Province of the
EASTERN CAPE
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 10

NOVEMBER 2019

ÉcoleBooks

AGRICULTURAL SCIENCES P1
MARKING GUIDELINE

MARKS: 150

This marking guideline consists 10 pages.

SECTION A

QUESTION 1

1.1   1.1.1   D √√

      1.1.2   B √√

      1.1.3   B √√

      1.1.4   C √√

      1.1.5   A √√

      1.1.6   C √√

      1.1.7   D √√

      1.1.8   B √√

      1.1.9   B √√

      1.1.10   D √√   (10 x 2)   (20)

1.2   1.2.1   B only √√
      1.2.2   B only √√
      1.2.3   None √√
      1.2.4   Both A and B √√
      1.2.5   A only √√   (5 x 2)   (10)

1.3   1.3.1   Agro-ecology √√
      1.3.2   Evaporation/water vapour √√
      1.3.3   Food security √√
      1.3.4   Amendment √√
      1.3.5   By product √√   (5 x 2)   (10)

1.4   1.4.1   Artificial pastures √
      1.4.2   Meat Safety Act √
      1.4.3   Dual purpose breed √
      1.4.4   Cold blooded horses √
      1.4.5   Herbivores √   (5 x 1)   (5)

                                           TOTAL SECTION A: **45**

SECTION B

QUESTION 2: AGRO-ECOLOGY

2.1   **Table that shows different organisms living in an ecosystem**

2.1.1   **The primary consumer**
Springbok ✓   (1)

2.1.2   **A reason for your answer in QUESTION 2.1.1**
Springbok can only feed on the grass/plants. ✓   (1)

2.1.3   **The type of competition that will take place between the lion and the hyena during hunting**
Interspecific competition ✓

Explanation of the answer
Organisms of different species compete for food ✓   (2)

2.1.4   **The reason why lions have more chances of survival in a ecosystem**
- Lion is a tertiary consumer ✓
- Very little chances of lion to be killed by other organisms ✓
- Lion is a strong predator ✓   (Any 2 x 1)   (2)

2.1.5   **Use the list of organisms on the table to draw a food chain to show four trophic levels of energy flow in the ecosystem**

Thatch grass	→	Springboks	→	Hyenas	→	lion
Producer		primary consumer		secondary consumer		tertiary consumer
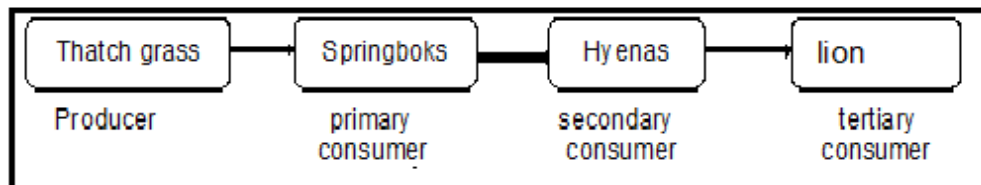
Criteria for marking the food chain
- Food chain ✓
- Organisms from the table ✓
- Correct sequence of food chain ✓
- Correct number of trophic levels ✓   (4)

2.2 **The diagram below shows a very important nutrient cycle that takes place in an ecosystem**

  2.2.1 **The nutrient cycle represented by the diagram**
     Water cycle ✓   (1)

  2.2.2 **Processes A, B and C in the diagram**
     A – Evaporation ✓   (1)
     B – Condensation ✓   (1)
     C – Transpiration ✓   (1)

  2.2.3 **The component of the ecosystem which water belongs to**
     Abiotic ✓   (1)

2.3 **Pictures of pastures of different farms that were taken by Grade 10 learners**

  2.3.1 **The pastural condition of Farm A and B**
     A – Good condition ✓
     B – Bad/poor condition ✓   (2)

  2.3.2 **Farming practice that led to the pasture condition of FARM B**
     - Overstocking ✓
     - Selective grazing ✓
     - Grazing repeatedly in one season ✓
     - Continuous grazing ✓
     - Repeatedly burning of veld ✓   (Any 2 x 1) (2)

  2.3.3 **The veld management practice applied by FARM A in the following situations**
     (a) Grazing system/Rotational grazing ✓   (1)
     (b) Stocking rate ✓   (1)
     (c) Animal ratio ✓   (1)

  2.3.4 **TWO advantages of communal farming**
     - Different animals graze together and this results in crossbreeding ✓
     - There is a common drinking point for livestock ✓
     - It is cheaper because of the number of camps used ✓
     - Less veld management time is required ✓ (Any 2 x 1) (2)

  2.3.5 **Reasons why pasture management is important**
     - Cheap, nutritious food for livestock on ongoing basis ✓
     - Increased livestock health and productivity ✓
     - Reduced need for supplementary feeding ✓
     - Reduced risk of pests and diseases in livestock ✓
     - Reduced soil erosion ✓
     - Increased income for the farmer and the economy of the country ✓
                  (Any 2 x 1) (2)

2.4   2.4.1   **ONE example of fauna found in South African biomes**
- Elephant ✓
- Antelopes ✓   (Any 1 x 1)   (1)

         2.4.2   **South African biomes characterised by underlined phrases**
- Forest biome (tall trees) ✓
- Grassland biome (different types of grasses) ✓   (2)

         2.4.3   **TWO South African biomes not mentioned in the scenario**
- Fynbos biome ✓
- Thicket biome ✓
- Nama karoo biome ✓
- Succulent karoo biome ✓
- Savannah biome ✓   (Any 2 x 1)   (2)

         2.4.4   **Function of Savannah biome in agriculture**
- Growing citrus fruit and subtropical fruit ✓
- Grazing of beef cattle, game animal and goats ✓   (Any 1 x 1)   (1)

2.5   2.5.1   **ONE cause of climate change**
- Changes in the amount of energy released by the sun ✓
- Volcanic eruptions ✓
- Changes in ocean currents ✓
- Changes in the level of greenhouse gases in agriculture ✓

                                                                      (Any 1 x 1)   (1)

         2.5.2   **Impact of climate change on agriculture**
- Reduced crop yield ✓
- Reduced livestock production ✓
- Reduced areas suitable for agriculture ✓
- Reduced soil fertility ✓
- Increased pest attraction ✓
- Reduced labour force ✓   (Any 1 x 1)   (1)

         2.5.3   **ONE way which farmers in South Africa can adapt to climate change**
- Use water wisely ✓
- Look after the soil ✓
- Choosing suitable farming practice ✓   (Any 1 x 1)   (1)

                                                                                        [35]

QUESTION 3: AGRI-INDUSTRY

3.1   3.1.1   **The food that is mostly used in rural areas**
- Maize ✓   (1)

       3.1.2   **The reason for the answer to QUESTION 3.1.1**
- Maize is a staple food ✓
- Easily accessible/cheap ✓
- Maize is 82% ✓   (Any 1 x 1)   (1)

       3.1.3   **The class which corned meat and fruit belong to**
- Corned meat – processed food ✓
- Fruit – fresh food ✓   (2)

       3.1.4   **Calculate the difference in the use of maize between rural and urban areas**
Maize use in rural areas – maize use in urban areas ✓
           = 82 – 24 ✓
           = 58% (difference) ✓   (3)

       3.1.5   **The table that shows the information about patterns of food use**

Food use and how often used	Rural (%)	Urban (%)
Maize	82	24
Chicken	16	83
Corned meat	2	52
Fruit	6	80

Criteria/rubric/marking guidelines
- Correct heading ✓
- Correct labelling of food use ✓
- Correct unit (%) ✓
- Correct rural use ✓
- Correct urban use ✓   (5)

3.2   3.2.1   **The knowledge on the picture is indigenous or scientific**
- Indigenous knowledge ✓   (1)

       3.2.2   **The reason to support your answer in QUESTION 3.2.1**
- It is a set of traditional skills ✓
- The method used is traditional ✓
- People use cattle to cultivate the soil ✓   (Any 1 x 1)   (1)

3.2.3 **How indigenous knowledge is used in agriculture in the following situations**
(a) Intercropping ✓ (1)
(b) Crop rotation ✓ (1)

3.2.4 **TWO constraints of using indigenous knowledge in agriculture**
- Many new diseases and pests have recently emerged for which IK there is no treatment ✓
- There are no farm records ✓
- It is associated with ignorance, illiteracy and poverty ✓
- Low input equals low output ✓
- Labour intensive ✓
- The methods are time-consuming ✓ (Any 2 x 1) (2)

3.3　3.3.1 **Resource from the picture (A–D) which is protected by the following laws**
(a) Cattle ✓ (1)
(b) Veldt/River ✓ (1)
(c) River ✓ (1)
(d) Forest/Veldt ✓ (1)

3.3.2 **TWO aims of agricultural legislation**
- Conserve agricultural resources ✓
- Protect the environment ✓
- Ensure consumer safety ✓
- Protect the rights of farm workers ✓ (Any 2 x 1) (2)

3.4　3.4.1 **Definition of the term *urbanisation***
Urbanisation is the movement of people from rural ✓ to urban areas ✓ (2)

3.4.2 **THREE negative effects of population growth on the agriculture sector**
- Demand of food increases ✓
- Mechanisation increases and less labour needed ✓
- Urbanisation increases ✓
- Agricultural land is used ✓
- Increased deforestation ✓ (Any 2 x 1) (2)

3.5　3.5.1 **Relate the type of land ownership or type of land tenure with the following statements**
(a) Lease hold ✓ (1)
(b) Foreign land ✓ (1)
(c) State land ✓ (1)
(d) Labour tenancy land ✓ (1)

3.5.2 **The difference between *land redistribution* and *land tenure reform***
- Land redistribution is meant to give poor and disadvantaged people access to land ✓
- Land tenure reform is meant to secure farm labourers' living rights on the land ✓   (2)

3.5.3 **ONE role of agricultural organisations**
- Conduct research ✓
- Serve as lobby group for farmers ✓
- Provide support to farmers ✓   (Any 1 x 1)   (1)

[35]

QUESTION 4: ANIMAL STUDIES

4.1   4.1.1   **TWO exotic beef breeds in the diagram**
- Hereford ✓
- Brahman ✓   (2)

      4.1.2   **The breed with the following qualities**
      (a)   Jersey breed ✓   (1)
      (b)   Friesland/Holstein breed ✓   (1)
      (c)   Simmentaler breed ✓   (1)

      4.1.3   **Types of beef breeds not mentioned in the diagram**
- Sussex ✓
- Charolais ✓
- Aberdeen angus ✓
- Drakensberger ✓
- Bonsmara ✓
- Afrikaner ✓   (Any 3 x 1)   (3)

      4.1.4   **Distinguish between *exotic* breed and *indigenous* breed**
- Exotic breed originating in a distant foreign country ✓
- Indigenous breed originated naturally in a particular place ✓   (2)

4.2   4.2.1   **Names for male and female sheep**
- Male sheep – ram ✓
- Female sheep – ewe ✓   (2)

      4.2.2   **Tabulate the visible differences between sheep A and B under the following headings**

Sheep A / Ram	Sheep B / Ewe	
• big ✓	• small ✓	(2)
• broad with horns ✓	• narrow with no horns ✓	(2)

      4.2.3   **THREE main sheep breeds based on their utilisation and products derived from each**
- Wool breed ✓
- Meat breed ✓
- Dual purpose breed ✓
- Pelt breed ✓   (Any 3 x 1)   (3)

4.3   4.3.1   **A reason why farmers in the Eastern Cape should continue producing Angora rams**
- Angora goat farmers are able to get together ✓
- They network during selection days and auctions ✓

                                            (Any 1 x 1)   (1)

4.3.2　**The name of the main product an Angora goat produces**
- Mohair ✓　　　　　　　　　　　　　　　　　　　(1)

4.3.3　**TWO goat breeds a farmer can use to produce dairy products**
- Saanen ✓
- Toggenburg ✓　　　　　　　　　　　　　　　　(2)

4.3.4　**The reason why Angora goats must be kept in an area with moderate climate**
- Angora goats are very sensitive to cold ✓
- Cold weather is harmful when they have been sheared ✓
- Angora goats can die from the cold ✓　　(Any 2 x 1)　(2)

4.3.5　**The name of a meat goat breed with a red colour and developed in South Africa**
- Red Kalahari goat ✓　　　　　　　　　　　　　(1)

4.4　4.4.1　**TWO main products of pigs**
- Meat ✓
- Bacon ✓　　　　　　　　　　　　　　　　　　　(2)

4.4.2　**The purpose for slaughtering pigs with mass 45 kg and 90 kg**
(a)　Pork ✓　　　　　　　　　　　　　　　　　　(1)
(b)　Bacon/Sausage ✓　　　　　　　　　　　　　(1)

4.4.3　**THREE characteristics of improved pig breeds that make them suitable for commercial farming**
- Long bodies for more meat ✓
- Heavy hindquarters ✓
- Produce meat of high quality ✓
- Have high feed conversion ratio ✓
- Bred for higher fertility and larger litter size ✓　　(Any 3 x 1)　(3)

4.5　**TWO facilities a farmer can use to control the temperature in a house of chickens**
- Ventilators ✓
- Bedding ✓
- Insulators ✓
- Heaters ✓
- Air conditioners ✓
- Fans ✓　　　　　　　　　　　　　　　(Any 2 x 1)　(2)

[35]

TOTAL SECTION B:　105
GRAND TOTAL:　150