



EXAMINATIONS COUNCIL OF ESWATINI
Junior Certificate Examination

AGRICULTURE

516/02

PAPER 2

October/November 2019

Confidential

MARK SCHEME

{516/02}

MARKS: 100

This document consists of 5 printed pages.

Section A

1. (a) Growing two different crops in rows on the same field together. [1]
 (b) Increases food production; provide job opportunities; machinery saves time; increases foreign exchange (Any two) [1]
 (c) Promote cross-pollination; seed dispersal (Any one) [2]
[4 marks]
2. (a) Hoe; spade; fork; rake [2]
 (b) Last longer; protection from weather. (Any one) [1]
 (c) hurting farmer / user / prevent injury/ prevent accidents [1]
[4 marks]
3. (a) Climate change; topography; population distribution pattern and growth; human activities/ poor farming activities/ overgrazing/over cultivation/ incorrect irrigation/ forest fires (Any one) [1]
 (b) Weather condition; soil type; market availability. [2]
[3 marks]
4. (a) (i) A - cotyledon [1]
 (ii) B -Stores food / for seed [1]
 (b) Less oxygen reduced respiration, more oxygen increased respiration [2]
 (c) High Transpiration, wilting increase, reduced photosynthesis. [2]
[6 marks]
5. (a) Chemicals are expensive; kill useful pests/ do not kill targeted; pests harmful to people; pollute environment. (Any two) [2]
 (b) Use of good crop management and activities to reduce pests and diseases. [1]
 (c) Chemical absorbed by plants; carried in plant sap/ juices; sucking insect feed on plant sap, insect get killed. [2]
[5 marks]
6. (a) Reduce microbial activity: reduce nutrients solubility; poor plant growth due to unfavorable ph. [1]
 (b) Soil with small rounded aggregates; particles stick together/not too loose or too tight; [2]
 (c) For good air circulation; good drainage; easy spread and growth of roots [2]
[5 marks]
7. (a) Furrows [1]
 (b) To control pest and diseases as crop will be attacked by same pests and diseases; [1]
 (c) Potatoes – allow potato tubers to sprout; prepare furrows; plant tubers; sprouts must face upwards OR Sweet potatoes cuttings– plant vine cuttings / of 30 - 40 cm long; in 8 -10 cm deep furrows [2]
[4 marks]

8. (a) Silos [1]
 (b) To allow air to pass through and dry the maize [1]
 (c) Prevent insects and rodents; easier to inspect sacks; to keep area clean; so that they do not fall over; allow air circulation. [2]
[4 marks]
9. (a) Lay fewer eggs; poor mothering abilities; usually roost in tall structures; are scavengers; their feathers are used to make special clothes. (Any two) [2]
 (b) 28 days [1]
 (c) Eat more / and increase egg production; stimulate egg production hormone [2]
 A- eat more food [2]
[5 marks]
10. (a) Germinate or establish itself well; grow rapidly; nutritious and palatable; suitable for grazing; produce well over a long period of time (any two) [2]
 (b) More than one goat can be attached to same wire; less wasteful of grazing; less likely to be tangled. (Any two) [2]
[4 marks]
- 11.(a) Packaged in glass/plastic containers; clear containers: light weight; screw cap to avoid moisture [3]
[3marks]
- 12 (a) Improve sales even during off-season period; encourage new customers; encourage existing customers to buy a product more often or in large quantities; encourage customers to a product instead of a competition brand. (any two) [2]
 (b) Putting the right product, or combination of a product in the right place; at the right time and at the right place. [2]
[4 marks]

SECTION B

1. **Topic:** Land preparation and soil management [1]
Introduction: Importance of soil preparation. Make soil suitable; break lumps of soil; prepare fine tilt; allows easy growth of plants; allows easy water penetration and drainage. [1]
Land reclamation: cut down trees, grass, weeds; removes stumps and stones; burn plant residues; drain waterlogged land [3]
Importance of soil testing: To know the soil pH; to allow adjustment in the pH; to decide on the correct fertilizer to use. [2]
Methods of digging: keep spade vertical; dig to 30 cm depth; work backward [2]
Reasons for digging: Open up soil/ easier for water and air to penetrate; kill weeds; add organic matter ; mix lime and fertilizer with soil [3]
Maintaining soil fertility: adding organic matter; add inorganic fertilizer; control soil pH; controlling soil erosion; adding lime; crop rotation. [6]
Examples of organic fertilizers: Compost; animal manure; green manuring (Any two) [2]
Human activities leading to soil erosion: Burning grass; overgrazing and overstocking; ploughing down slope; ploughing when soil is too dry; stream bank cultivation; deforestation; strip mining; road construction; pulling sledge of draught animals (Any five) [5]
[25 marks]
2. **Topic:** Keeping and managing layers; Management of layers [1]
Introduction: To promotes egg production. [1]
Preparations for arrival;- remove all equipment; clean and disinfect house; clean and disinfect equipment; ensure all equipment work properly/ do repairs to equipment; put fresh litter; work out number of perches, wash feeders and waterers and replace them; prepare a footbath ;remove old litter to the compost. [6]
Feeding-120g / layer mash or pellets/ restricted amount of laying mash or pellets; provide adequate clean water [2]
Preventing diseases-- provide good housing /protection from weather/ well ventilated; clean and disinfect house; manage litter well; do not mix chickens of different ages; do not mix chickens from different flocks; provide a footbath; limit the number of people allowed into the house; always buy disease- free chickens; keep rats, mice and wild birds out of the house. (Any six) [6]
Signs o good health-alert; bright eyes and comb; eat and drink normal/ good appetite/ breathe quietly; lay eggs regularly; normal droppings/ not wet or blood stains; smooth and shiny feathers; walk and stand normal; clean and smooth skin [5]

Common Vices - cannibalism; egg pecking/ egg eating. [2]

Collecting eggs- use a bucket laid with grass at the bottom/ baskets; slide hand under chicken. [2]

[25 marks]

3. Topic: Practicing Agroforestry /Agroforestry [1]

Introduction: growing of trees/shrubs with crops/pastures to create a more sustainable land-use system. [1]

Importance- controls run-off and soil erosion; maintains organic matter and biological activity; maintains suitable physical properties; efficient use of nutrients; Reduce soil toxicity/ control soil acidity and salinity; reclaim degraded/ polluted land/ soil; efficient use of solar energy; diverse farm economy; increase nitrogen inputs(nitrogen-fixing trees). [7]

Suitable areas- well -drained fertile soils; adequate annual rainfall; frost-free area (Any two) [2]

Soil requirements- sandy loam to clay loam; moist; pH of 5.0-7.5; no hard pan/deep soil Profile; 3-8% organic matter; adequate nitrogen, moderate P and K. [4]

Benefits to society- reduce poverty; contribute to food security; counter global warming; Reduce deforestation; reduce need for toxic chemicals; improve human nutrition/ more edible crops; multifunctional site use. (any five) [5]

Importance of records - monitor/ track management activities; document forest history; allocate funds, resources and management activities; provide information for tax purposes. (Any three) [3]

Increase value of agroforestry products: selecting correct tree varieties; proper harvesting and processing methods; appropriate preparation and packaging.(Any two) [2]

[25

marks]