basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL
SENIOR CERTIFICATE

GRADE 12

MARKS: 150

These marking guidelines consist of 11 pages.

SECTION A

QUESTION 1

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

1.2   1.2.1   H ✓✓
        1.2.2   F ✓✓
        1.2.3   I ✓✓
        1.2.4   B ✓✓
        1.2.5   D ✓✓   (5 x 2)   (10)

1.3   1.3.1   Controlled marketing ✓✓
        1.3.2   Consolidation ✓✓
        1.3.3   Incomplete dominance ✓✓
        1.3.4   Electroporation ✓✓
        1.3.5   Polyploidy ✓✓   (5 x 2)   (10)

1.4   1.4.1   Fixing ✓
        1.4.2   Interest ✓
        1.4.3   Biometrics ✓
        1.4.4   Atavism/throwback ✓
        1.4.5   Gene ✓   (5 x 1)   (5)

                                 TOTAL SECTION A: **45**

SECTION B

QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING

2.1   **Availability of agricultural products over a period of six months**

      2.1.1   **Indication of the quantities of product 1**
            30 tons ✓   (1)

      2.1.2   **Identification of the product**
            Product 2 ✓   (1)

      2.1.3   **Stating of the problem**
- There will be a surplus/spoilage/storage costs ✓
- The price of the product will be less ✓   (Any 1)   (1)

      2.1.4   **Factor hampering marketing of product 1**
- Seasonal fluctuation ✓
- Perishability ✓
- Accidents/theft ✓
- Lack of infrastructure ✓
- Lack of capital ✓
- Lack of market information ✓
- Long distances to markets ✓   (Any 1)   (1)
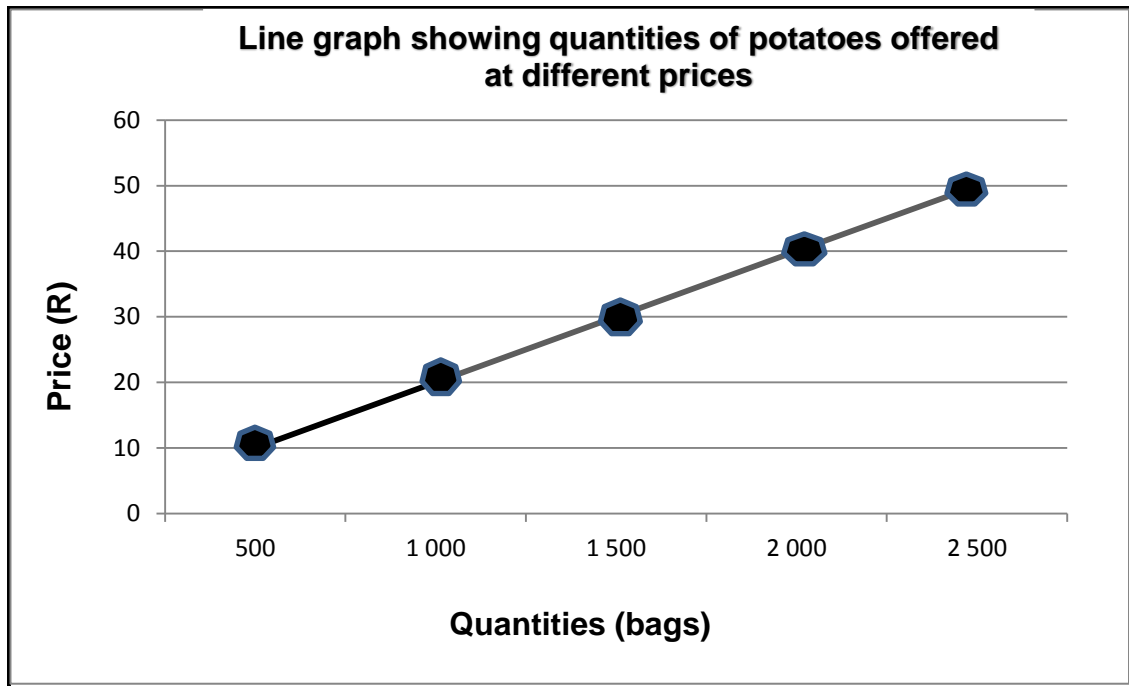
      2.1.5   **TWO factors influencing the demand**
- Price ✓
- Change in consumer income/buying power ✓
- Number of consumers ✓
- Tastes and preferences of consumers ✓
- Price of competing/complementing/substitute products ✓
- Range of products available ✓
- Usefulness of the product ✓
- The quality of the product ✓
- Festive season/fashion ✓
- Research ✓
- Socio-economic factors ✓
- Legislation ✓
- Advertising ✓
- Price expectations ✓   (Any 2)   (2)

2.2   **Marketing system**

      2.2.1   **Identification of the marketing system**
            Free marketing ✓   (1)

2.2.2 Identification of the channels
  A - Farm gate marketing ✓ (1)
  B - Fresh produce marketing ✓ (1)

2.2.3 ONE advantage of CHANNEL A/farm gate
  (a) **Farmer -** No market chain costs/no transportation costs/
      no intermediaries/higher income/immediate payment ✓ (1)
  (b) **Consumer -** Products will be fresh/better quality/lower prices/
      have bargaining power ✓ (1)

2.2.4 ONE disadvantage of CHANNEL C/stock sale to sellers
  - Prices may be lower than the market price ✓
  - Seller may not get the expected price/less profit ✓
  - Small-scale farmers may not have money to take animals to
    auction sale ✓ (Any 1) (1)

2.3 Entrepreneurship

2.3.1 Identification of THREE phases of entrepreneurship
  - Identifying the opportunity ✓
  - Developing a business plan ✓
  - Resource mobilization ✓
  - Starting and managing the enterprise ✓ (Any 3) (3)

2.3.2 TWO other reasons for drafting a business plan
  - To test the feasibility/economic viability of the business idea ✓
  - Helps to define goals ✓
  - Outlines the roles and responsibilities of individuals ✓
  - Provides time frames for completion of activities ✓
  - Provides guidelines for decision making/to compare progress ✓
  - To guide daily operations ✓
  - Helps manager to plan for capital requirements ✓
  - Provides clear strategies/objectives to follow ✓
  - To ensure effective business management ✓
  - Allows to foresee problems which reduces risks ✓
  - Repositioning the business to deal with changes in a market ✓
  - To gain knowledge about marketing opportunities/competitors ✓
  - Attract investors/partners ✓ (Any 2) (2)

2.3.3 Indication of success factors
  (a) Leadership/organization/management/interpersonal skills/
      confidence ✓ (1)
  (b) Risk taking/confidence/positive thinking ✓ (1)

2.4 **Supply**

2.4.1 **Line graph**

CRITERIA/RUBRIC/MARKING GUIDELINE
- Correct heading ✔
- X-axis: Correctly calibrated and labelled (Quantities) ✔
- Y-axis: Correctly calibrated and labelled (Price) ✔
- Correct units (R and bag) ✔
- Line graph ✔
- Accuracy (80%+ correctly plotted) ✔   (6)

2.4.2 **Law of supply**
- The higher the price ✔ the higher the supply ✔
- The lower the price ✔ the lower the supply ✔   (Any 1)   (2)

2.4.3 **TWO factors other than price that contributed to supply**
- Environmental conditions/nature ✔
- Availability of technology ✔
- Knowledge on production ✔
- Production costs ✔
- Subsidies/taxation/legislation ✔
- Number of suppliers ✔
- Price expectation/profit margin of the product ✔
- Demand of the product ✔
- Seasonal production ✔
- Political instability ✔
- Possibility of increasing/decreasing the supply of goods ✔
- Stability of the product ✔   (Any 2)   (2)

2.5   **Marketing chain**

2.5.1   **TWO costs increasing the price of a product**
- Production costs ✓
- Packaging costs ✓
- Processing costs
- Storage costs ✓
- Transportation/distribution costs ✓
- Grading costs ✓   (Any 2)   (2)

2.5.2   **Stage at which the agribusiness chain can be improved**
(a)   Storage ✓   (1)
(b)   Farm ✓   (1)

2.5.3   **TWO ways of making the product known to the consumer**
- Advertising/radio/television/billboards/newspapers/internet/ brochures/posters/flyers ✓
- In-store promotion ✓
- Exhibitions/trade fares ✓
- Sponsorship ✓
- Direct mailing ✓
- Marketing agent ✓
- Personal selling ✓   (Any 2)   (2)
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QUESTION 3: PRODUCTION FACTORS

3.1   **Land**

3.1.1   **TWO other economic characteristics of land**
- Is required for production ✓
- Land is fixed/found in a specific environment ✓
- Indestructible ✓
- Land appreciates ✓
- Durability ✓
- Varies in production potential ✓
- Restrictedness ✓
- Passive factor for production/primary production factor ✓
- Source of wealth/can be bought/sold/used as a collateral ✓
- Subjected to the law of diminishing returns ✓   (Any 2)   (2)

3.1.2   **TWO ways in which the productivity of land can be improved**
- Improving water management/supply ✓
- Restore land potential/responsible use of pesticides ✓
- Farm land more efficiently/consolidate uneconomic units ✓
- Crop rotation/intercropping/rotational grazing ✓
- Research ✓
- Use of scientific methods/technology/improve soil fertility/ precision farming ✓   (Any 2)   (2)

3.1.3 **TWO functions associated with land as a production factor**
- Asset (used as collateral in obtaining loans) ✓
- Provides space for agricultural activities ✓
- Provides food/feeding for humans/animals ✓
- Source of raw materials ✓
- Source of minerals ✓   (Any 2)   (2)

3.2 **Labour productivity**

3.2.1 **Identification of the production factor**
Labour ✓   (1)

3.2.2 **Deduction of the relationship**
An increase in the number of workers ✓ resulted to the increase in output ✓   (2)

3.2.3 **TWO labour problems**
- Poor labour management/supervision/late arrival/theft ✓
- Scarcity of labour/lower wages ✓
- Lack of training/skills ✓
- HIV/AIDS/other diseases/absenteeism ✓
- Competition from industries ✓
- Socio-economic problems ✓
- Labour unrest ✓   (Any 2)   (2)

3.2.4 **TWO ways to improve the economic conditions of farm workers**
- Paying higher wages ✓
- Providing incentives for workers ✓
- Paying bonuses ✓
- Providing medical insurance/pension ✓
- Supplying them with farm products at reduced prices ✓
- Entering into partnership deal with workers ✓
- Provide education and training to workers ✓   (Any 2)   (2)

3.3 **Indication of labour legislations**

3.3.1 Basic Conditions of Employment Act/BCEA (Act 75 of 1997) ✓   (1)

3.3.2 Skills Development Act/SDA (Act 97 of 1998) ✓   (1)

3.3.3 Occupational Health and Safety Act/OHSA (Act 85 of 1993) ✓   (1)

3.4   **Assets and liabilities**

    3.4.1   **Identification of**
        (a) **An asset**
- Value of the farm ✓
- Value of vehicles ✓
- Cash ✓
- Value of buildings ✓   (Any 1)   (1)

        (b) **A liability**
- Tractor loan ✓
- Bank overdraft ✓
- Mortgage loan ✓   (Any 1)   (1)

    3.4.2   **Calculation of the net worth of the farm**
Net worth = Assets **–** Liabilities ✓
        = (R650 000+R50 000+R275 000+R3 500 000) **–**
          (R365 000+R150 000+R4 200 000)
        = R4 475 000 ✓ **–** R4 715 000 ✓
        = **–** R240 000 ✓   (4)

    3.4.3   **Indication of the viability of a farming business**
Not viable ✓   (1)

    3.4.4   **Reason**
Net worth is negative/**–**R240 000/no profit/loss/value of assets is less than the value of the liabilities ✓   (1)

3.5   **Capital items**

    3.5.1   **Identification of the type of capital**
        (a)   **C -** Movable capital ✓   (1)
        (b)   **B -** Fixed capital ✓   (1)

    3.5.2   **Indication of the problem of capital in F (tractor)**
Depreciation/loses value/high fuel costs ✓   (1)

    3.5.3   **Types of credit**
        (a)   **D -** Short-term credit ✓   (1)
        (b)   **E -** Long-term credit ✓   (1)

3.6   **Management**

    3.6.1   **Definition of management**
Effective combination and coordination of human, physical and financial resources ✓ to achieve a specific goal, usually maximising profits ✓   (2)

3.6.2 **TWO management principles**
- Planning/setting goals ✓
- Implementation
- Leading/directing ✓
- Organization/coordination ✓
- Decision making ✓
- Communication ✓
- Motivation ✓
- Monitoring ✓
- Control ✓ (Any 2) (2)

3.6.3 **TWO risk management techniques**
- Diversification ✓
- Risk sharing ✓ (2)

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QUESTION 4: BASIC AGRICULTURAL GENETICS

4.1 **Breeding systems**

4.1.1 **(a) Crossing 1 -** Cross breeding ✓ (1)
(b) Crossing 3 - Inbreeding ✓ (1)

4.1.2 **Definition of inbreeding**
The breeding of closely related animals ✓ (1)

4.1.3 **ONE disadvantage of inbreeding**
- Leads to inbreeding depression ✓
- Loss of genetic variation ✓
- Increase the expression of lethal genes ✓
- Undesired genes are made more homozygous ✓
- Undesirable characteristic/deformities can be bred into the progeny ✓
- Leads to reduced vitality ✓
- Less resistance to diseases ✓
- An expensive system ✓ (Any 1) (1)

4.1.4 **TWO advantages of cross breeding**
- Produce hybrid vigour/heterosis ✓
- Development of new breeds ✓
- Increased adaptability ✓
- Increases genetic variation ✓
- More resistant to pests/diseases ✓
- Improves performance of animals ✓ (Any 2) (2)

4.2   **Variation**

      4.2.1   **TWO internal causes of variation**
- Mutation ✔
- Meiosis/crossing-over/recombination of genes ✔
- Random fertilisation ✔   (Any 2)   (2)

      4.2.2   **TWO importance of variation**
- Forms the basis of selection ✔
- Improves existing breeds/cultivars ✔
- Development of new breeds/plant cultivars ✔   (Any 2)   (2)

4.3   **Selection**

      4.3.1   Pedigree selection ✔   (1)

      4.3.2   Family selection ✔   (1)

      4.3.3   Mass selection ✔   (1)

      4.3.4   Progeny selection ✔   (1)

4.4   **Punnett square**

      4.4.1   **The genotype**
            (a) Female parent - HhWW ✔   (1)
            (b) Number 17 - hR ✔   (1)

      4.4.2   **Determination of the phenotype**
            (a) Number 9 - Polled and roan ✔   (1)
            (b) Number 16 - Horned and white ✔   (1)

      4.4.3   **Number of horned roan cattle**
            2 ✔   (1)

      4.4.4   **Number of polled red cattle**
            0 ✔   (1)

4.5   **Sex chromosomes and determination**

      4.5.1   **Sex chromosomes**
            (a) Number of sex chromosomes in goats - 2 ✔   (1)
            (b) Pairs of autosomes in horses - 31 ✔   (1)

      4.5.2   **Sex determination**
            (a) Indication of the percentage chance - 50% ✔   (1)
            (b) Determination of the ratio - 1:1 ✔   (1)

4.6   **Heritability**

    4.6.1   **Definition of heritability**
        The degree to which a characteristic ✓ is determined by genetic
        factors ✓   (2)

    4.6.2   **Identification of characteristics**
        (a)   **Qualitative -** Eye colour ✓   (1)
        (b)   **Quantitative -** Milk production/fleece weight ✓   (1)

    4.6.3   **Indication of the percentage of the environmental effect**
        60% ✓   (1)

    4.6.4   **Explanation of the relationship**
        • The higher the heritability of the trait ✓ the higher the estimated
          breeding value ✓
        • The lower the heritability of a trait ✓ the lower the estimated
          breeding value ✓   (Any 1)   (2)

4.7   **Genetic modification**

    4.7.1   **TWO advantages of genetic modification over traditional breeding
        methods**
        • It is precise ✓
        • It is faster ✓
        • Not limited to organisms of the same species ✓   (Any 2)   (2)

    4.7.2   **TWO negative effects of GM crops on the environment**
        • Leads to development of super weeds ✓
        • Beneficial insects can be killed ✓
        • Leads to the excessive use of herbicides/pollution ✓
        • Reduces biodiversity ✓   (Any 2)   (2)
                                                                                                [35]

                                          TOTAL SECTION B: 105
                                          GRAND TOTAL: 150