



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

AGRICULTURAL SCIENCES P2

EXEMPLAR PAPER

MARKS: 150

TIME: 2 hours

This question paper consists of 14 pages.

135 2 E

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 the 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.

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 The soil forming mineral that is a clear crystal, very hard, transparent to milky white and does not weather is ...

- A biotite.
- B quartz.
- C augite.
- D calcite.

1.1.2 The soil-forming mineral that weathers to form soils rich in phosphates is ...

- A apatite.
- B quartz.
- C agite.
- D calcite.

1.1.3 In the prevention of pollution it is important that the pesticides used for agricultural purposes must ...

- A be biodegradable.
- B have after effects.
- C not be biodegradable.
- D disrupt the food chain.

1.1.4 An example of physical weathering is ...

- A running water.
- B wind.
- C carbonic acid.
- D temperature changes.

1.1.5 The indigenous management of fungal diseases and insects was done by ...

- A using onion and garlic extracts.
- B using chemical insecticides.
- C using DDT.
- D removing weeds between the crops planted.

1.1.6 Which mineral is an example of a toxic ion in irrigation water?

- A Boron
- B Iron
- C Calcium
- D Magnesium

1.1.7 An example of the plant family *Graminaceae* is ...

- A wheat.
- B beans.
- C groundnuts.
- D soya beans.

1.1.8 Veld management systems must be based on the principle of ...

- A zero grazing.
- B severe grazing.
- C rotational grazing.
- D selective grazing

(8 x 2) (16)

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

1.2.1 The practice where crops are planted without disturbing the soil

1.2.2 The practice where only one crop is grown over and over on the same land

1.2.3 The practice where plant residues are returned to the soil to provide nutrients

1.2.4 The farming method where a farmer grows just enough food for the family

1.2.5 The farming method where a farmer produces on a large scale for profit

1.2.6 The family that legumes belong to

1.2.7 The process refers to organisms changing organic material into humus

1.2.8 The process when minerals in rocks come into contact with oxygen (8)

- 1.3 Study the different types of crops in COLUMN B and match them with the information provided in COLUMN A.

COLUMN A	COLUMN B
1.3.1 Oil seeds	A kikuyu
1.3.2 Field crops	B tobacco
1.3.3 Horticultural crops	C deciduous fruits
	D sunflowers

(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	Shallow soil has a high production potential	because	shallow soil accumulates and retains more moisture than deep soils
1.4.2	Continuous cultivation of soils decrease the humus content of soils	because	good aeration will kill micro organisms
1.4.3	Clay soils normally have a lot of colloids	because	they have less secondary mineral colloids than sandy soils
1.4.4	Water in plants is necessary	because	it improves the taste of crops
1.4.5	Humification is a synthesis process	because	new compounds are formed from decomposed products

(5 x 2) (10)

- 1.5 Study the map of South Africa and choose the horticultural crops in the list below that grow well in the regions indicated on the map.



1.5.1 Wine grapes

1.5.2 Citrus

1.5.3 Bananas

1.5.4 Cherries

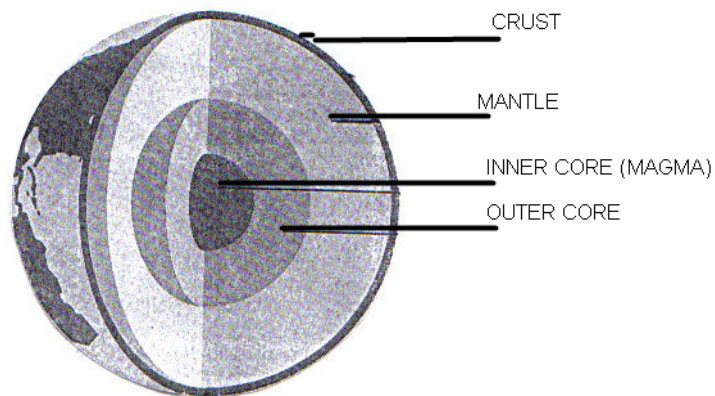
1.5.5 Apricots

(5)

TOTAL SECTION A: 45

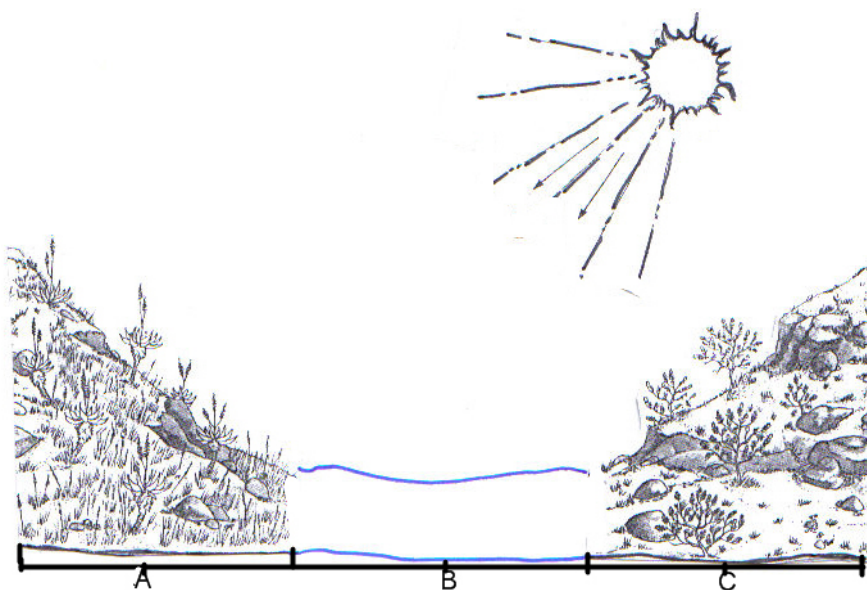
SECTION B**QUESTION 2**

- 2.1 Study the diagram showing the different layers of the earth and answer the questions that follow:



- 2.1.1 Define the term *magma*. (2)
- 2.1.2 Briefly describe the economic importance of the crust. (2)
- 2.1.3 Define *igneous rocks* and give an example of each and where they are formed. (5)
- 2.1.4 What do we call the continuous process of solid rock breaking down to form soil particles? (2)

- 2.2 Study the topography of an area of land given below and answer the questions that follow:

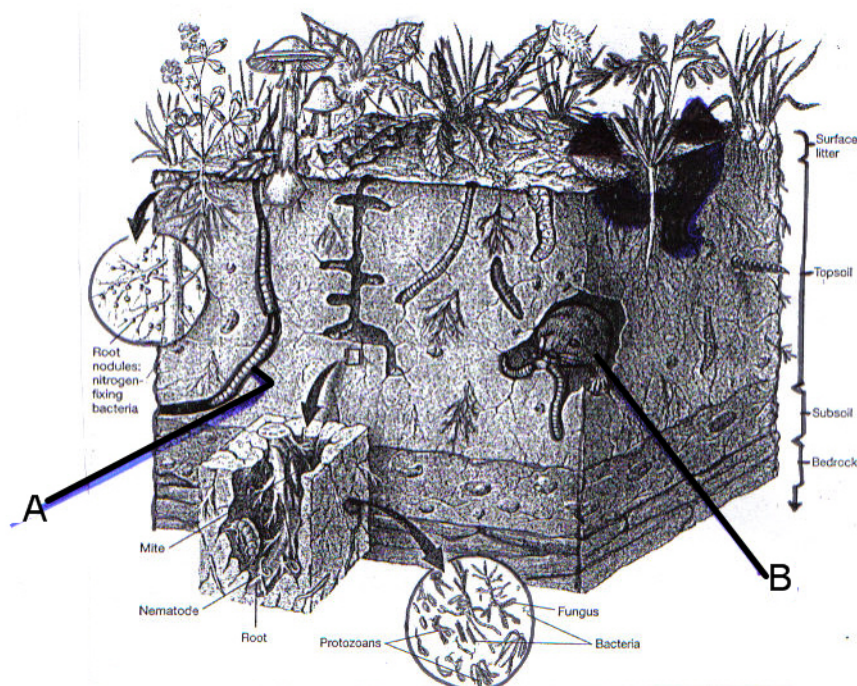


- 2.2.1 Identify the factors that contribute to the formation of soil. (4)
- 2.2.2 Which weathering process will predominantly take place in C? Give reasons for your answer. (3)
- 2.2.3 Explain how the vegetation in A influences the process of weathering. (3)
- 2.2.4 What farming practice would you use to prevent erosion on the slopes? Give a reason for your answer. (2)
- 2.2.5 Which area (A or C) will have a higher temperature variation? Substantiate your answer. (2)
- 2.2.6 Which type of rock will normally be found in area B? (2)
- 2.3 2.3.1 Describe the term *bare cultivation*. (3)
- 2.3.2 Give FIVE disadvantages of this method of cultivation. (5)

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QUESTION 3

3.1 Study the diagram of soil life and answer the questions that follow:

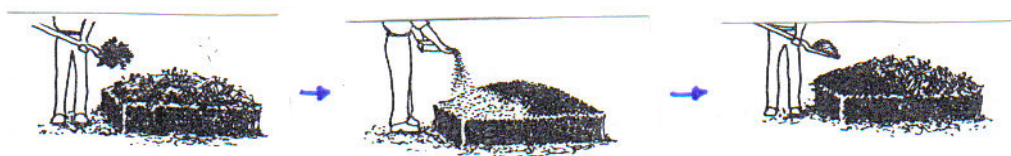


3.1.1 Identify the type of soil organism that is illustrated by A and B. (2)

3.1.2 Name TWO types of weathering as illustrated in the diagram. (2)

3.1.3 Name THREE advantages that these organisms have on soil. (3)

3.2 MAKING A COMPOST HEAP



3.2.1 Describe step by step how you would go about laying out a compost heap. (6)

3.2.2 How would you go about testing the compost heap to see whether decomposition is actively taking place? (2)

3.2.3 Name FIVE benefits that compost will have for your soil. (5)

3.3 Cultivated pasture plays a very important role in a sustainable supply of food. Briefly discuss this statement. (4)

- 3.4 In agriculture the production of crops and other foodstuffs not only has an economical advantage, but also nutritional value.

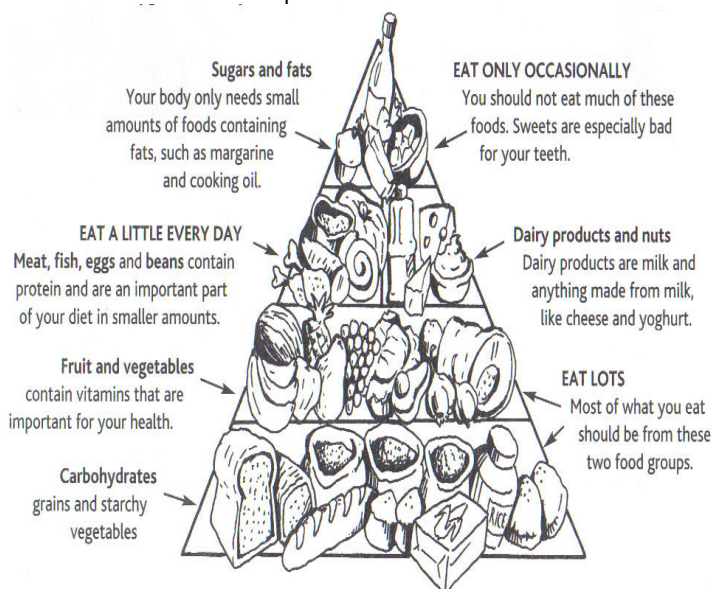
Study the data below and answer the questions that follow:

Hunger and disease

Sadly many people in the world do not eat a balanced meal. Others do not have enough to eat and starve to death or die of illnesses such as Kwashiorkor as caused by not getting enough to eat. It is a West African word that means 'the sickness that a child develops when another child is born'. This child no longer receives protein-rich breast milk.



Food programmes for starving children often include peanut butter and milk powder because these are protein-rich foods. Growing children need more protein than adults.



- 3.4.1 How can sustainable farming help poor communities to improve their health and living standards? (2)
- 3.4.2 Name ONE food that is a good source of protein. (1)
- 3.4.3 Butter and fish contain a lot of (1)
- 3.4.4 A lack of which organic compound causes the disease 'kwashiorkor' in children from poor-socio-economic environments? (1)
- 3.4.5 Explain the importance of a balanced diet. (3)

3.4.6 Name an agricultural product found in the pyramid that provides the following nutrients:

- (a) Carbohydrates
- (b) Fats
- (c) Proteins

(3)

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QUESTION 4

4.1 Read the stories about the soil utilisation taking place on two different family farms.

The Mbuza family farm

Every member of the family helps on the farm. Lindiwe helps her grandma collect eggs and feed the chickens. She also helps to hoe the soil and dig in chicken manure. Bongani helps to milk the cows and move them from one pasture to another.

Vegetables also grow well. They make sure never to plant the same vegetables in the same soil two years in a row. 'The vegetables all need different things from the soil,' they say, 'so if we do not plant the same things in the same soil, we give the soil a chance to re-build itself.'

The Mbuza pastures have good grass and the animals are fat. The animals are moved to different pastures to prevent the animals from eating all the grass. 'The soil gets dry and blows away in the wind because there are no roots to keep it in place,' says Mr Mbuza.

Bongani helps his father to make fences between the pastures.

The Nkondo family farm

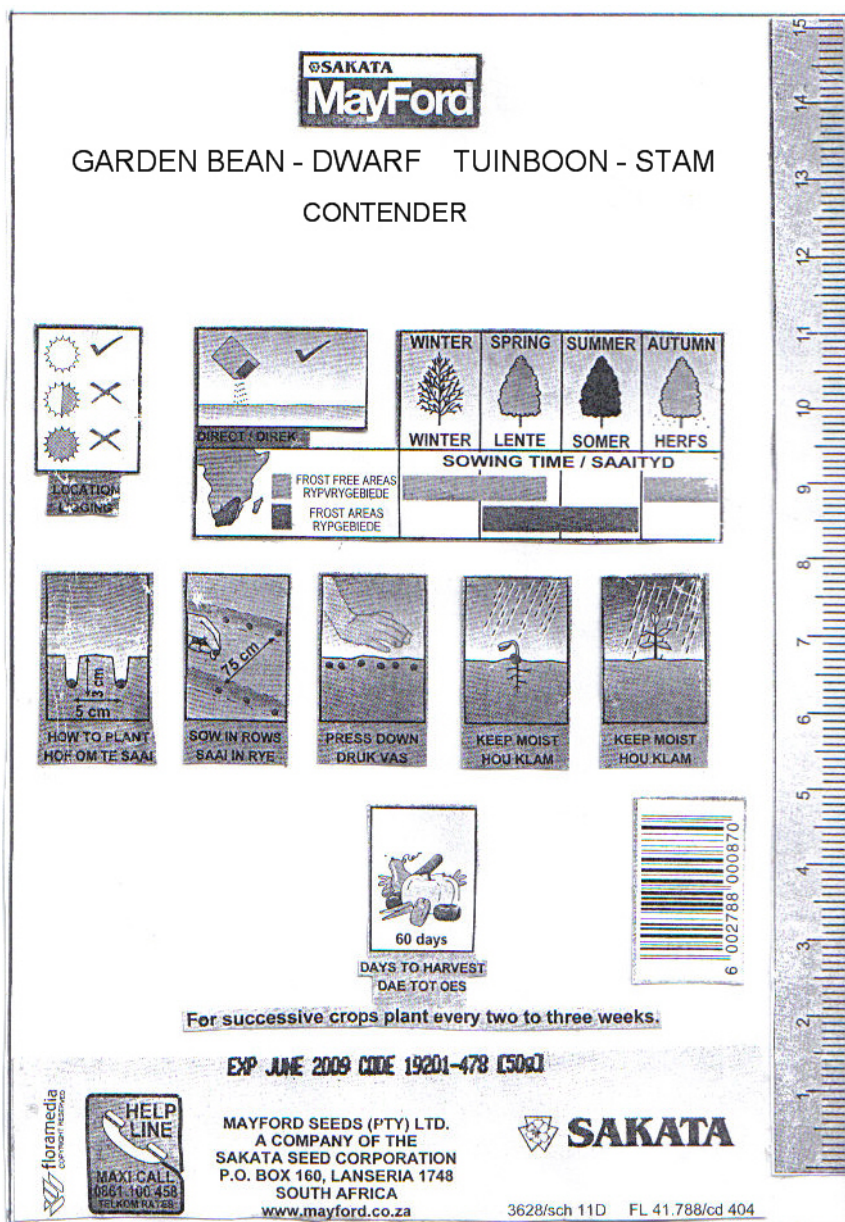
They live near the Mbuza family. Although they have more cows and goats than the Mbuza family, they have not built fences around different pastures, so the animals graze all over the farm all the time.

The family used to grow vegetables but now they only grow mealies. 'We bought a small tractor with the money that we get from selling our mealies,' says Mrs Nkondo, 'but I don't think it is so good for the soil because it squashes the soil and only breaks it into big lumps.'

Lately the mealie production on the Nkondo farm has not been so good. The soil is dry and blows away in the wind.

- 4.1.1 Describe TWO methods used by the Mbuza family to keep their pastures and animals growing well. (2 x 2) (4)
- 4.1.2 List THREE reasons why the Nkondo family's mealies are not growing well. (3)
- 4.1.3 Explain why the Nkondo animals are in poor condition. (2)
- 4.1.4 How can the Nkondo family improve their animal and crop production? (2)

- 4.2 4.2.1 Define the term *pollution*. (2)
- 4.2.2 Give FIVE possible reasons that cause irrigational water in South Africa to become polluted. (5)
- 4.2.3 What are the consequences of water pollution in agriculture? (3)
- 4.3 Answer the following questions according to the information and planting instructions given on the back of a packet of green bean seeds.



- 4.3.1 What method would you follow for better utilisation of the light source for maximum production? (2)
- 4.3.2 How far apart must the seeds be planted in each row? (2)
- 4.3.3 Name THREE possible reasons why planting distance is of importance to maximise production? (3)

4.3.4 According to the diagrams on the packet:

- (a) What is the ideal area for planting green beans? (2)
- (b) What is the ideal planting time for green beans in your area? (2)
- (c) Give a reason for your answer in QUESTION 4.3.4(b). (1)

4.3.5 You planted seeds on the 1st September. When will you harvest the first beans? (2)

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TOTAL SECTION B: 105

GRAND TOTAL: 150