education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

AGRICULTURAL SCIENCES P1

EXEMPLAR PAPER

MARKS: 150

TIME: 2 hours

This question paper consists of 14 pages.

135 1 E

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections, SECTION A and SECTION B.

2. Answer ALL THE questions SECTIONS A and B.

3. SECTION A (QUESTION 1) and SECTION B (QUESTIONS 2 to 4) must be answered in the ANSWER BOOK.

4. Start each answer to questions in SECTION B on a NEW page.

5. Study the questions carefully and make sure you answer what is asked.

6. Number the answers correctly according to the numbering system used in this question paper.

7. Write neatly and legibly.

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SECTION A

QUESTION 1

1.1 Various options have been given as answers to the following questions. Choose the correct answer and write only the letter (A – D) next to the question number in the ANSWER BOOK.

1.1.1 Hot deserts are regions where evaporation of water is …. the rainfall.

A lower than
B higher than
C similar to
D double.

1.1.2 Animals living in the grass tundra have adapted to the very cold conditions in a variety of ways. Indicate which of the adaptations below would be the most effective adaptation:

A A thick layer of fat below the skin
B Growth of dark coloured fur / pelts
C Thin pelts to help regulate body temperature
D Eating large volumes of food.

1.1.3 Typical savannah vegetation is …

A proteas.
B short grass with shrubs
C tall grass with small deciduous trees.
D indigenous forests.

1.1.4 The practice of keeping/breeding animals under natural conditions in a certain ecological environment, is called …production.

A natural livestock
B intensive livestock
C cattle
D extensive livestock

1.1.5 A cattle breed that has a thick hide that makes it difficult for lice or ticks to penetrate the skin is the ..

A Afrikaner.
B Hereford.
C Drakensberger.
D Jersey.

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1.1.6 Reasons for the development of new breeds and plant cultivars:

A Adaptation
B Higher production
C Better quality
D All the above-mentioned

1.1.7 An example of a plant that can survive in dry/arid environmental conditions and which is mostly found growing on northern slopes, is called a/an….

A sciophyte.
B xerophyte.
C hidrophyte.
D epihypte.

1.1.8 A dormant stage of animals in winter months is called … .

A estivation.
B hibernation.
C precipitation.
D astrophication. (8 x 2) (16)

1.2 Give ONE-word answers for each of the statements or explanations below:

1.2.1 A farmer that grows just enough food for the family to live on

1.2.2 The practice of growing the same crop in the same soil continuously

1.2.3 A plant family that fixes nitrogen in the soil

1.2.4 Returning plant residues to soil to provide nutrients

1.2.5 The cattle breed that adapted to the African continent over the centuries

1.2.6 The practice where different breeds are interbred to develop a new breed

1.2.7 The increase of a country's population that results in the need for greater food production

1.2.8 The dairy breed that produces the highest butter fat in milk

1.2.9 The special milk produced from mammary glands after giving birth, containing necessary nutrients and antibodies for the newborn (9)

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1.3 Choose an item/word from COLUMN B that matches the description/item/word in COLUMN A.

COLUMN A	COLUMN B
1.3.1 Natural resources	A contains living organisms
1.3.2 Subtropical fruits	B type of top soil, depth, locality
1.3.3 Symbiosis	C restricts agricultural production
	D exploitation
	E bananas, mangoes, litchis
	F interaction between organisms

(3 x 2) (6)

1.4 Each of the following sentences consists of TWO statements. Choose the correct statement as follows:

- If the 1st statement is TRUE write A
- If the 2nd statement is TRUE write B
- If both statements are TRUE write C
- If both statements are WRONG write D

1.4.1	Government plays an important role in developing links with other countries	because	it negotiates trade agreements to ensure good markets for businesses.
1.4.2	An ant and plant lice are examples of mutualism	because	in mutualism one individual derives benefit and the other not.
1.4.3	Man can produce food for himself	because	he is directly dependent on agricultural activities for his food.
1.4.4	Lucerne is not capable of binding nitrogen	because	it contains no nitrogen fixing bacteria.

(4 x 2) (8)

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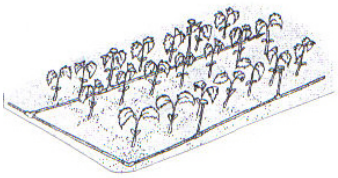
1.5 Study pictures A to F of examples of agricultural implements. Indicate which implement/equipment is best suited to solve the following problems that arise in agricultural practices. Write the LETTER of the appropriate implement/equipment opposite the question number in the ANSWER BOOK.

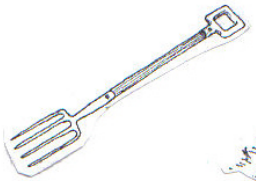
A

Micro- irrigation



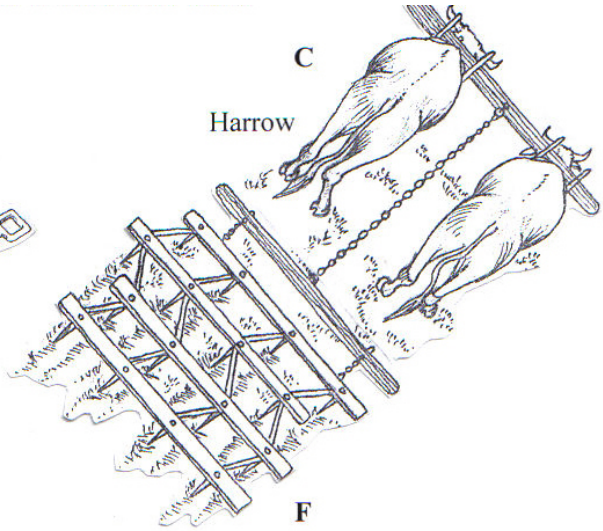
B

Garden fork



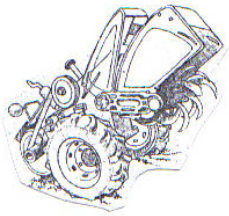
C

Harrow



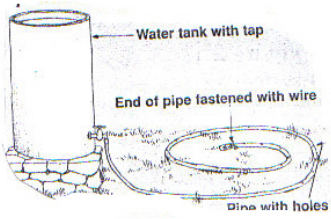
D

Rotovator



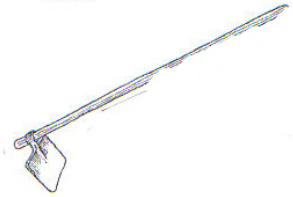
E

Micro- irrigation



F

Hoe



1.5.1 Water is scarce and vegetables are produced for own sustainability

1.5.2 Implement used to remove unwanted weeds

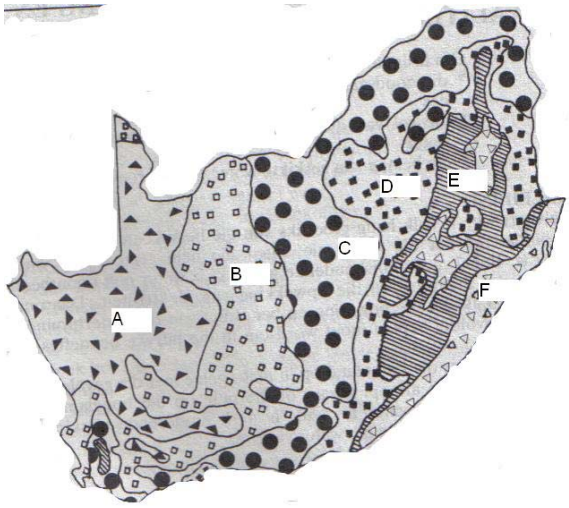
1.5.3 Implements used to prepare a seed bed for crop cultivation (3 x 2) (6)

TOTAL SECTION A: 45

SECTION B

QUESTION 2

2.1 Study the distribution of rainfall in South Africa as shown in the map and key that accompanies the map.



KEY:

600 – 800 mm
201 – 400 mm
> 1000 mm
401 – 600 mm
801 – 1000 mm
< 200 mm

2.1.1 Indicate what regions (A to F) would be more likely to have these individual rainfall figures. (Write down the LETTERS with the appropriate rainfall figures in the answer book.) (6)

2.1.2 Identify the region as indicated below.

(a) Region D
(b) Region B (2)

2.1.3 In which region would one find:

(a) Succulent plants
(b) Subtropical rainforests (2)

2.2 2.2.1 Explain what the difference is between the following:

(a) Sour veld
(b) Sweet veld. (2 x 2) (4)

2.2.2 Name the TWO abiotic factors that determine the type of veld found in the different ecological regions of South Africa. (2)

2.3 Read the following paragraph and answer the questions that follow:

The San People

The San are the oldest inhabitants of Southern Africa. They are a group of about 100 000 people who know a lot about the plant and animal life of the Kalahari and have learnt how to survive in this harsh environment. They are hunter-gatherers by tradition and have excellent animal tracking and hunting skills. Many of them have been forced off their lands to live in settlement areas where they are unable to hunt or gather food.

The San discovered that the Hoodia succulent cactus plant prevented them from getting hungry and thirsty – very useful when on long hunting journeys. Their indigenous knowledge is now being used to produce a drug for dieting. The San people are very poor and would like to be paid by the drug companies that are using their knowledge.

2.3.1 Name THREE systems of farming used in South Africa today. (3)

2.3.2 The San migrated to gather food. What sort of food did they eat traditionally? (2)

2.3.3 Why do you think did the San people lose their habitat? (1)

2.3.4 What Act did the government put in place to redress the imbalances of land ownership of the past? (1)

2.3.5 Give TWO reasons for modern day migration, away from rural areas. (2)

2.3.6 The San's indigenous knowledge is being put to use by producing a secondary industrial product. Name this product. (2)

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2.4 Developing secondary industries is a natural process in meeting the demand of communities. Indicate what raw materials were used to produce the following products:

2.4.1 Wine
2.4.2 School shirts
2.4.3 Bacon
2.4.4 Bread (4)

2.5 During each wet or dry cycle that occurs every seven to nine years, South Africa received an above or below average rainfall just as was experienced in Mozambique a few years ago. These weather phenomena have a devastating effect on agricultural production. Name and give the reasons for each of these weather phenomena:

2.5.1 The dry period in a wet cycle
2.5.2 The above average rainfall or even floods (2 x 2) (4)

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QUESTION 3

3.1 Read the following case study about foot-and-mouth disease in two provinces of South Africa:

The Animal Diseases Act, 1984 (No. 40 of 1984) deals with the prevention and containment of contagious animal diseases. To prevent contagious diseases from spreading, domestic stock that has to be moved has to be vaccinated and accompanied with veterinary proof that they are free from a particular disease.

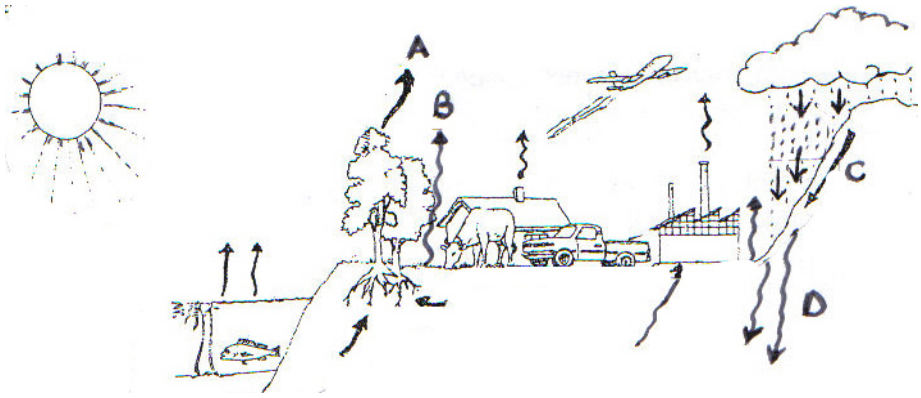
Once the disease has been contained, this restriction is lifted and animals can be freely moved from one zone to the next.

One such a dreaded disease is foot-and-mouth disease. In a recent outbreak in 2000 in KwaZulu-Natal pigs, that had been fed illegal untreated swill (kitchen refuse) from a ship were infected. Cattle in a feedlot near the Kruger National Park in Mpumalanga, where the African buffalo had come into contact with the cattle outside the park were infected.

Putting the animals under quarantine and administering vaccine to provide immunity can successfully contain outbreaks. As a result South Africa has had zone freedom since May 2002.

3.1.1 What does 'zone free' mean? (2)
3.1.2 Which area is not a free zone but a controlled zone? (1)
3.1.3 Which animals were responsible for the outbreak of foot-and-mouth disease in Mpumalanga? (1)
3.1.4 How does government prevent the spread of Foot-and mouth disease? (2)

3.2 Study the water cycle illustrated below and answer the questions that follow:



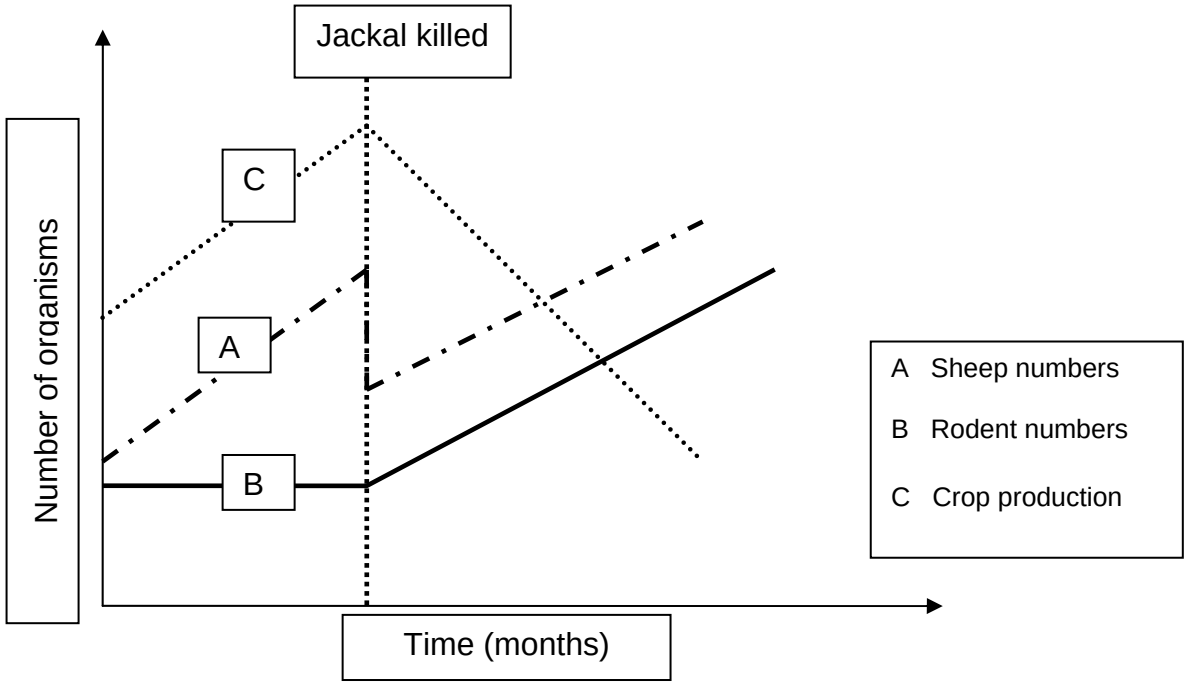
3.2.1 What is indicated by the letters A to D. (4)

3.2.2 Indicate ONE method how the water loss as indicated by A to D, can be minimised. (4)

3.3 3.3.1 Why is the building of dams advantageous for agricultural production? Also state TWO negative effects of dams being build for water storage. (2)

3.3.2 What do we call the artificial application of water? (2)

3.4 Study the following graph and answer the questions that follow:



3.4.1 Discuss why:

(a) The farmer killed the jackal

(b) The population of rodents increased

(c) The crop production decreased (3 x 2) (6)

3.4.2 Is killing the jackal the right thing to do? Give a reason for the answer. (2)

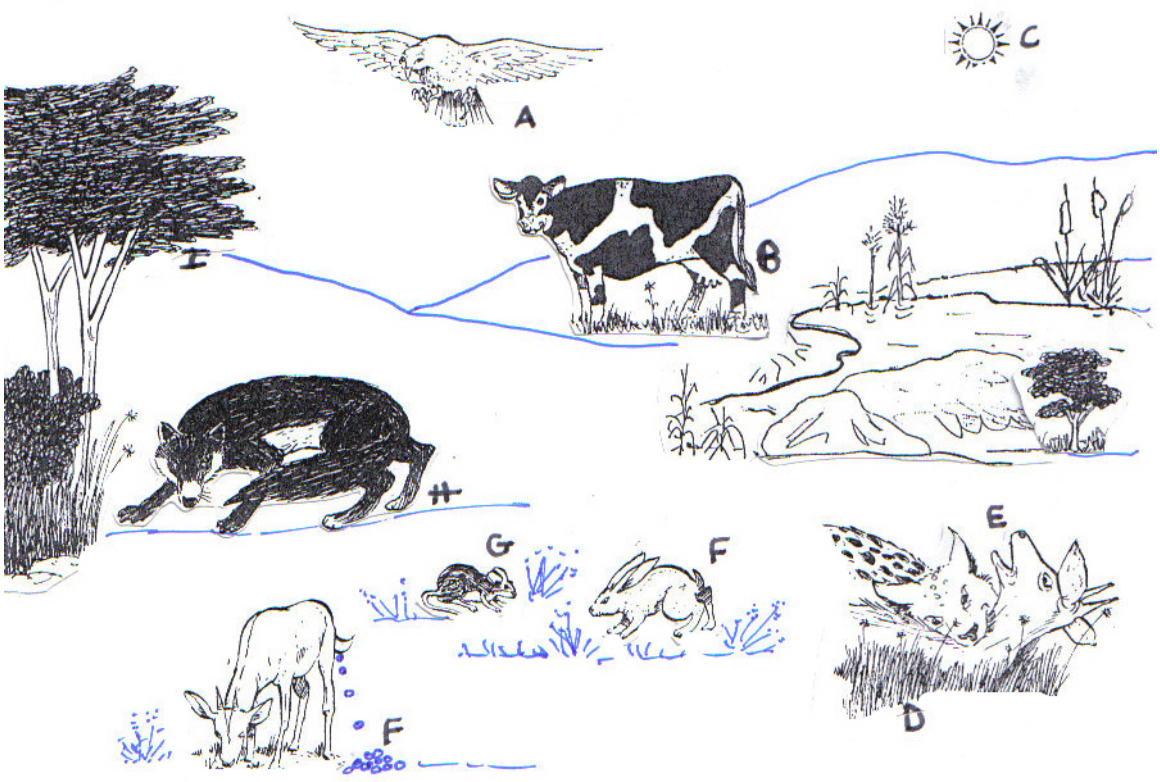
3.5 Give the meaning of the following:

3.5.1 Herbivore

3.5.2 Carnivore

(2 x 2) (4)

3.6 Study the ecosystem illustrated and answer questions that follow:



3.6.1 Which LETTER indicates:

(a) The primary source of energy

(b) The secondary producer/s in the diagram

(c) A source of nutrient for plants (3)

3.6.2 Give ONE example of:

(a) An abiotic factor as seen in the above illustration

(b) A biotic factor as seen in the illustration (2)

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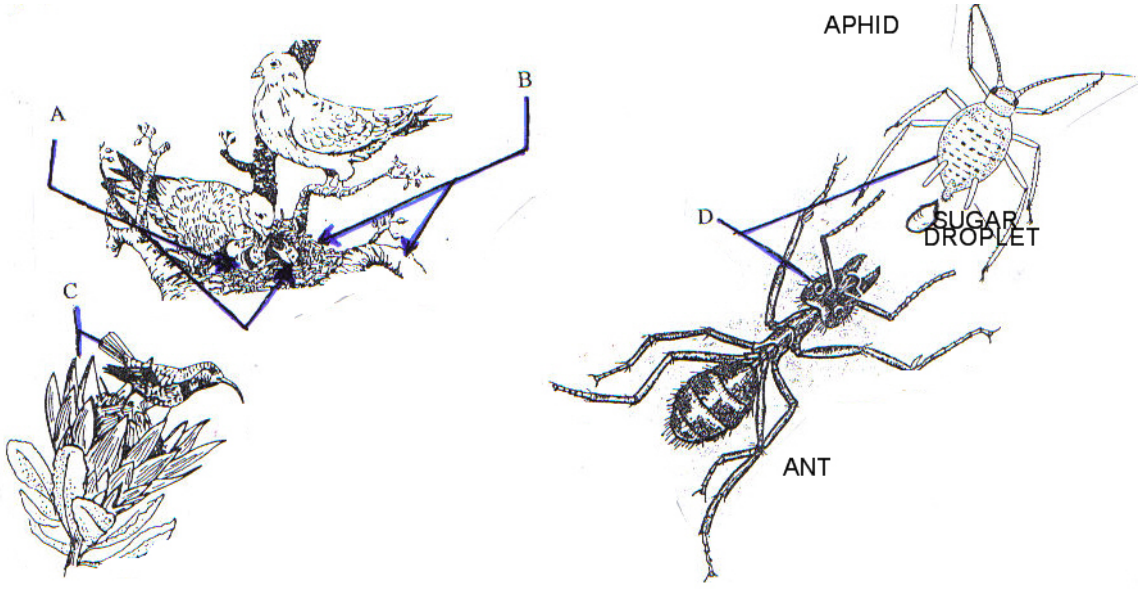
QUESTION 4

4.1 Study the sketches of examples of symbiotic relationships. Answer the questions that follow:



4.1.1 Explain the meaning of *symbiosis*. (2)
4.1.2 Name the type of symbiosis illustrated in B to D. (4 x 2) (8)

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4.2 Indicate which of the livestock is best suited to produce the following products:

Dorper, Jersey, Australop, Dormer, Merino, Drakensberger, Angora, Large White, Frieslander, Simmentaler, Leghorn, Saannen

4.2.1 Red meat production
4.2.2 Milk production
4.2.3 Wool production
4.2.4 Egg production
4.2.5 Meat and egg production
4.2.6 Mohair production
4.2.7 Meat and milk production
4.2.8 Meat and wool production
4.2.9 Goats milk production
4.2.10 Pork production (10)

4.3 Case study

Apple industry

Apples are grown in orchards. They are picked during the summer season when ripe; for the fresh market. For export purposes, apples have to be picked slightly green and then packed carefully. By keeping them in cold storage, they are available on the market for most part of the year. Apple farming is labour intensive because pruning, thinning, picking and packing has to be done by hand.

Apples are delicious, nutritious and an apple a day keeps the doctor away.

4.3.1 Explain what would be the …

(a) primary industry.
(b) secondary industry

for this type of farming (production). (2 x 2) (4)

4.3.2 List FOUR production activities that would take place in this type of farming. (4)

4.3.3 List FOUR industries that would provide services to this type of farming, as needed. (4)

4.3.4 List THREE economic activities in a rural town that would be affected in the event of a total crop failure as a result of drought. (3)
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TOTAL SECTION B: 105

GRAND TOTAL: 150

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