



L-Università
ta' Malta

MATSEC
Examinations Board



Specimen Assessments

SEC 35 Agribusiness

2023

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Specimen Assessments

The sample assignment and controlled assessment specimen are only available as guidance for teachers and internal verifiers. Teachers are expected to develop their own assignment briefs and marking schemes including typical expected answers, and attach the relevant front sheets.

Specimen Assignment 1: Managing a field the professional way.

Candidate's Declaration of Authenticity

I, the undersigned, _____ (*Name and Surname*), declare that all the work I shall submit for this assignment will be my own.

I further certify that if I use the ideas, words, or passages from existing sources, I will quote those words or paraphrase them and reference them by making use of a reference system.

I am aware that should I submit work which is not mine, or work which has been copied from one or more sources, I will be penalised as per MATSEC Examinations Board policies related to plagiarism.

Candidate's Signature: _____

I.D. Card No.: _____

Date: _____

General Scenario

- David has decided to start using some fields that his family have been renting for several years to produce plant products.
- He started exploring the basics of commercial crop production before starting off this project.


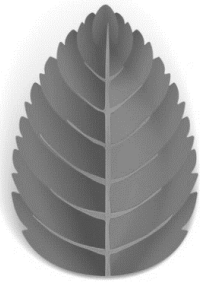


TASK 1

DEADLINE: **DD-MM-YYYY**

Question 1

K-1 (4 marks)

a. Identify the following **FOUR** main plant organs shown in the pictures below:

	Pictures of Plant Organs	Name
i.		<p>_____ (0.25)</p>
ii.		<p>_____ (0.25)</p>
iii.		<p>_____ (0.25)</p>
iv.		<p>_____ (0.25)</p>

Source: <https://www.123rf.com/>

b. Label the organs shown in the Figure 1 below.

(1)

Organs				
Stem	Flower bud	Fruit	Apical bud	Root







Figure 1: Plants' roots and shoot systems
Source: <http://powo.science.kew.org>

c. Label the specialised versions of plant organs by filling Table 1 below.

(2)





Table 1 - Specialised versions of plant organs

	Figures of Plant Organs	Name
i.	 <p>Source: https://www.greatbigcanvas.com</p>	<hr/>
ii.	 <p>Source: https://www.kisspng.com</p>	<hr/>
iii.	 <p>Source: https://harvesttotable.com</p>	<hr/>
iv.	 <p>Source: http://www.pngmart.com</p>	<hr/>

Question 2

K-5 (4 marks)

a. Identify the following **FOUR** main crop types.

Picture of Crop Types		Name
i.		_____ (0.25) _____
ii.		_____ (0.25) _____
iii.		_____ (0.25) _____
iv.		_____ (0.25) _____

Source: <https://www.123rf.com/>

b. Outline the following crop-production types:

i. Outdoor soil-based (geoponic) crop production.

(0.2)

ii. Greenhouse soil-based (geoponic) production.

(0.2)

iii. Hydroponic crop production.

(0.2)

iv. Aquaponic crop production.

(0.2)

v. Organic crop production.

(0.2)

c. Describe **FOUR** production requirements of tomatoes, utilising any suitable production type.

Question 1**A-1 (10 marks)****Background Information**

- You are being asked to help in the cultivation of cabbage in a given field area of your school.
 - The task should be completed through the following **THREE** steps.
- a. Calculate the number of cabbage seedlings needed for your field area. All working is to be presented using the template provided on the next page. (3)
- b. Set-up the irrigation system of this field area, using drip tape by:
- i. properly attaching tape to ball valves in the correct orientation;
 - ii. neatly laying the tape to cover the whole area;
 - iii. correctly sealing the end of the drip tape. (3)
- c. Sow the number of cabbage seedlings needed for this specific land area according to your calculations in part (a). (4)

SUBMISSION FORMATQuestion 1a: **To be completed on the 'Cultivation Plan Template'**Question 1b: **Practical Task**Question 1c: **Practical Task**

Scenario

- Fresh-pack Ltd is a new local business which processes seasonal crops to make packed lunches.
- They need to employ recruits knowledgeable in agribusiness to compile some paper work for this purpose.
- They also need more farmers to supply the produce and meet their standards.

Question 1

C-3 (6 marks)

- a. A selected brand of broad beans was planted in one of the fields. The following information is available:
- Date of sowing: 21/11/2020;
 - The harvest time on the packet states '120 days';
 - Winter has been warmer than usual and there was plenty of rainfall throughout the season.

Choose the expected harvest date by circling it, and justify your answer.

06/03/2021	21/03/2021	05/04/2021
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Justification:

_____ (2)

- b. Justify **TWO** appropriate sales agreements, from the box below, to be established with the customers in the given scenarios.

Online	Contractual	By Order	Retail
--------	-------------	----------	--------

- i. Scenario 1: A farmer that sells his own produce at the farmers' market.

_____ (1)

- ii. Scenario 2: A speciality restaurant that changes the menu very frequently.

_____ (1)

Question 2

C-2 (6 marks)

Health and Safety is very important to Fresh-pack Ltd.

a. Outline the following preventive measures required for maintaining a safe work environment.

i. Availability of personal protective equipment.

(0.5)

ii. Training in Health and Safety on the workplace.

(0.5)

iii. Performance of a risk assessment.

(0.5)

iv. Minimisation of hazards to the minimum.

(0.5)

b. Describe the use of the following items found in a First Aid box.

i. Sterile adhesive dressings.

(0.2)

ii. Triangular bandages.

(0.2)

iii. Safety pins.

(0.2)

iv. Sterile un-medicated dressings.

(0.2)

v. Sterile eye wash.

(0.2)

vi. Surgical gloves.

(0.2)

vii. Roller bandages.

(0.2)

viii. Personal protection shield for artificial breathing.

(0.2)

ix. Gauze pads.

(0.2)

x. Scissors.

(0.2)

Specimen Assignment 1 Marking Scheme

Criteria Reference	The candidate should be able to:	Task and Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
K-1		Task 1	4		
	MQF 1: Identify main organs of a typical flowering plant.	1a	1	Award 0.25 marks for each correct answer. (0.25 x 4 = 1)	Students are expected to identify the FOUR main organs of a typical flowering plant given.
	MQF 2: Label different organs of crop/ornamental plants' roots and shoot systems.	1b	1	Award 0.2 marks for each correctly labelled organ. (0.2 x 5 = 1)	Students are expected to label FIVE organs of the given crop/ornamental plants' roots and shoot systems.
	MQF 3: Label different specialised versions of different crop/ornamental plants' organs.	1c	2	Award 0.5 marks for each correctly labelled specialised organ. (0.5 x 4 = 2)	Students are expected to label the FOUR given different versions of different crop/ornamental plants' organs.
K-5		Task 1	4		
	MQF 1: Identify different crop types.	2a	1	Award 0.25 marks for each crop type identified. (0.25 x 4 = 1)	Students are expected to identify FOUR different crop types.
	MQF 2: Outline different crop production types.	2b	1	Award 0.2 marks for each correct outline (0.2 x 5 = 1)	Students are expected to outline the FIVE given crop production types.
	MQF 3: Describe the production requirements of one named crop.	2c	2	Award 0.5 marks for every requirement correctly described. (0.5 x 4 = 2)	Students are expected to describe the FOUR production requirements of tomatoes, using a specific production type

Criteria Reference	The candidate should be able to:	Task and Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
		Task 2	10		
A-1	MQF 1: Follow instructions to set up a drip irrigation system for a specific land area.	1b	3	As per Observation Sheet.	Refer to Observation Sheet.
	MQF 2: Calculate the number of seeds/plants of a single crop needed for a specific land area.	1a	3	Award: 1 mark for the calculation of the area showing all working; 1 mark for calculating suitable spacing; 1 mark for calculating the correct number of seedlings. (1 x 3 = 3)	Students are expected to calculate: <ul style="list-style-type: none"> the field area showing working; both inter-row spacing and intra-row spacing for the given crop; correct number of seedlings per row as per spacing and total number of seedlings for whole field.
	MQF 3: Sow/transplant the number of a plant/seeds needed for a specific land area according to your calculations.	1c	4	As per Observation Sheet.	Refer to Observation Sheet.
		Task 3	6		
C-3	MQF 1: Justify a harvest date deviation of a given crop.	1a	2	Award 2 marks for a correct justification. (2 x 1 = 2)	Students are expected to choose the expected harvest date and to justify their choice based on the information provided. N.B. Marks should only be awarded if the date and/or the justification are both inter-related and valid.

Criteria Reference	The candidate should be able to:	Task and Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
	MQF 2: Justify the appropriate sales agreement/s to be established with given customers.	1b	2	Award 1 mark for each justification. (1 x 2 = 2)	Students are expected to select a suitable sales agreement for each of the TWO scenarios and give a coherent justification for each. N.B. Marks linked to each particular scenario should only be awarded if a correct sales agreement is selected.
	MQF 3: Justify a crop production strategy for a given scenario.	1c	2	Award 1 mark for each justification. (1 x 2 = 2)	Students are expected to justify the crop strategy based on any TWO aspects from the ones provided, in line with the scenario. N.B. Marks should only be awarded if justifications are coherent with the scenario.
		Task 3	6		
C-2	MQF 1: Outline preventive measures required for maintaining a safe work environment in a crop production enterprise.	2a	2	Award 0.5 marks for each preventive measure outlined. (0.5 x 4 = 2)	Students are expected to outline the given FOUR preventive measures.
	MQF 2: Describe the use of different items that should be present in a First Aid box according to legislation.	2b	2	Award 0.2 marks for each correct use described. (0.2 x 10 = 2)	Students are expected to describe the use of the TEN given First Aid box items.
	MQF 3: Explain ways of dealing with particular injuries.	2c	2	Award 0.25 marks for each correct explanation. (0.25 x 8 = 2)	Students are expected to explain TWO ways how each of the given FOUR type of injuries should be dealt with.

OBSERVATION SHEET 1

NOT TO BE DISTRIBUTED TO STUDENTS

School:	NN	Cohort:	2020-2023
Subject:	Agribusiness	Level:	SEC
Unit:	1 – Plant and Soil Science	Assignment:	1 of 3
Student's Name/ID:			
Teacher's Name:			
Task & Question:	Task 2 – Questions 1b, 1c	Criterion:	A-1

Activity requirements to meet grading criterion:

A-1	MQF 1	Follow instructions to set up a drip irrigation system for a specific land area.	3 Marks
		Comments	Mark
		Attaching drip tape in the correct orientation:	
		<ul style="list-style-type: none"> • Tape is fixed to ball valve nozzle and locked. <input type="checkbox"/> • Tape perforations are facing upwards. <input type="checkbox"/> 	1
		Laying of drip tape:	
		<ul style="list-style-type: none"> • All ball valves along main line are fitted with drip tape. <input type="checkbox"/> • All drip tapes are cut to suitable length. <input type="checkbox"/> 	1
		Sealing off the drip tape:	
		<ul style="list-style-type: none"> • End of drip tape is folded suitably. <input type="checkbox"/> • Fold is kept by sleeve. <input type="checkbox"/> 	1
Student's accumulated mark for A-1 [MQF1]:			

A-1	MQF 3	Sow/transplant the number of a plant/seeds needed for a specific land area according to your calculations.	4 Marks
		Comments	Mark
		Sowed at a good depth.	
		<input type="checkbox"/>	1
		Sowing using specified spacing.	
		<input type="checkbox"/>	1
		Area of planting/seeding is closed with soil.	
		<input type="checkbox"/>	1
		Whole seeded/planted area is irrigated on completion of task.	
		<input type="checkbox"/>	1
Student's accumulated mark for A-1 [MQF3]:			

TOTAL MARK FOR A-1 MQF1 AND MQF 3 (OUT OF 7 MARKS):

Assessor's Signature:		Date:	
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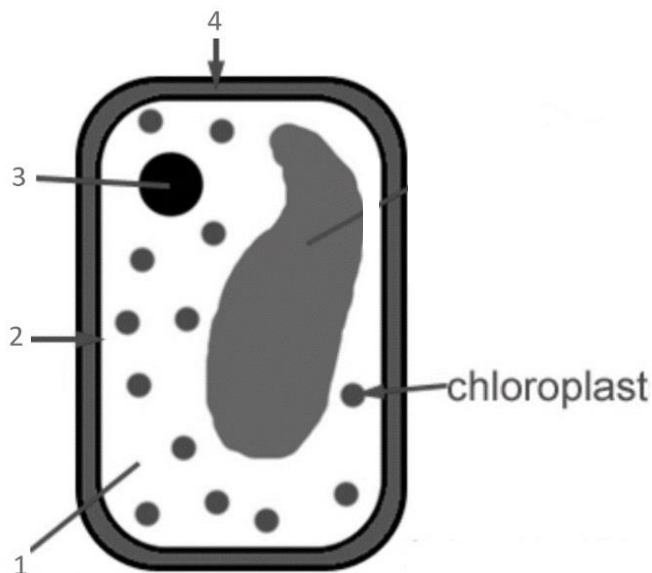
SUBJECT: **Agribusiness**
 PAPER NUMBER: Specimen Controlled – Unit 1
 DATE: XXth May 2021
 TIME: 10:00 a.m. to 11:35 a.m.

Answer **ALL** questions in the space provided.

Question 1

K-2 (4 marks)

a. Label the different plant cell components.



Source: <https://www.pinterest.com>

Name of Component	
1.	(0.25)
2.	(0.25)
3.	(0.25)
4.	(0.25)

(2)




Question 2

K-3 (4 marks)

Plants go through different life stages, as can be shown in the pictures of an almond tree in the table below.

- a. Name each stage in the life cycle of this plant. (1)
- b. Organise the stages of the life cycle by assigning a number next to each stage (1 being the first, 5 being the last). (1)
- c. Outline each stage in the life cycle of this plant. (2)

An example has been provided for you.




		a. Stage Name	b. Order	c. Outline of Stage
E.g.	 Source: https://kawikahuliwood.com	Seed dispersal	5	Seeds are dispersed from plant for propagation of new plants.
i.	 Source: https://en.wikipedia.org	_____	_____	_____ _____ _____ _____
ii.	 Source: https://en.wikipedia.org	_____	_____	_____ _____ _____ _____

iii.	 <p>Source: http://www.almonds.com</p>	_____	_____	<hr/> <hr/> <hr/> <hr/>
iv.	 <p>Source: https://www.pinterest.com</p>	_____	_____	<hr/> <hr/> <hr/> <hr/>

Question 3

C-1 (6 marks)

a. Classify the following leaves into monocotyledons and dicotyledons by ticking [✓] the corresponding boxes below: (2)

		Monocotyledon	Dicotyledon
i.	 <p>Source: http://nwdistrict.ifas.ufl.edu</p>	<input type="checkbox"/>	<input type="checkbox"/>
ii.	 <p>Source: https://www.pinterest.com</p>	<input type="checkbox"/>	<input type="checkbox"/>
iii.	 <p>Source: https://www.shutterstock.com</p>	<input type="checkbox"/>	<input type="checkbox"/>

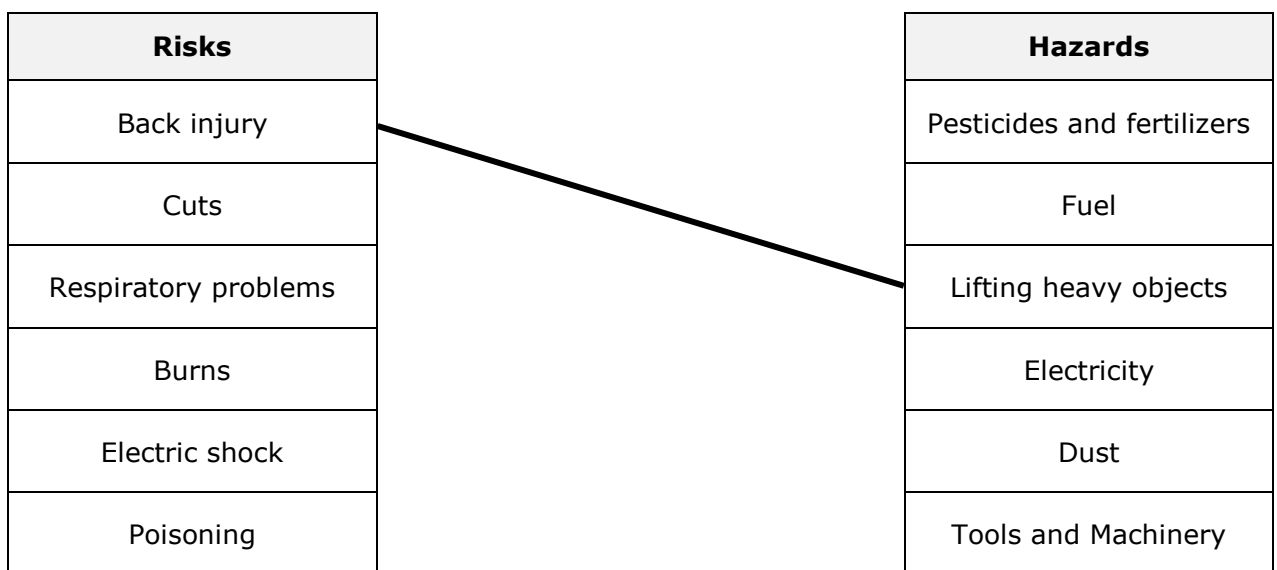
(2)

Question 4

K-4 (4 marks)

Martin, a local viticulturist (grape farmer), would like some help in the management of his agricultural premises' Health and Safety.

- a. Match different types of risks with their respective hazards, by drawing a line as shown in the example provided.



(1)

- b. There may be cases when an accident happens and an ambulance is required on site.

List **FOUR** pieces of information needed when calling for help in an emergency:

Information 1: _____ (0.25)

Information 2: _____ (0.25)

Information 3: _____ (0.25)

Information 4: _____ (0.25)

c. Relate the following deficiency symptoms with the missing nutrient/s causing them:

Deficiency Symptom	Missing Nutrient/s
Necrotic spots on new leaves	(0.4)
Total leaf chlorosis of older leaves	(0.4)
Interveinal chlorosis of new leaves	(0.4)
Deformed/stunted new leaves	(0.4)
Leaf purpling	(0.4)

Question 7

K-9 (4 marks)

Soil and water testing should be carried out from time to time for the healthy growth of Martin’s grapevines. This also helps in producing grapes that meet the required standards.

a. List **TWO** tools required to take soil samples.

Tool 1: _____ (0.5)

Tool 2: _____ (0.5)

b. List **TWO** commonly measured parameters in soil and water analysis.

Parameter 1: _____ (0.5)

Parameter 2: _____ (0.5)

c. Soil and water analysis can determine factors such as the suitability of irrigation water.

Outline **TWO** other reasons as to why the measurement of soil and water parameters is important for crop production.

Question 9

C-5 (6 marks)

a. Soil is made up of both biotic and abiotic material. Distinguish between biotic and abiotic soil factors.

(2)

b. Explain how the following activities increase soil fertility.

Mulching: _____

(0.5)

Tilling: _____

(0.5)

Fertilisation: _____

(0.5)

Addition of manure: _____

(0.5)

c. Describe how pests and pH affect plant growth.

Specimen Controlled Assessment Marking Scheme

Criteria Reference	The candidate should be able to:	Section & Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
K-2		Q1	4		
	MQF 1: Label the different plant cell components.	1a	1	Award 0.25 marks for each correctly labelled cell component. (0.25 x 4 = 1)	Students are to label the FOUR given plant cell components.
	MQF 2: Identify the different transport systems in monocots and dicots.	1b	1	Award 0.25 marks for each transport system identified. (0.25 x 4 = 1)	Students are to identify the FOUR transport systems in the monocot and dicot diagrams provided.
	MQF 3: Describe the functions of the transport system and plant cell components.	1c	2	Award 0.5 marks for each correctly described function. (0.5 x 4 = 2)	Students are to describe the function of the TWO transport systems identified in Question 1b and any TWO plant cell components labelled in Question 1a.
K-3		Q2	4		
	MQF 1: Name the stages of the life cycle of a named crop species.	2a	1	Award 0.25 marks for each correct life stage. (0.25 x 4 = 1)	Students should name the FOUR missing life stages.
	MQF 2: Organise the stages of the life cycle of a named crop species.	2b	1	Award 0.25 marks for each correct stage order. (0.25 x 4 = 1)	Students should organise the FOUR missing life stages in correct order.
	MQF 3: Outline the stages of the life cycle of a named crop species.	2c	2	Award 0.5 marks for each correct outline. (0.5 x 4 = 2)	Students are to outline the FOUR missing stages of the life cycle.

Criteria Reference	The candidate should be able to:	Section & Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
C-1		Q3	6		
	MQF 1: Classify leaves into monocotyledons and dicotyledons.	3a	2	Award 0.5 marks for each correct classification. (0.5 x 4 = 2)	Students should classify the FOUR given leaves.
	MQF 2: Explain whether plants are monocotyledon or dicotyledon based on the results of microscopy.	3b	2	Award 1 mark for each explanation of the correct classification of plant based on the microscopy result. (1 x 2 = 2)	Students should be able to classify each plant according to the microscopy result and explain why.
	MQF 3: Differentiate between the morphologies of monocotyledon and dicotyledon crops/ornamental plants.	3c	2	Award 1 mark for each correct differentiation. (1 x 2 = 2)	Candidates are to differentiate between monocots and dicots by comparing the TWO given morphologies.
K-4		Q4	4		
	MQF 1: Match different types of risks with hazards in a crop production enterprise.	4a	1	Award 0.2 marks for each correct match. (0.2 x 5 = 1)	Students are to match FIVE risks with its respective hazard.
	MQF 2: List the information needed when calling for help in an emergency.	4b	1	Award 0.25 marks for each correct entry. (0.25 x 4 = 1)	Students are to list FOUR pieces of information needed when calling for help in an emergency.

Criteria Reference	The candidate should be able to:	Section & Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
	MQF 3: State reasons for maintaining Health and Safety measures in crop production enterprise.	4c	2	Award 1 mark for each correct reason stated. (1 x 2 = 2)	Students are to state TWO reasons why it is important to maintain Health and Safety measures.
K-6		Q5	4		
	MQF 1: Define the term market in relation to agribusiness.	5a	1	Award 1 mark for the correct definition.	Students are to give the correct definition of the term market.
	MQF 2: Define the terms demand and supply in relation to agribusiness.	5b	1	Award 0.5 marks for each correct definition. (0.5 x 2 = 1)	Students are expected to give the correct definition of the terms demand and supply in relation to agribusiness.
	MQF 3: Describe the role of different market actors.	5c	2	Award 0.5 marks for each correct description. (0.5 x 4 = 2)	Students are to describe the role of the FOUR given market actors.
K-7		Q6	4		
	MQF 1: Define plant macronutrients and micronutrients.	6a	1	Award 0.5 marks for each correct definition. (0.5 x 2 = 1)	Students are to give a definition of the TWO terms.
	MQF 2: Select the appropriate macronutrient/s for specific crop requirements.	6b	1	Award 0.25 marks for correct match. (0.25 x 4 = 1)	Students are to select the appropriate macronutrient for each of the FOUR given crop requirements.

Criteria Reference	The candidate should be able to:	Section & Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
	MQF 3: Relate different deficiency symptoms to the missing nutrient/s causing them.	6c	2	Award 0.4 marks for each correct match. (0.4 x 5 = 2)	Students are relate the FIVE given deficiency symptoms to the missing nutrient/s causing them.
K-9		Q7	4		
	MQF 1: List the tools required to take soil samples.	7a	1	Award 0.5 marks for each correct tool listed. (0.5 x 2 = 1)	Students are to list TWO tools required for taking soil samples.
	MQF 2: List the most commonly measured parameters in soil and water analysis.	7b	1	Award 0.5 marks for each correct parameter listed. (0.5 x 2 = 1)	Students are to list TWO parameters.
	MQF 3: Outline the importance of measuring soil and water parameters.	7c	2	Award 1 mark for each correct reason outlined. (1 x 2 = 2)	Students are expected to outline TWO reasons on the importance of measuring soil and water parameters for crop production.
K-10		Q8	4		
	MQF 1: Define soil fertility.	8a	1	Award 1 mark for the correct definition.	Students should define the term soil fertility.
	MQF 2: Outline different Maltese soil types.	8b	1	Award 0.5 marks for the correct outline of each soil type. (0.5 x 2 = 1)	Students are to describe the TWO given Maltese soil types.

Criteria Reference	The candidate should be able to:	Section & Question Number	Maximum marks that can be achieved	Allocation of marks	What is expected in the answer/s
	MQF 3: Relate soil texture to water and nutrient availability.	8c	2	Award 1 mark for correct reference to water retention and porosity and 1 mark for correct reference to nutrient availability.	Students are to choose ONE soil described in part (b) and relate its texture to water and nutrient availability.
		Q9	6		
C-5	MQF 1: Distinguish between biotic and abiotic soil factors.	9a	2	Award 1 mark for reference to living things and 1 mark to non-living things.	Students should distinguish the main different characteristic between biotic and abiotic soil factors.
	MQF 2: Explain activities which can improve soil fertility.	9b	2	Award 0.5 marks for every correct explanation of how each activity can improve soil fertility. (0.5 x 4 = 2)	Students are expected to explain how the FOUR given activities can improve soil fertility.
	MQF 3: Describe how biotic and abiotic soil factors can affect plant growth.	9c	2	Award 1 mark for each correct description. (1 x 2 = 2)	Students are to describe how the given biotic and abiotic factor affect plant growth.