higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION
NQF LEVEL 2

(1011012)

12 November 2024 (Y-paper)
13:00–16:00

This question paper consists of 8 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
PLANT PRODUCTION
NQF LEVEL 2
TIME: 3 HOURS
MARKS: 150

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Use only a black or blue pen.
5. Write neatly and legibly.

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SECTION A

QUESTION 1

1.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

1.1.1 A pistil is the female part of a flower.

1.1.2 Chloroplast is a green pigment that absorbs radiant energy.

1.1.3 The process whereby the male and female gametes fuse to form a zygote is called fertilisation.

1.1.4 The process whereby plants manufacture their own food using radiant energy is called photosynthesis.

1.1.5 Respiration is the process of breaking down food molecules using the released energy.

1.1.6 Roots are responsible for water absorption.

1.1.7 Gymnosperms are seed-bearing plants that have naked seeds.

1.1.8 Plant physiology is the study of the internal parts of a plant.

1.1.9 Enzymes speed up the chemical reaction during photosynthesis.

1.1.10 Guard cells are the outer most layer of the leaves.

(10 × 1) (10)

1.2 Complete the following sentences by writing only the missing word or words next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

1.2.1 The loss of water though the leaves of a plant is called ...

1.2.2 The … carries food upwards through the stem of the plant.

1.2.3 The way of creating a new life is called ...

1.2.4 … are small openings on the underside of the leaves.

1.2.5 A … is a sweet, sticky juice found inside flowers.

1.2.6 A … is another name for the leaf stalk.

1.2.7 The ... bud is a baby leaf or stem.

1.2.8 A group of tissues that perform a similar function is called …

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1.2.9 The … tells the farmer whether the fruits/vegetables are ready to be harvested.

1.2.10 … are the very small parts that make up air, water or solids.

(10 × 1) (10)

1.3 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–M) next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.3.1	The first leaves of a plant	A	parthenocarpy
1.3.2	Consists of a filament and an anther	B	cotyledon
1.3.3	Part of a plant where photosynthesis takes place	C	autotrophic
		D	midrib
1.3.4	Green pigment in leaves	E	mutation
1.3.5	Female part of a flower	F	stamen
1.3.6	Fruit development without fertilisation	G	pistil
1.3.7	Large vein at the centre of a leaf	H	parasite
1.3.8	Ovary wall becomes fleshy when the seed ripens	I	fleshy fruit
1.3.9	Genetic change	J	chlorophyll
1.3.10	Plants that are able to make their own food	K	leaf blade
		L	photosynthesis
		M	chloroplast

(10 × 1) (10)

[30]

TOTAL SECTION A: 30

SECTION B

QUESTION 2

2.1 There are different irrigation systems that farmers can choose, but it is important to take certain factors into consideration before choosing an irrigation system.

2.1.1 List FIVE factors that farmers should consider when choosing an irrigation system. (5)

2.1.2 Name THREE major types of irrigation methods currently used in South Africa. (3)

2.1.3 State ONE advantage and ONE disadvantage of each irrigation method named in QUESTION 2.1.2. (3 × 2) (6)

2.2 Evapotranspiration is an important factor of plant growth, development and survival.

2.2.1 Define the term *evapotranspiration.* (2)

2.2.2 Name TWO instruments that are commonly used to determine how much water should be supplied to the plants. (2)

2.3 Harvesting vegetables entails gathering mature crops from the garden or field.

List THREE methods of harvesting crops. (3)

2.4 Give ONE advantage of each of the harvesting methods named in QUESTION 2.3. (3)

2.5 List FOUR factors or physical characteristics that should be considered before picking fruits or vegetables. (4)

2.6 List FOUR types of markets (places) where farmers can sell their produce. (4)

2.7 After harvesting, vegetables are packed.

2.7.1 List FIVE packaging material or accessories that can be used to package harvested products. (5)

2.7.2 Give THREE reasons why crops are packaged after harvesting. (3)

[40]

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QUESTION 3

3.1 Study the diagram in FIGURE 1 below and answer the questions that follow.

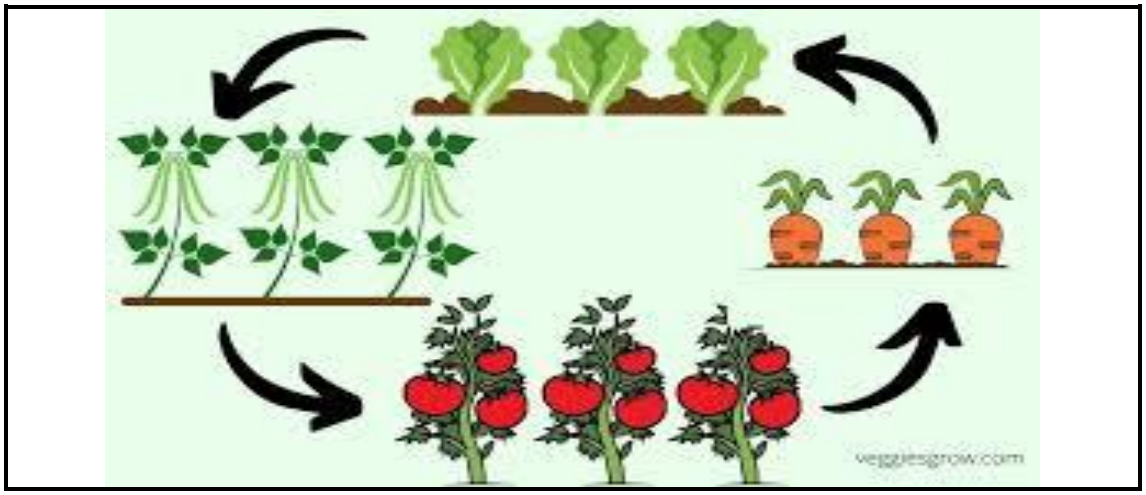


FIGURE 1

3.1.1 Identify the agricultural practice illustrated in FIGURE 1. (1)

3.1.2 Define the process named in QUESTION 3.1.1. (2)

3.1.3 Briefly explain FIVE principles that govern the practice named in QUESTION 3.1.1. (5 × 2) (10)

3.2 Weeds are plants that grow where they are not wanted, therefore it is important to monitor fields regularly and implement integrated weed management strategies to minimise weed growth. Weeds can be grouped according to their lifespan or leaf type.

3.2.1 Name the THREE classes of weeds that are grouped according to their leaf type. (3)

3.2.2 Define the term *selective weed killer*. (2)

3.2.3 Give FIVE reasons why weeds are unwanted among plants by farmers. (5)

3.3 Weeds can be controlled by using herbicides and biological measures.

Briefly explain how each of the following herbicides function when applied:

3.3.1 Residual spray

3.3.2 Contact spray

3.3.3 Systemic spray

(3 × 2) (6)

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3.4 Chemicals are expensive and degrade the environment; therefore, biological and cultural methods can be used to control weeds.

Discuss SIX points to explain how weeds can be controlled using biological and/or cultural methods in the agricultural industry. (6)

3.5 Weevils are common pests in stored grain that cause significant damage and economic losses.

Name FIVE control measures of weevils in a storage facility. (5)
[40]

QUESTION 4

4.1 Study FIGURE 2 below and answer the questions that follow.



FIGURE 2

4.1.1 Identify the structure illustrated in FIGURE 2. (1)

4.1.2 Explain FIVE benefits of using the structure named in QUESTION 4.1.1. (10)

4.1.3 Name TWO types of irrigation systems or methods that can be used in the structure named in QUESTION 4.1.1. (2)

4.2 Plants require care for normal germination and growth.

4.2.1 Distinguish between *plant morphology* and *plant anatomy.* (4)

4.2.2 List FIVE parts of the plant that constitute the morphology of the plant. (5)

4.2.3 List FIVE environmental factors that influence the anatomy and morphology of plants. (5)

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4.3 Name FIVE management activities or practices that should be done from planting or sowing the crop to harvesting. (5)

4.4 Pollination is an essential part of plant reproduction.

4.4.1 Name FOUR characteristics of wind-pollinated flowers.

4.4.2 Poor pollination has a negative impact on crop yield.

List FOUR factors that can result in poor pollination and fruit setting. (4 × 2) (8)

[40]

TOTAL SECTION B: 120
GRAND TOTAL: 150

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