

1.1	1.1.1	C //		
	1.1.2	C //		
	1.1.3	A //		
	1.1.4	B //		
	1.1.5	A //		
	1.1.6	D //		
	1.1.7	C //		
	1.1.8	A //		
	1.1.9	C //	(10 x 2)	(20)
	1.1.10	D //		

1.2	1.2.1	E //		
	1.2.2	G //		
	1.2.3	B //		
	1.2.4	C //	(5 x 2)	(10)
	1.2.5	F //		

1.3	1.3.1	mutation //		
	1.3.2	quantitative characteristics //		
	1.3.3	inventory //		
	1.3.4	law of diminishing returns //	(5 x 2)	(10)
	1.3.5	eco-labelling / green stickers //		

1.4	1.4.1	hybridisation ✓		
	1.4.2	histogram ✓		
	1.4.3	balance sheet ✓		
	1.4.4	net income ✓	(5 x 1)	(5)
	1.4.5	research/survey ✓		

TOTAL SECTION A: (45)

Please turn over

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING**2.1.1 The physical functions of agricultural marketing A, B, C and D:**

- A = Processing/value adding ✓
- B = Packaging ✓
- C = Storage ✓
- D = Transport ✓

(4)

2.1.2 THREE advantages of the physical Agricultural marketing function A:

- It reduces wastage of excess produce, especially lower grade fruit and vegetables ✓
- It provides job opportunities ✓
- It increase the value of the product ✓
- It is a way of overcoming over-supply of products ✓
- It allows for easier packing and handling of products ✓
- It is a way for farmers to increase their share of the final price paid for a product by the consumers ✓
- It results in a product that has a longer shelf-life than the fresh product, so it can be stored ✓

(Any 3) (3)

2.1.3 TWO facilitating functions of agricultural marketing:

- Grading/classification ✓
- Preset specifications/standardisation ✓

(2)

2.1.4 TWO differences between marketing and selling

Marketing	Selling	
• Emphasis is on customers' wants ✓	• Emphasis on the agricultural product ✓	(Any 4) (4)
• The business determines customers' wants and how to produce and deliver a product to satisfy those wants ✓	• The business produces a product, and then decides how to sell it ✓	
• Management is profit oriented ✓	• Management is sale-volume oriented ✓	
• Focuses on the wants of buyers ✓	• Focuses on the needs of sellers ✓	
• Planning is long-term, based on new products, tomorrow's markets and future growth ✓	• Planning is short-term, based on current products and market ✓	

2.2.1 Identifying the strategies of developing a market

- A = Promotion ✓
- B = Place ✓
- C = Price ✓
- D = Product ✓

(4)

2.2.2 TWO factors to consider when planning strategy D.

- Quality ✓
- Branding ✓
- Size ✓
- Design ✓
- Packaging ✓
- Warranty ✓

(Any 2) (2)

2.2.3 TWO ways to implement the strategy A

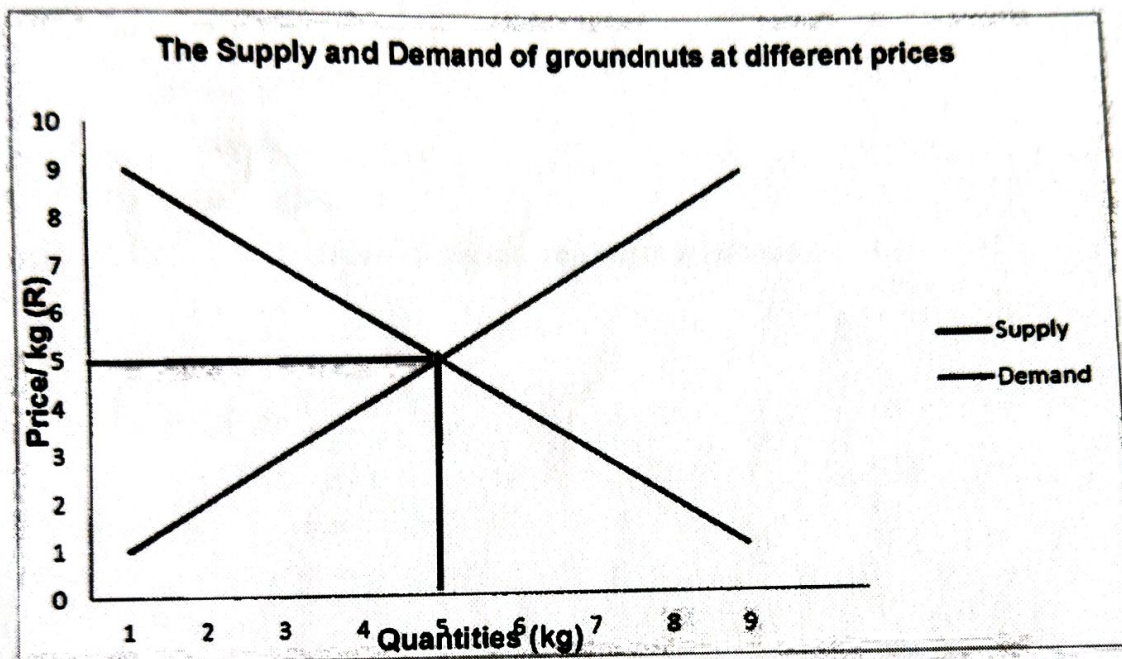
- Advertising ✓
- Direct mailing ✓
- Sponsorship ✓
- In-store promotion ✓
- Trade fairs and exhibition ✓
- Personal selling ✓

(Any 2) (2)

2.2.4 TWO aspects to consider when deciding on the strategy C.

- Cost ✓
- Demand ✓
- Competition ✓

(Any 2) (2)

2.3 The Supply and Demand of groundnuts:**2.3.1 The line graph showing the supply and demand of groundnuts at different prices****Criteria/rubric/marketing guidelines**

- Correct heading ✓
- X axis – correctly calibrated and labelled (Quantities or supply and demand) ✓
- Y axis – correctly calibrated and labelled (Price) ✓
- Correct unit (R and kg) ✓
- Line graph ✓
- Accuracy ✓

(6)**2.3.2 R5.00/kg ✓****(1)****2.4 Identifying the marketing systems****2.4.1 Cooperative marketing system ✓****(1)****2.4.2 Free-marketing system ✓****(1)****2.4.3 Controlled marketing system ✓****(1)**

2.5 Case study

2.5.1 Identifying ONE entrepreneurial quality displayed by the teacher:

- Creativity ✓
- Risk-taking ✓
- Hardworking ✓
- Innovation ✓
- Leadership ✓
- Perseverance ✓

(Any1) (1)

2.5.2 ONE resource required when starting a business:

- Financial ✓
- Human ✓
- Physical ✓

(Any 1) (1)

[35]

QUESTION 3: PRODUCTION FACTORS**3.1.1 The factor of production best explained by the description**

- (a) Labour ✓ (1)
- (b) Management ✓ (1)
- (c) Capital ✓ (1)
- (d) Land ✓ (1)

3.1.2 The factor of production that could be used as collateral when applying for a loan (1)

- Land ✓

3.1.3 Justifying the answer to Question 3.1.2 with TWO reasons

- The value of land appreciate over time ✓
- Land ownership is easily transferable ✓
- The value of land can be convertible ✓
- Land can be easily sold at any time ✓

(Any 2) (2)

3.1.4 THREE economic characteristics of Land

- Land is a primary factor of production because it is a requirement for any type of production ✓
- It is a passive factor of production as it needs to be combined with other factors ✓
- Land is fixed / immovable ✓
- Land is permanent and indestructible ✓
- Land varies in production potential ✓
- Land can be bought and sold ✓
- The value of land appreciate over time ✓
- Availability of agricultural land is limited. ✓

(Any 3) (3)

3.2 Covid-19 Infection**3.2.1 The development of Coronavirus infections over the months October 2019 – November 2020:**

- Infections increased from October 2019 until reaching peak in June 2020 and decreased from June 2020 to November 2020 ✓✓ (2)

3.2.2 TWO measures that possibly resulted in the development after June 2020:

- Awareness campaigns/education ✓
- 21 days lockdown ✓
- Self-isolations ✓
- Quarantines ✓
- Hygienic behaviours/ Washing of hands for 20 seconds with sanitizers/ not always touching the face i.e nose, eyes, ears and mouth and covering the nose and mouth wearing sanitary gloves ✓
- Access to treatment ✓ (Any 2) (2)
- Support groups ✓

3.2.3 TWO possible impacts of the Coronavirus infections on the productivity of farm workers:

- Workers become sick/production declines/deadlines not met ✓
- Lack of energy to complete tasks ✓
- Absenteeism amongst infected workers/planning becomes difficult ✓
- Loss of skills and experience ✓
- Impacts negatively on healthy workers ✓ (Any2) (2)

3.2.4 TWO ways to improve the economic conditions of farm workers:

- Providing incentives for workers ✓
- Paying higher salaries ✓
- Paying bonuses ✓
- Entering into partnership deals with workers ✓
- Providing medical insurance and pension ✓
- Supplying farm products to workers at reduced prices ✓ (Any 2) (2)

3.3 Land Reform Project**3.3.1 TWO managerial principles:**

- Planning ✓
- Organising/coordination ✓
- Control ✓
- Implementation ✓
- Decision-making ✓
- Motivation ✓
- Communication ✓
- Leading and directing ✓
- Monitoring ✓

(Any 2) (2)

3.3.2 TWO components of strategic management:

- Vision ✓
- Mission ✓ and
- setting of goals and objectives ✓

(Any 2) (2)

3.3.3 TWO external forces that impact on a farming business:

- Legislation/legal ✓
- Economic/marketing environment ✓ and
- Funding/capital ✓

(Any 2) (2)

3.4 Finance Records**3.4.1 Identifying the document:**

- Enterprise budget ✓

(1)

3.4.2 Justifying the answer to Question 3.4.1:

- The budget is a plan or a record of the money spent on and earned by an enterprise ✓

(1)

3.4.3 TWO types of capital and one example of each:

- Moveable capital ✓ – Truck ✓
- Working capital ✓ – fertiliser/tomato/seedlings/insecticides/storage boxes ✓

(4)

3.4.4 Calculation of the profit or loss of the farmer:

- Total income = R15 250.92 ✓
- Expenditure = R4 521.55 ✓
- Profit = income – expenditure ✓
- = R15 250.92 - R4 521.55 ✓
- = R10 729.37 ✓

(5) [35]

QUESTION 4: BASIC AGRICULTURAL GENETICS**4.1 Genetic Crossing****4.1.1 Determining the genotype of the parents in the first crossing.**

- Red ram = Rr ✓
- Black ewe = rr ✓

(2)

4.1.2 Punnet square to illustrate the genotype of the F1

Gametes	R	r ✓
r ✓	Rr	rr
r	Rr	rr ✓

Marking guideline

- Complete punnet square with gametes and offspring (1)
- Correct gametes (1)
- Correct offspring (1)
- punnet square (1)

4.1.3 genotype ratio of the F1 generation outlined in 4.1.2

- Ratio = $2 : 2$ ✓ or $2 Rr : 2 rr$ ✓

(1)

4.1.4 Calculation of the percentage of the F1 generation that is homozygous for a certain colour:

- $\frac{2}{4} \times 100$ ✓
= 50% ✓

(2)

4.1.5 The colour of the offspring that is homozygous:

- Black ✓

(1)

4.2 Identifying the patterns of inheritance that lead to different phenotypes:**4.2.1 Incomplete dominance ✓**

(1)

4.2.2 Co-dominance ✓

(1)

4.2.3 Complete dominance ✓

(1)

4.2.4 Epistasis ✓

(1)

4.2.5 Polygenic inheritance ✓

(1)

4.3 EBV and heritability:**4.3.1 Definition of :****(a) Heritability:**

- The degree to which a characteristic/phenotype is determined by

genes / as opposed to environmental effects /

(2)

(b) Estimated breeding value

- The value of the genes passed onto the offspring / as measured by the performance of the offspring (progeny) /

(2)

4.3.2 EBVs of the parents.

- **EBV of male parent** = (weaning weight of male – average weaning weight) x % heritability.

$$= (19.6 \text{ kg} - 17.5) \times 60\% \checkmark$$

$$= 2.1 \text{ kg} \times \frac{60}{100}$$

$$= 1.26 \text{ kg} \checkmark$$

(2)

- **EBV of female parent** = (weaning weight of female – average weaning weight) x % heritability.

$$= (18.7 \text{ kg} - 17.5) \times 60\% \checkmark$$

$$= 1.2 \text{ kg} \times \frac{60}{100}$$

$$= 0.72 \text{ kg} \checkmark$$

(2)

4.3.3 The expected genetic gain of the offspring.

- **Expected genetic gain** = (EBV of male + EBV of female) + 2

$$= (1.26 \text{ kg} + 0.72 \text{ kg}) + 2 \checkmark$$

$$= 0.99 \text{ kg or } 1.0 \text{ kg} \checkmark$$

(2)

4.4 Picture A = breeds of goats. Picture B = a male donkey and a female horse:

(1)

4.4.1 The type of breeding in picture A:

- **Crossbreeding** /

4.4.2 Term for an increase in performance in the offspring or progeny:

- **Heterosis / hybrid vigour** /

(1)

4.4.3 TWO disadvantages of Crossbreeding:

- Labour intensive / and therefore expensive /
- Hybrids do not breed true OR because they are heterozygous OR produce offspring with a range of different phenotypes /
- Hybrid vigour is mostly expressed in the F₁ generation /

(Any 2) (2)

4.4.4 Identify the type of breeding in picture B:

- **Species crossing** /

(1)

4.5 Genetic modification:

4.5.1 ONE technique of genetic modification in plants: (Any 1) (1)

- Agrobacterium tumefaciens / A tumefaciens ✓
- Gene gun / biolistic ✓
- Electroporation ✓
- Microinjection ✓

4.5.2 ONE aim of genetic modification in animals:

- Improving production characteristics, such as growth rates, milk production, disease resistance and feed conversion ✓
- Improving food quality, such as milk that will be digested more easily ✓
- Producing products for human therapeutic use, such as medicine or tissue for implantation ✓

(Any 1) (1)

4.5.3 THREE benefits of Genetically Modified Organisms (GMOs)

- Farmers use less pesticides on insect-resistant GM crops ✓
- GM crops can allow for no tillage farming, which can be beneficial for the soil ✓
- Environmental impact assessments are carried out on all GM crops worldwide ✓
- GM crops could provide foods with better flavour, colour, texture and nutritional value ✓
- GM crops that are pesticide-resistant reduce the need for pesticides and this reduce inputs costs ✓
- Herbicide-resistant crops can be sprayed with weed killers, without damaging the crop ✓
- GM crops could have a longer shelf-life and better properties for food processing which is economically beneficial ✓
- GM crops that are resistant to insects, herbicides and disease allow consistent yield ✓
- GM crops that are tolerant to conditions such as cold, salinity or drought may be possible to grow in regions where they previously could not be grown

(Any 3) (3)

TOTAL**[35]
150**