



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

FARM PLANNING AND MECHANISATION NQF LEVEL 4

(1011044)

**20 November 2018 (Y-Paper)
13:00–16:00**

This question paper consists of 10 pages.

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.
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SECTION A**QUESTION 1**

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

- 1.1.1 Temperature determines where living organisms will thrive or grow best.
- 1.1.2 It is possible to create a business idea without recognising a gap in the market.
- 1.1.3 Rainfall is the greatest factor in a region's farming activities
- 1.1.4 A planter's metering system uses high, constant air pressure for seed singulation.
- 1.1.5 Fences on a farm are erected for security against theft only.
- 1.1.6 Chisel ploughs are used for heavy-duty work.
- 1.1.7 The natural terrain of the soil has an influence on agricultural production.
- 1.1.8 The farmer's family should not reside on the farm.
- 1.1.9 Processing farm produce does not necessarily involve machines and fuel.
- 1.1.10 Not touching parts of a machine that is in operation is part of safety precautionary measure.

(10 × 1) (10)

- 1.2 Choose a term from COLUMN B to match a description in COLUMN A. Write only the letter (A–M) next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

COLUMN A		COLUMN B
1.2.1	Breakdown of chemical compounds into simpler, harmless chemicals	A degradation
1.2.2	Spoiling the environment by pollution, over-use and erosion	B dehydration
1.2.3	Lack of sufficient water in the body which inhibits its normal functioning	C intensive
1.2.4	The sheltered side, the opposite of the windward side	D tines
1.2.5	Using large amounts of capital or labour to produce goods	E filth
1.2.6	Water that oozes out of the soil	F decomposition
1.2.7	How tightly the wire is pulled	G seepage
1.2.8	Manufactured or man-made.	H synthetic
1.2.9	Thin prongs like those of a fork	I leeward
1.2.10	Arrangement of the natural and artificial physical features of an area	J tension
		K topography
		L windrow
		M calibration

(10 × 1) (10)

- 1.3 Complete the following sentences by filling in the missing word or words. Write only the word or words next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

- 1.3.1 Food is mainly polluted by ... pesticides
- 1.3.2 The ... machine makes a furrow for the seed.
- 1.3.3 ... herbivores like sheep, cattle and goats feed on plants.
- 1.3.4 The results of the interaction between supply and demand in the market is called ...
- 1.3.5 The stock farmer uses ... for feeding.
- 1.3.6 A ... is used for secondary cultivation.
- 1.3.7 Side-delivery rakes are popular to get cut ... into windrows.

- 1.3.8 ... cultivators are used in soft-soil conditions.
- 1.3.9 Grass is cut when it is ... and nutritious.
- 1.3.10 The more ... a fence has, the more impenetrable it is. (10 × 1) (10)
- 1.4 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.4.1–1.4.5) in the ANSWER BOOK.
- 1.4.1 The actual sorting process of agricultural products according to agreed specifications:
- A Standardisation
 - B Grading
 - C Auction
 - D Merchandising
- 1.4.2 The financial planning aspect that covers the farm business production costs in case of any risk such as adverse weather conditions, is called ...
- A income tax.
 - B insurance.
 - C cash flow.
 - D estate duty.
- 1.4.3 A source of capital resulting from farming profits that have been allowed to accumulate in a bank and which is used to buy capital goods:
- A Credit
 - B Savings
 - C Production
 - D Donations
- 1.4.4 The primary natural resource is ...
- A labourers.
 - B soil.
 - C capital.
 - D trees.
- 1.4.5 An example of fixed capital is ...
- A feed.
 - B livestock.
 - C water.
 - D a shed.
- (5 × 2) (10)

1.5 Give a short description of the following terms.

1.5.1 Leach (2)

1.5.2 Thresh (2)

1.5.3 Enzyme (2)

1.5.4 Subsistence farming (2)

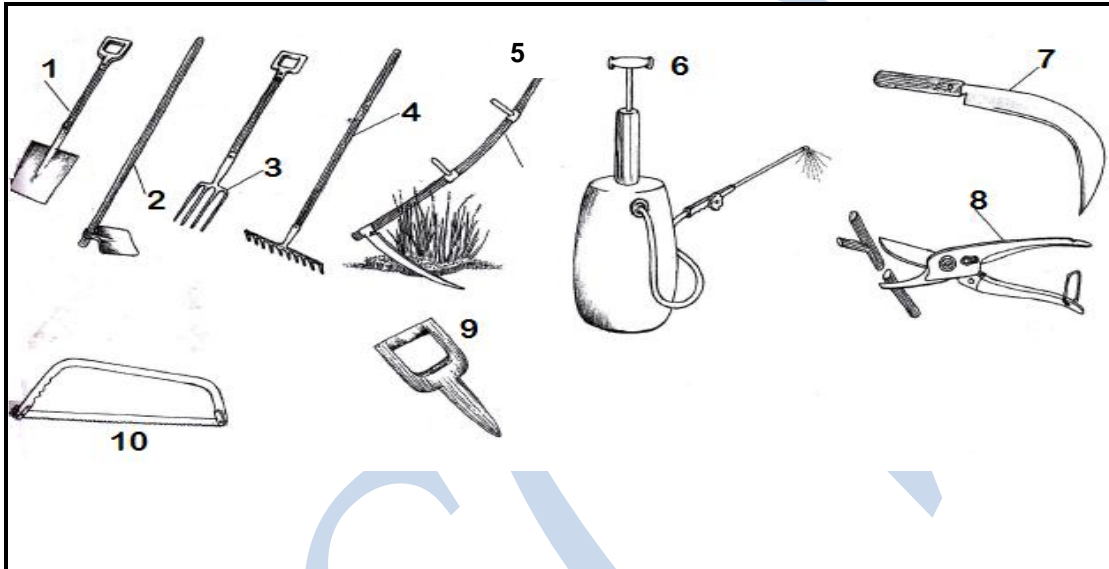
1.5.5 Tariff (2)

**TOTAL SECTION A: [10]
50**

SECTION B

QUESTION 2

2.1 Study FIGURE 1 below and answer the questions.



[Source: *Farm Planning & Mechanisation, NQF L4, pp115, Burger & Jones*]

FIGURE 1

- 2.1.1 Give a suitable caption for FIGURE 1. (2)
- 2.1.2 Label the implements (1–10) in FIGURE 1. (10)
- 2.2 According to the Basic Conditions of Employment Act of 1997, a farm worker is remunerated R5-59 per hour currently.
- 2.2.1 Calculate the total remuneration that a farm worker will receive at the end of the month if he works 35 hours per week for four weeks per month. (4)
- 2.2.2 Describe any TWO incentive measures in addition to a salary that can be applied by to show your labour force that you acknowledge their good performance. (2)
- 2.2.3 Define the term *seasonal labour*. (2)
- 2.2.4 Give one example of a seasonal labour. (1)

2.3

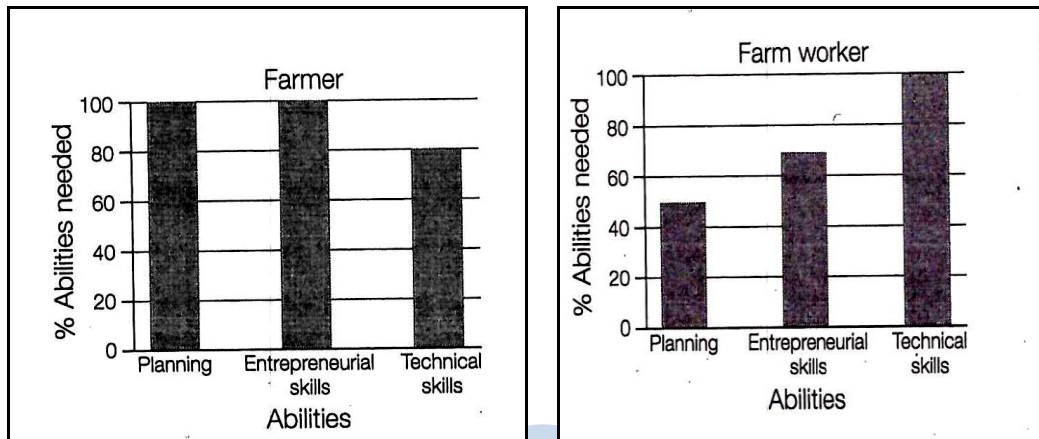


FIGURE 2

The above graphs compare the skills needed by a farmer (manager) and a farm worker.

2.3.1 Briefly explain how the farm worker and farmer would apply each of the skill within their scope of work in the farm environment. (3 × 2) (6)

2.3.2 Suggest any other THREE management skills needed by the farmer (manager). (3)

[30]

QUESTION 3

3.1 Briefly explain what the deciding factors are if a farmer must make a decision on mechanisation. (5)

3.2 3.2.1 Differentiate between *clean cultivation* and *surface-cover cultivation* (4)

3.2.2 State TWO advantages of surface-cover cultivation. (2 × 2) (4)

3.3 Tabulate TWO differences between *hay-making* and *silage making*. (2 × 2) (4)

3.4 Give THREE reasons why a radiator cap starts to leak and causes an engine to overheat. (3)

[20]

QUESTION 4

- 4.1 4.1.1 Discuss FOUR factors that determine the demand for goods. (4 × 2) (8)
- 4.1.2 Suggest TWO ways that a farmer can apply to add value to the produce in case where by there is over supply than demand.(2 × 2) (4)
- 4.2 4.2.1 Give FOUR characteristics of soil that is suitable for irrigation. (4)
- 4.2.2 State FOUR circumstances under which a farmer may decide to irrigate his crops. (4)

- 4.3 Complete the following table by choosing an appropriate application of capital in a farm for each category of loan. Write only the answer next to the question number (4.3.1–4.3.4) in the ANSWER BOOK.

The following are major applications of capital:

- Purchasing machinery/implements
- Purchasing land
- Purchasing fertilisers

DETAIL	LONG-TERM LOAN	MEDIUM-TERM LOAN	SHORT-TERM LOAN
Period	20+ years	4.3.2	4.3.4
Use of capital	4.3.1	4.3.3	Purchasing fertilisers

(4 × 1) (4)

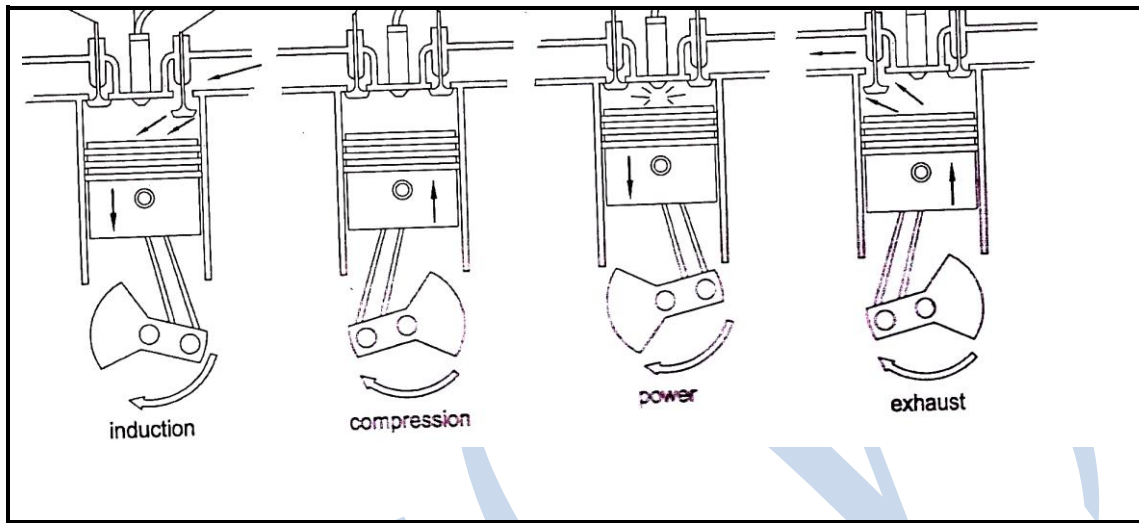
- 4.4 4.4.1 Differentiate between the concepts *return* and *profit*. (2 × 2) (4)
- 4.4.2 If you calculate the return from the land, what TWO other factors do you need to take into consideration? (2)

[30]

QUESTION 5

The diagram below indicates the working of a four-stroke diesel engine.

5.1



[Source: Farm Planning & Mechanisation, NQF L4, pp 130, Burger & Jones]

FIGURE 3

Indicate the timing of the valve for each stroke of an engine cycle as illustrated in FIGURE 2.

- 5.1.1 Induction (4)
- 5.1.2 Compression (1)
- 5.1.3 Power (1)
- 5.1.4 Exhaust (2)

5.2 The Occupational Health and Safety Act of 1993 aims to protect workers in the workplace. It is, however, every person's responsibility to apply safety regulations at work.

List EIGHT thoughtless acts that can lead to accidents. (8)

5.3 It is necessary to regularly clean a radiator internally as well as externally since it can become blocked.

Briefly describe how to clean a radiator internally. (4)
[20]

TOTAL SECTION B: 100
GRAND TOTAL: 150