



GRADE 10

TERM 2

Agricultural Sciences

June Exam 2019

Time: 2h30min

Total Marks: 150

Date : 21 May 2019

Examiner: Mr. G van Diggelin

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in your ANSWER BOOK.
3. Begin the answers to each question at the top of a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Present your answers according to the instructions of each question.
6. Write neatly and legibly.

SECTION A**Question 1**

1. Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A – D) next to the question number (1.1.1 – 1.1.5)

5 x 2 = [10]

1.1.1 An Example of a natural resource is a

- A plough
- B tractor
- C rake
- D plant

1.1.2 An example of a secondary mineral is

- A quartz
- B muscovite
- C koalinite
- D feldspars

1.1.3 Foreign land ownership is best described as

- A changing the ownership of land to rectify the injustices of the past
- B land that is held by people who are not permanent and registered South African citizens
- C permanent farm labourers being provided with housing and land
- D people who do not have their own land

1.1.4 Mutualism is when

- A both organisms benefit in a win-win situation
- B one organism benefits
- C one organism quickly kills the other there is competition for resources
- D between members of the same species

1.1.5 Waterlogging of soils leads to

- A reduced growth and chlorosis
- B stimulated root growth
- C stimulated seed production
- D stimulated early ripening of fruit

1.2 Give the correct biological term for each of the following descriptions. Write only the term next to each question (1.2.1 – 1.2.5) 5 x 1 = [5]

- 1.2.1 the cloudiness of water
- 1.2.2 the food that is eaten regularly by the majority of people and forms the dominant part of the diet
- 1.2.3 the study of the interaction between biotic and abiotic factors that leads to changes in the size of a population
- 1.2.4 the number of animals of a particular class, per unit area of land for a specified period of time
- 1.2.5 Ground where the surface forms an angle with the plane of the horizon.

1.3 Indicate whether each of the statements in Colum I applies to A only, B only, both A and B or none of the items in Colum II. Write only A, only B , both A and B or none next to the question number (1.3.1 – 1.3.5) 5 x 2 = [10]

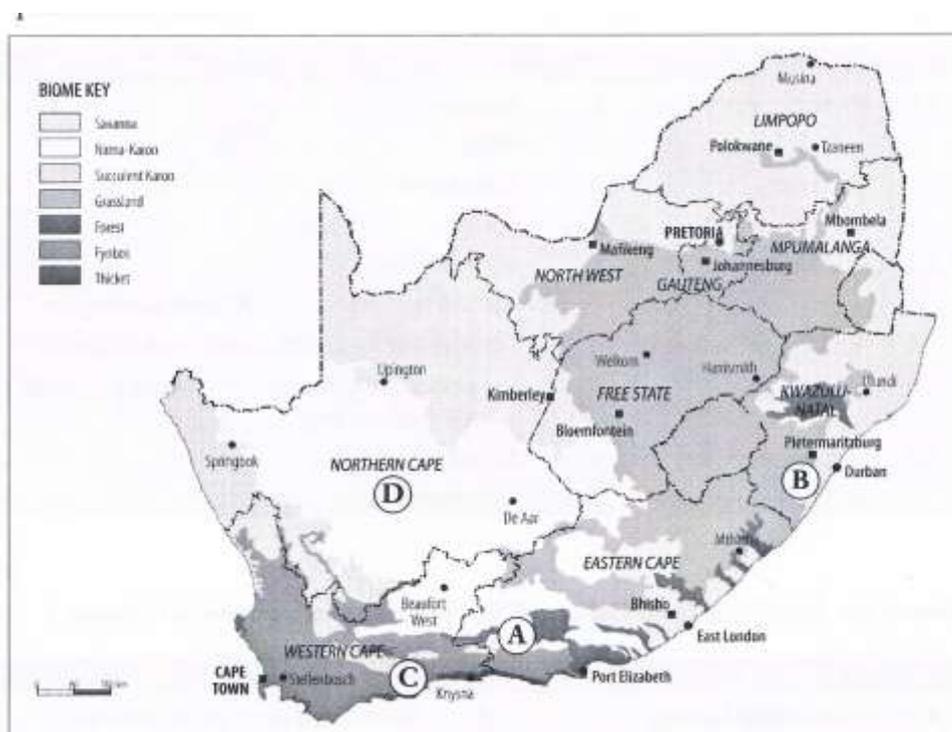
	COLOM I		COLOM II
1.3.1	Physical weathering	A B	Erosion Wind
1.3.2	Methane	A B	Ruminants Tractors
1.3.3	Sour Veld	A B	Very palatable Rainfall between 750-1000 mm per annum
1.3.4	Agricultural Research Council	A B	Responsible for animal health and production Improvement and cultivation of grain crops to benefit biodiversity
1.3.5	Crop rotation	A B	Monoculture Interplanting

1.4 Choose the description from Colum B that best suits each word or phrase in Colum A.

Write only the letter (A – E) next to the question number (1.4.1 – 1.4.5) 5 x 1 = [5]

	COLOM A		COLOM B
1.4.1	Sustainable farming	A	Assimilated and metabolised by bacteria
1.4.2	Soil degradation	B	Weathering of lime-containing rock
1.4.3	Indigenous knowledge	C	Salinisation
1.4.4	Nitrogen cycle	D	Organic farming
1.4.5	Carbon dioxide	E	Ideas, beliefs, values

1.5 South Africa has many different ecological regions. Due to many similarities in the regions, no definite boundaries can be set. Study the map of South Africa and answer the questions that follow: 5 x 3 = [15]

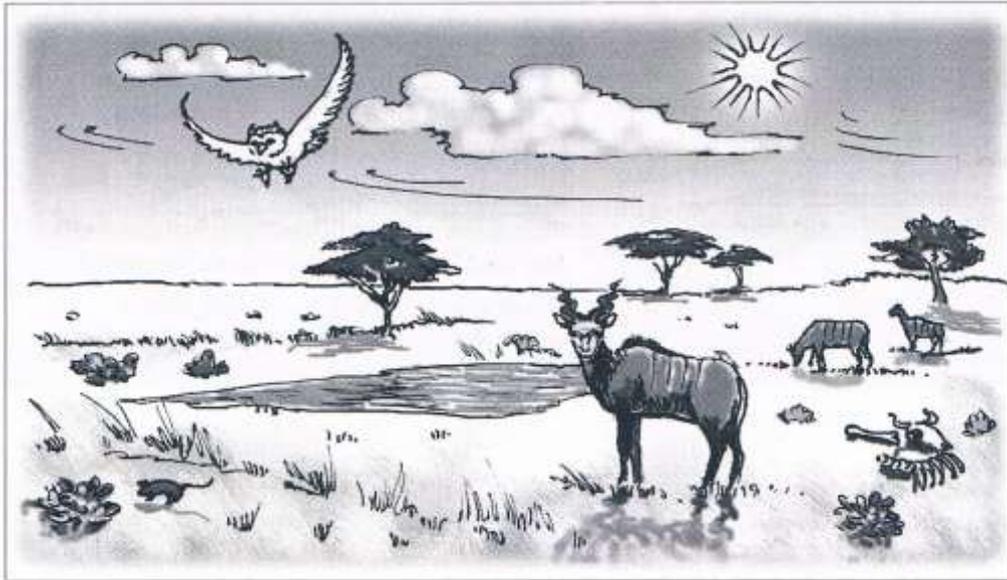


- 1.5.1 Name three influences on the vegetation in a biome. (3)
- 1.5.2 What animals are people likely to farm in the region numbered A? (3)
- 1.5.3 Name three kinds of crops that are likely to be farmed in region numbered B. (3)
- 1.5.4 What type of natural vegetation do we find in the region numbered C? (3)
- 1.5.5 What type of natural vegetation do we find in the region numbered D?
Give two characteristics of this vegetation type? (3)

Total Section A = [45]

SECTION B**Question 2****[37]**

2.1 Study the diagram that represents an ecosystem with all its components:



- 2.1.1 Define the term “ecology”. (2)
- 2.1.2 Name two components of this diagram that form part of the biosphere (2)
- 2.1.3 Indicate what biome is most likely represented here (2)
- 2.1.4 Identify the producers and consumers in the illustration
- Primary producers (1)
 - Primary consumers (1)
 - Secondary consumers (1)
- 2.1.5 Identify an herbivore in the illustration (1)
- 2.1.6 Name two functions of decomposers in an ecosystem (2)
- 2.1.7 Name three possible examples of decomposers that are likely to occur in this ecosystem (3)
- 2.1.8 Answer the following questions on the physiographic factors:
- Name three physiographic factors (3)
 - What influence do the sunrays have on the vegetation in any mountainous areas that may occur in this biome? (4)
- 2.1.9 Describe the water cycle as seen in the diagram (3)
- 2.1.10 The study of interactions between organisms that leads to changes in the size of a population is called population dynamics. Identify the three types of interaction in this illustration (6)

- 2.2 Choose the description from Column B that best suits each word or phrase in Column A.
Write only the letter (A – E) next to the question number (2.2.1 – 2.2.4) 4 x 1 = [4]

	COLOM A		COLOM B
2.2.1	State Land	A	Permanent farm labourers are provided with housing and sometimes a piece of land
2.2.2	Labour tenancy	B	Land is not owned by an individual but rather by an extended family or village community
2.2.3	Communal land	C	Land is owned by different government departments
2.2.4	Land redistribution	D	Basic grant was supported by other grants for planting, facilitation and dispute resolution
		E	The only programme specifically aimed at transforming the racial pattern of land ownership

2.3 Define the following terms:

- a) Legislation (1)
b) Bylaws (1)

Question 3 [34]
Natural Resources

3.1 Read the following letter and answer the questions:

On our first practical session after school our class made some interesting observations which I want to share with you.

The Grade 10 learners milked the cows using a few modern milking machines. The school installed two solar panels to generate the electricity. Our Grade 8 class was responsible for the removal of the cow dung from the milk parlour and stables. We used wheelbarrows and piled the manure in heaps far away from the milk parlour and the river. Once the dung had dried, it is used in small quantities as a rich fertiliser. This fertiliser is then used by the Grade 9 class in their vegetable gardens.

The school grows maize and red clover as supplementary feed for the cattle which the Grade 11s are responsible for. Believe it or not, they do not use any chemical fertilisers, herbicides or other chemicals in the production of their crops!

The Grade 12 learners told us that the farmer on the more commercial neighbouring dairy farm makes use of inorganic fertilisers to replace lost nutrients to the soil. He also washes down the milking unit daily with several high-pressure hoses. The excess water then runs into the river that runs past the farm.

Mum and Dad – I really think you should consider changing to organic farming!

- 3.1.1 Identify four primary resources mentioned in the letter (4)
3.1.2 Identify three secondary resources mentioned in the letter. (3)
3.1.3 Besides solar energy, name another source of energy that the school could consider using to supply energy. (1)

3.1.4 Write a paragraph in which you outline the harmful and unsustainable practices on the neighbouring farm (4)

3.2 Irrigation is an operation that is carried out to supply water where the rainfall is insufficient

3.2.1 Name the four types of irrigation used in South Africa (4)

3.2.2 Name two disadvantages of the oldest form of irrigation (2)

3.2.3 Which irrigation system suits the following descriptions best?

a) Distribution is more equal and in controlled pattern (2)

b) Massive water wastage due to evapotranspiration (2)

c) Ideal for areas where water is scarce (2)

Soil Science

3.3 Define the following terms:

a) Mineral (2)

b) Primary mineral (2)

c) Secondary mineral (2)

d) Igneous rocks (2)

e) Metamorphic rocks (2)

Question 4

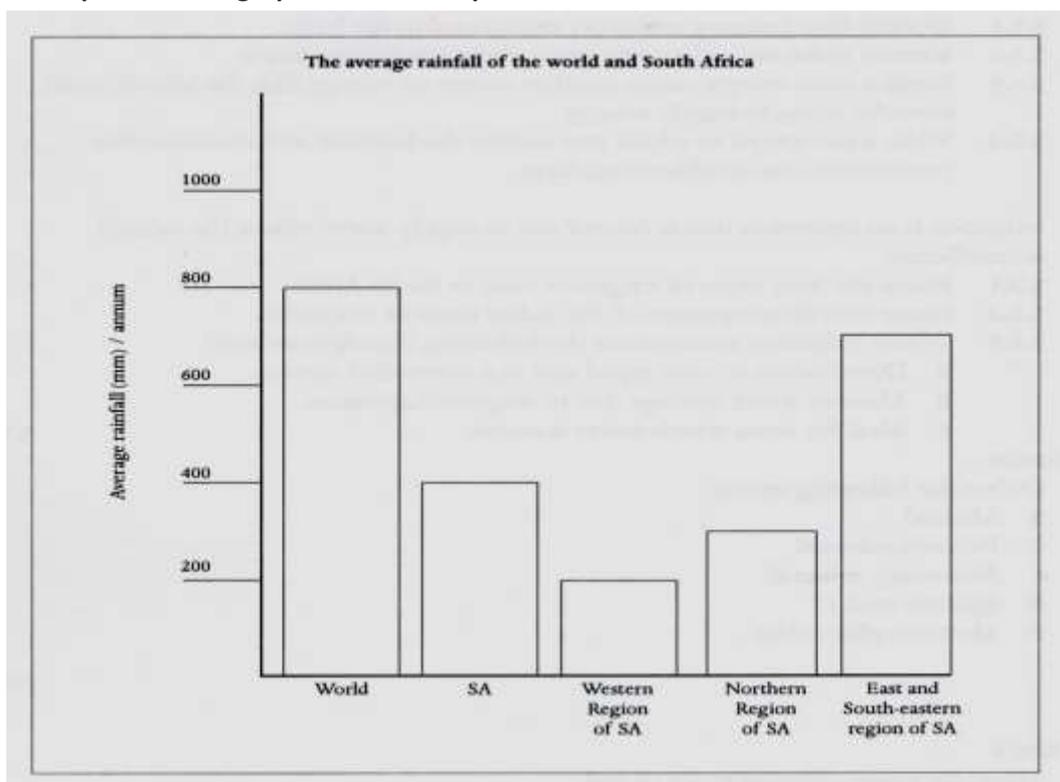
[34]

4.1 There are many different types of soil

a) In an ideal soil, four components are mixed in a certain combination. Using a pie diagram give an indication of these components. (5)

b) Which components will differ from a soil sample taken in a desert and why? (3)

4.2 The rainfall has a big influence on the sustainable management of veld. Look at the comparative bar graph and answer questions:



4.2.1 Study the Western region of SA and answer the questions:

- a) What type of vegetation is found in this region of South Africa (2)
- b) List three adaptations of these plants found in the western regions of SA (2)
- c) How will the rainfall figures of this region influence the carrying capacity (1)
- d) What type of grazing system would you suggest for farmers in this region? Give a reason. (2)

4.2.2 Study all the regions and answer the questions that follow:

- a) In which area will you farm with beef cattle? Give a reason for your answer (2)
- b) In which area will you farm with sugar cane? Give a reason for your answer (2)
- c) A farmer decides to start a dairy farm in a region with a rainfall lower than 200 mm per year. What type of grazing would you suggest he make use of? (2)
- d) Give a short description of the type of grazing mentioned in question (b) (3)

4.3

Indigenous knowledge (IK) plays a vital role in the lives of many people of many different cultures. Read the passage on indigenous knowledge and answer the questions that follow:

Indigenous knowledge is usually gained from older people over many centuries of agricultural development. It is very old knowledge that extends back for hundreds and even thousands of years. It is a knowledge learnt by directly observing and understanding the natural cycles of plants and animals.

A good example of how indigenous knowledge can be integrated with modern technology is related by CARE Kenya. In Kenya, the Luo community uses indigenous knowledge to produce clay pots which are used to store drinking water.

The climate is hot and the clay pots are used because of their evaporative cooling effect on the water. CARE Kenya used this mode of indigenous knowledge to sell the local communities a more hygienic version of the clay pots.

Only 34% of the population in Nyanza had access to safe drinking water and diarrhoea among children was as high as 47%. Traditionally the people in these communities stored drinking water in the locally produced wide-mouthed clay pots. Water is drawn from the pots using a calabash or a cup. Often the cups or hands holding them were contaminated. As a result the water was contaminated and those who drank it became ill.

People were not willing to change to plastic vessels designed to reduce contamination. Local potters with the technical assistance of CARE began to produce modified clay pots.

They filtered the indigenous knowledge pots with a narrow mouth, a spout, lid and a flat base. There is a space to retain the sediment. The modified pots are very popular with the local people. They can still store their water in the traditional way, which keeps the water cool and improves the palatability. These modified pots also prevent the transmission of diseases.

- 4.3.1 Draw a table to compare two differences between indigenous knowledge and scientific knowledge from the passage (4)
- 4.3.2 Why were people not willing to change to plastic vessels? (1)
- 4.3.3 Why does CARE tell the local potters to change the form of their pots? (1)
- 4.3.4 Why do you think the community is willing to use the modified pots? (2)

4.4 Define the following terms:

- a) Crop rotation (1)
- b) Wind breaks (1)

Total Section B : [105]

Grand total [150]

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