higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION
NQF LEVEL 3

(1011013)

2 March 2018 (X-Paper)
09:00–12:00

This question paper consists of 7 pages.

NCV

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. Write neatly and legibly.

NC(V)

SECTION A

QUESTION 1

1.1 Choose a/an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1.1	The average yield	A	mulch
1.1.2	A type of agro-forestry	B	biological control
1.1.3	Growing only one kind of plant	C	damping-off
1.1.4	A layer covering the surface of the soil	D	pathogen
		E	barley
1.1.5	Any organism that carries a disease	F	mean yield
1.1.6	An example of a fungal disease	G	saprophyte
1.1.7	The loss of water through plants and the soil	H	crop rotation
		I	silvo-pastoral
1.1.8	The use of natural enemies to control pests	J	transpiration
1.1.9	An organism that lives off dead organic matter	K	monoculture
		L	erosion
1.1.10	An example of a cereal crop	M	vector
		N	evapo-transpiration

(10 × 1) (10)

1.2 Give ONE word/term for each of the following descriptions. Write only the word/term next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

1.2.1 These organisms cause disease.

1.2.2 It refers to a piece of a parent plant that will develop into a new plant.

1.2.3 A tall cylindrical structure for storing harvested crop.

1.2.4 A way of applying fertilisers by irrigation.

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1.2.5 Artificial application of water to a planted area.

1.2.6 Ways in which rootstocks and scions are selected for growing new plants or new trees.

1.2.7 Chemicals designed to kill weeds.

1.2.8 An indicator of the acidity and alkalinity of the soil.

1.2.9 A form of research that is designed to detect signs of insect pests in an orchard.

1.2.10 A crop production system that does not require any ploughing or disturbance of the soil ecosystem.

(10 × 1) (10)

1.3 Differentiate between the following terms:

1.3.1 Inter-row spacing and intra-row spacing

1.3.2 Rootstock and scion

1.3.3 Transpiration and evaporation

1.3.4 Predator and prey

1.3.5 Alley-cropping and silvo-pastoral agro-forestry.

(5 × 4) (20)
[40]

TOTAL SECTION A: 40

SECTION B

QUESTION 2

2.1 Farmers do not just plant crops. First, the soil has to be prepared. Soil preparation has a major impact on the growth and yield of crops.

2.1.1 Why should the soil be prepared for planting? (5)

2.1.2 Name the TWO tillage practices used in preparing the soil. (2)

2.1.3 Briefly explain each method of tillage. (2)

2.1.4 Name TWO implements that are used for each tillage method named in QUESTION 2.1.2 above. (4)

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2.2 Plant density and weed control play an important role in plant growth and affect the yield.

Define the following terms:

2.2.1 Plant density

2.2.2 Weed

(2 × 2) (4)

2.3 What is the impact of high plant density on fruit trees? (4)

2.4 Briefly explain why weed needs to be managed. (5)

2.5 State FIVE factors that determine the spacing of crops. (5)

2.6 Different types of fertilisers are used for crop production and play a vital role in the growth of crop plants.

Differentiate between *macro*- and *micronutrients* and give ONE example of each. (4)

[35]

QUESTION 3

3.1 Agro-forestry is about the integration of and complementary relationship between trees, crops and pastures.

3.1.1 Identify SIX advantages of agro-forestry systems. (6)

3.1.2 Explain the problems associated with agro-forestry systems. (5)

3.2 Crops and trees reproduce in many ways to increase their numbers.

3.2.1 Name TWO ways in which crops reproduce. (2)

3.2.2 Explain each of the methods of reproduction named in QUESTION 3.2.1. (2)

3.2.3 When deciding to plant a rootstock, what qualities of the rootstock will you concentrate on? (5)

3.3 Briefly state the qualities of each of the following production means that should be met before planting.

3.3.1 Seeds or seedlings (2)

3.3.2 Growth medium (3)

[25]

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QUESTION 4

4.1 Describe how the following vegetables are harvested on a vegetable farm.

4.1.1 Tomatoes

4.1.2 Cabbage

4.1.3 Carrots

4.1.4 Onions

(4 × 1) (4)

4.2 What factors indicate that each of the crops listed in QUESTION 4.1 is ripe?

(4 × 2) (8)

4.3 Harvested crops or grains should be stored in proper storage facilities.

4.3.1 Name FOUR factors that should be considered when selecting a harvesting method. (4)

4.3.2 Identify FOUR post-harvest activities that should be carried out before produce is sent to the market. (4)

4.3.3 What factors should be taken into account when storing grains? (5)

4.3.4 State the advantages and disadvantages of the fumigants used for grain storage. (5)

[30]

QUESTION 5

5.1 Irrigation is a way of providing water that is not otherwise available to help plants grow.

Name FIVE factors that determine the amount of water that is made available to crops. (5)

5.2 Different types of irrigation systems are used to improve the moisture content of the plant and growth medium.

5.2.1 What is the difference between *overhead irrigation* and *sub-irrigation*? (2)

5.2.2 Which method of irrigation is suitable for fertigation? Give a reason for your answer. (3)

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5.3 Most pests and diseases harm crop plants in different ways whereas some pests are important in agriculture.

5.3.1 Name FOUR pathogens that cause disease in crops. (4)

5.3.2 Explain how plant pests and diseases can be controlled:

(a) Agricultural practices

(b) Physical measures

(c) Biological means

(3 × 2) (6)
[20]

TOTAL SECTION B: 110
GRAND TOTAL: 150

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