

SCHOOL BASED FORM 4 EXAMINATION JULY/AUGUST 2014
AGRICULTURE 443/1 MARKING SCHEME

1. Because it involves experimentation and application of scientific knowledge
 (1 x 1 = 1mks)
2. Shifting cultivation
 Nomadic pastrolism
 Agroforestry
 Organic farming
 Mixed farming
 Ranching (Any 4 x ½ =2mks)
3. Soil structure is the physical appearance of soil according to the way individual soil particles are arranged /packed/aggregated while soil texture is the relative proportion of various sizes of the minerals particles of the soil (1 x 1 = 1mks) **Mark as whole**
4. To increase soil aeration
 To increase soil volume
 To raise soil temperature
 To increase microbial activities
 To reduce soil erosion
 To get rid of toxic substances that may be disastrous to good crop performance
 (Any 4 x ½ =2mks)
5. Lowers the level of water in the Dam and reservoirs
 Decline in fish production
 (2x ½ =1mk)
6. It encourages early establishment of crop pasture
 Saves on the use of commercial fertilizers
 There is intensive use of land i.e it promoted intercropping /Efficient land use
 Controls soil erosion due to efficient ground cover
 (Any 3 x ½ =1½mks)
7. It encourages seed germination
 Promotes microbial activities
 Improves quality of crop produce
 Enhances vigorous growth and development

Enhances high yields
 Minimises incidences of certain pests and diseases

(Any 4 x ½ =2mks)

8. (a) Suckers
 (b) Suckers/slips/crowns
 (c) Stemtubers
 (d) Splits
 (Any 4 x ½ =2mks)
9. Reduces land disputes
 It acts as security of land ownership
 Can be used as security for loan
 Encourages farmers to carry out long term investment on land
 (4 x ½ =2mks)
10. Crop rotation – Growing of crops of different families on the same piece of land in an orderly sequence (1mks)

 Mulching – covering of ground around a growing crop with organic material or artificial sheets (1mks)
11. Seed impurity
 Low – germination percentage
 Close spacing
 More seeds per hole / Broadcasting
 Early planting /Dry Planting
 (Any 4 x ½ =2mks)
12. **Role of Nitrogen**
 -Constituent of chlorophyll
 -Promoted crop vegetative growth
 -Protein synthesis
 -Regulates availability of phosphorous and potassium in the soil
 -Improves the quality of leafy crops
 (Any 3 x ½ =1½mks)
13. Training
 Giving incentives /improving terms and conditions
 Farm mechanization

Labour supervision
 Proper payment / Renumeration
 Assigning tasks or duties according to skills
 (Any 4 x ½ =2mks)

14. To raise the PH of the soil
 To improve fertility of soil
 To improve the structure of the soil
 To improve the process of nodulation in Legumes (4 x ½ =2mks)

15. Organic mulch
 Crop residue /animal remains
 Green manure
 Farm yard manure
 Compost manure (Any 3 x ½ =1 ½ mks)

16. Drying
 Threshing /shelling
 Winnowing
 Dusting
 Sorting out
 Packaging
 Processing (Any 4 x ½ =2mks)

17. Plants morphology and anatomy
 Stage of plant growth
 Weather conditions
 Formulation
 Concentration
 Method of application
 Type of weeds
 Weed metabolic factors
 (Any 3 x ½ =1½ mks)

18. Act of deciding on how to allocate available scarce resource to alternative uses based on farmer's interest (1 x 1=1 mk)

SECTION B (60MKS)

19. (a) Blossom End Rot (1 x 1=1 mk)
 (b) Irregular application of water /water stress;
 Excessive application of Nitrogen in early stages
 Deficiency of calcium – reject lack of calcium
 (3 x 1 =1 mks)

20. (a) Army worm (1 x 1=1 mk)
 (b) Mode of feeding – Biting & chewing
 (1 x 1=1 mk)

(c) Damage the leaves thus reducing Photosynthesis area
 - Damage the stem thus interfering with transport system
 - Injure and cause wound on plants exposing them to secondary infection
 (3 x 1 = 3mks)

21. (a) Ridging (1 mk)
 (b) Dig soil in a continuous lines
 Soil is heaped on one side for form a ridge and a furrow (2mks)
 (c) Advantages
 - Enhances expansion of tubers
 - Makes harvesting of root crops easy
 - Prevents soil erosion
 - Conserves soil moisture
 (Any 2 x 1=2 mk)

22. (a) Per capita income = $\frac{\text{Gross Domestic product}}{\text{Population}} \checkmark 1$
 Country A = $\frac{1800}{36} = 50 \checkmark 1$
 Country B = $\frac{1200}{15} = 80 \checkmark 1$ (3mks)

(b) Country B is more developed (1mk)
 (c) Has higher per capita income (1mk)
 (d) By creating employment , developing industries , increasing production.
 (Any 2 x 1=2 mk)

SECTION C (40mks)

23. (a) (i) Selection and preparation of planting materials
 - Beans are established from seed
 - Select seeds to discard damaged and wrinkled ones
 - Dress seeds with appropriate chemical to control soil borne pests .

- Inoculate seeds with right strain of Rhizobium bacteria (**Any 3 x 1 = 3mks**)

(ii) – Plant at the onset of rain

- Plant 2 -3 seeds per hole at a spacing of 30-45 cm by 15cm
- Apply DAP fertilizer during planting
- Plant at the depth of 4cm
(**Any 3 x 1 = 3mks**)

iii) – Disease control – control halo blight by roguing , crop rotation and spraying with appropriate fungicide

- Control bean anthracnose by spraying with appropriate fungicide planting resistant varieties
(**Any 2 x 1 = 2mks**)

b) (i) Soil type

Soil moisture content

Type of germination

Size of seeds

(**Any 4 x 1 = 4mks**)

23 (c) Advantages of mixed grass legume mixture

Over pure grass

- Its more palatable
- Farmers has security against total loss due to attack by pests, diseases or bad weather
- Mixed pasture yields more per unit area than pure grass pasture
- Mixed pasture make maximum use of soil nutrients
- Mixed pasture has better weed control effects
- Mixed pasture increases soil fertility because of Nitrogen fixation
- There is economy in use of fertilizers in mixed pasture .
- There is better distribution of growth in a mixture of early and late maturity species
(**Any 8 x 1 = 8mks**)

24.(a) – Ability to produce large quantities of viable seeds e.g. pigweed and blackjack.

- Weeds seeds remain viable in the soil for a long time waiting conducive germination conditions
- Most weeds seeds are easily and successfully disposed

- Some weed seeds have ability to propagate vegetatively eg. Couch grass
- Some have elaborate or extensive root system useful in supporting the plant in nutrient absorptions of water uptake
- Ability to survive in soil with low nutrient supply
- Have short life cycles hence reaching maturity early .

(**7 x 1 = 7mks**)

(b) - Capital availability

- Type of soil

- Topography

- Type of crop to be irrigated

- Water availability

(**5 x 1 = 5mks**)

24. (c) – Good drainage

- It is well aerated

- Good depth

- Good water holding capacity

- Adequate supply of nutrients

- Correct soil PH

- Free from soil borne pests and diseases

(**Any 5 x 1 = 5mks**)

(d) - Superfluous water

- Capillary water

- Hygroscopic water

(**3 x 1 = 3mks**)

25. (a) – They are highly volatile

- They are highly soluble in water

- They are highly hygroscopic

- They are easily leached

- They have a scorching / burning effect

- They are highly corrosive

- They “cake” easily

- They have a short residual effect

(**Any 5 x 1 = 5mks**)

(b) -Include a grass ley in the programme ✓₁✓

whereby crops are alternated with certain grass

to improve soil structure

- Crops of the same family should not follow one another ✓₁✓₁

- Deep rooted crops should be alternated with shallow rooted crops ✓₁✓₁
 - Crops that are difficult to weed should alternate with those that are easy to weed ✓₁✓₁
 - Crops that requires a lot of nutrients (heavy feeders) should come first followed by light feeders ✓₁✓₁
 - Leguminous crops should be included in the cycle to improve soil fertility ✓₁✓₁
 - Crops associated with certain weeds should alternate with those that are not ✓₁✓₁
- (Any 5 x 2 = 10mks)**

(c) – Excess seedlings can be sold to earn income

- It facilitates production of many seedlings in a small area
- Routine management practices are easily and timely carried out than in the main seedbed
- Facilitates planting of small seeds
- It ensures transplanting of only healthy and strong seedlings
- The crops takes a shorter time in the field
- Tender seedlings are given maximum attention
- Gives a higher germination percentage hence a lower seed rate is used

(Any 5 x 1 = 5mks)