand and supply – the higher the demand the higher the produce and rise versa.
- Government policy – Government may subsidies prices of inputs to encourage production.
- Cultural and religious beliefs – Some cultures and religious beliefs may discourage or encourage production. (5 x 2 = 10mk

(b) Factors to consider when choosing the planting time.
- The onset of rains – Crops planted at the onset of rains establish early and make maximum used rains.
- Weather conditions and harvesting time – Crops e.g. cotton, maize and wheat need a dry season for
- ripening and harvesting hence planting can be delayed for a while.
- Prevalence of pests and diseases crops planted early escape attack from pests and diseases.
- Soil moisture content – Right moisture facilitates germination of seeds and allows early crop establishment.
- Make demand off season – Vegetables are always planted late to target high market
- demand when there is shortage of food supplies.

- Type of crop to be planted,

29.

i. a)
Seedbed dug deeply (depth of 20cm)
Soil worked to a fine tilth
No application of manure for it induces forking
Makes rows of drills 30cm apart. (Any 3x1=3mks)

b)
Mature at 3-5 months
Done depending on the use intended for the crop
Harvesting by pulling out the crop
Ensure soil is moist during harvesting
Alternatively use a plough called carrot lifter to loosen the soil before lifting.
Mature carrot tubers are 2½ -3cm thick at top (any 4x1=4 mks)