

# KAPSABET HIGH SCHOOL

## 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= 1mk)
  
2. Two conditions under which shifting cultivation is favourable.
  - Communal land ownership
  - Large piece of land
  - Sparse population. (2 x 1/2 mk= 1mk)
  
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 1/2mk=1 1/2rnks)
  
5. Causes of hard pans by cultivation.
  - Cultivating at the same level throughout
  - Cultivating when wet using heavy machinery. (2x1/2mk=1mk)
  
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=1mk)
  
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 1 1/2 mk=1mk)
  
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.
- o They are several small vegetative materials
  - o 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 1/2mk=1mk)
15. **Reasons for pruning**
- To attain high yields.
  - Improve on the quality of bananas.
  - Helps to count banana weevil.
  - Crop reaches bearing stage early.
- (2mks)
16. Hybrid 614
- 1<sup>st</sup> no: 6 refers to the altitude in thousands of feet above sea level.

2<sup>nd</sup> : 1 refers to the number of crosses.

3<sup>rd</sup> no: 4 refers numbers to the serried number

(2 x 1/2 = 2mks)

17. Give two ways in which pastures are classified.

- o The form in which they appear
- o 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 1/2 = 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 1/2 = 2mks)

20. Control of devils horsewhip mechanical means.

- Digging up.
- Cleaning.
- Collecting and burning.

(3 x 1/2 = 1 1/2 mks)

SECTION B:

21. (a) (i) Silica dish  
(ii) Humus rich soil  
(iii) Wire gauge  
(iv) Tripod stand

(1/2 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.

(1/2 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 (1mk)
- (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. (3x1=3mks)
- (e) Types of production functions.
  - Increasing returns production function.
  - Decreasing / decline returns production functions.
  - Constant returns production function. (3x1=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 = 10mks)  
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 wound 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.
- o Level of education and technology – A more knowledgeable farmer produces high yields of high quality than an illiterate farmer.
  - o Health/HIV/AIDS – Sick farmers are less productive.
  - o Economy – Farmers with high capital goods produce more than a farmer with little capital.
  - o Transport and communication – Good roads available easy transport of inputs and outputs hence high yield.
  - o Market forces of demand and supply – the higher the demand the higher the produce and rise versa.
  - o Government policy – Government may subsidies prices of inputs to encourage production.
  - o 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 use of 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)