



**L-Università  
ta' Malta**

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE  
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL  
2024 MAIN SESSION**

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SUBJECT:	<b>Agribusiness</b>
PAPER NUMBER:	Controlled – Unit 1
DATE:	18 <sup>th</sup> May 2022
TIME:	10:00 a.m. to 11:35 a.m.

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**THIS PAPER SHOULD BE RETURNED TO THE INVIGILATOR  
AFTER THE EXAMINATION.**

**Name of candidate** \_\_\_\_\_

**I.D. number** \_\_\_\_\_

**School** \_\_\_\_\_

**Class** \_\_\_\_\_

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

**Scenario**

An agribusiness enterprise is engaging interns. To start an internship, one should be able to answer some questions about these topics:

- the biology of crops from sowing/planting to harvest;
- the requirements of crops throughout their growing period;
- the marketing of crops.

**Question 1**

**K-2 (4 marks)**

a. Label the different plant cell components in Figure 1 below.

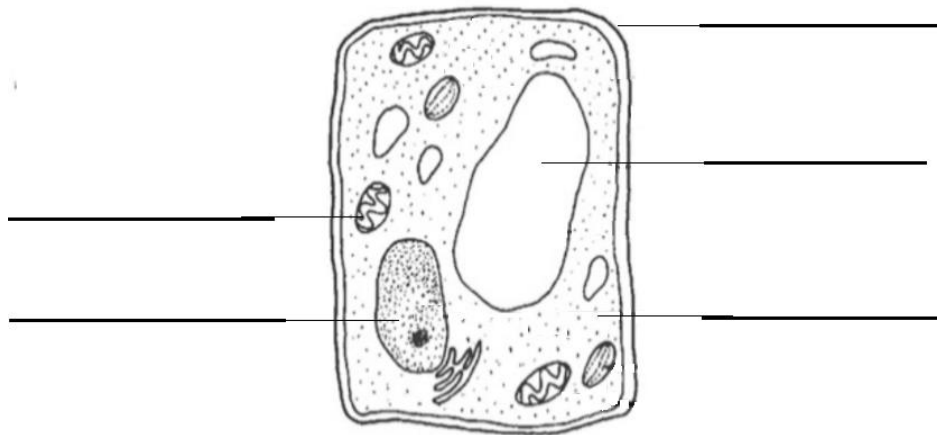


Figure 1: A typical plant cell  
(Source: <https://quizlet.com>)

(1)

b. Identify the xylem and phloem in the monocot and dicot stems in Figure 2.

**Monocot stem**

**Dicot stem**

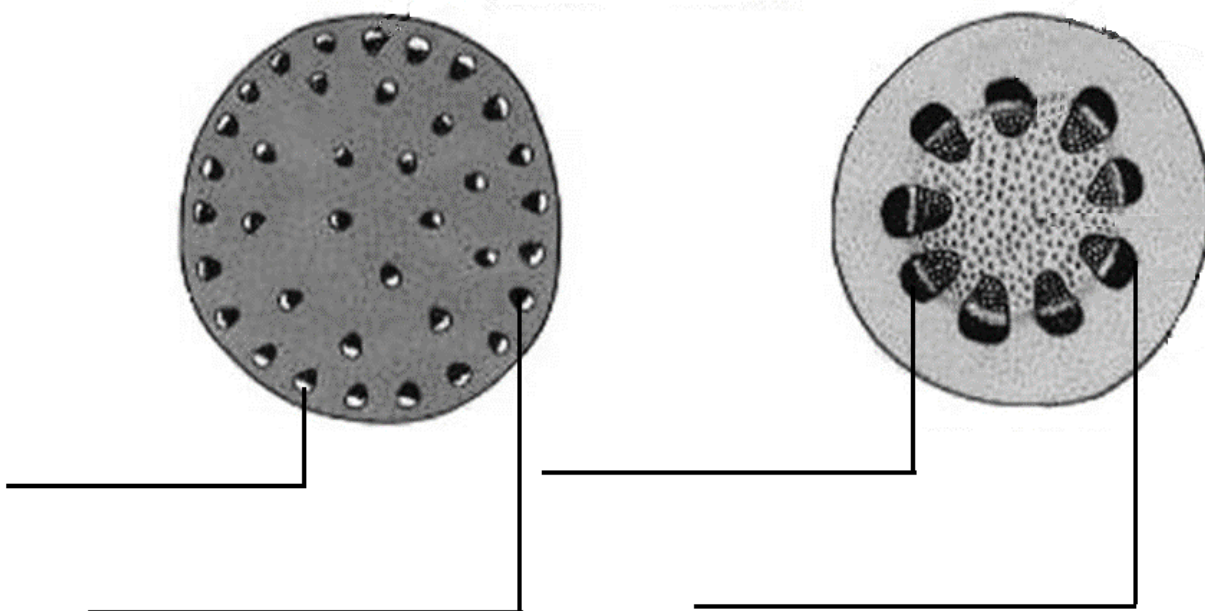


Figure 2: Cross-sections for typical dicot and monocot stems  
(Source: <https://slideplayer.com/slide/6340123/>)

(1)

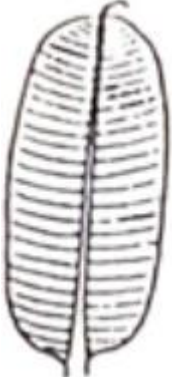





**Question 2**

**C-1 (6 marks)**

a. Classify the following leaves as monocotyledons or dicotyledons in Table 1 by ticking  the correct check-box for each.

Table 1: Typical leaves of monocotyledons and dicotyledons

Leaf	Monocotyledons	Dicotyledons
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

(0.5)

(0.5)

(0.5)

(0.5)

(Source: <https://thepharmacognosy.com>)

b. Using Figure 3 explain which of the cross-section images belong to a monocotyledon and a dicotyledon. Your answer should include direct reference to vascular bundles.

i.



ii.

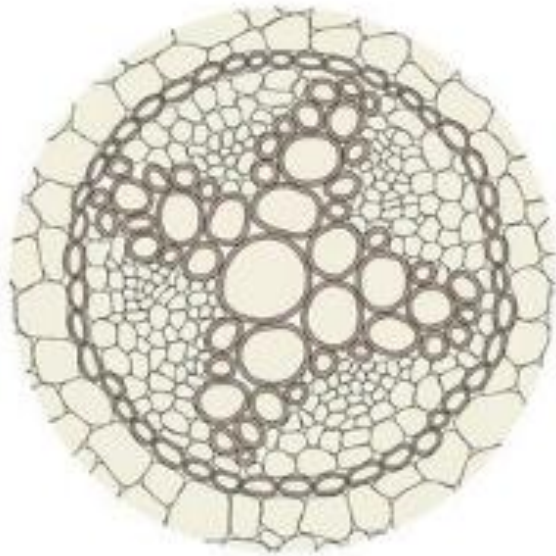


Figure 3: Microscopic structures from different monocotyledons and dicotyledons  
(Source: [www.alamy.com](http://www.alamy.com))

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(2)

c. Differentiate between:

i. The external structure of the leaf system of monocotyledons (e.g. corn) and dicotyledons (e.g. bean):

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(1)

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ii. The internal seed structure of monocotyledons (e.g. corn) and dicotyledons (e.g. bean):

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(1)

**Question 3**

**K-3 (4 marks)**

The tomato is a popular crop with Maltese farmers. It is either seedlings in the open field between March and June or else in greenhouses between September and October.

a. Name the life cycle stages of a tomato.

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(0.2)

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(0.2)

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(0.2)

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(0.2)

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(0.2)

b. Organise the stages of the life cycle of a tomato by numbering the pictures in Figure 4 below. 1 represents the first stage and 5 represents the last.



\_\_\_\_\_ (0.2)



\_\_\_\_\_ (0.2)



\_\_\_\_\_ (0.2)



\_\_\_\_\_ (0.2)



\_\_\_\_\_ (0.2)

Figure 4: Stages of the life cycle of a tomato  
(Sources: <https://www.dreamstime.com>)









**Question 6**

**K-7 (4 marks)**

a. Define the following terms:

i. plant micronutrients

\_\_\_\_\_ (0.5)

ii. plant macronutrients

\_\_\_\_\_ (0.5)

b. Select **ONE** appropriate macronutrient from the list below for the following crop requirements. Each macronutrient can be used more than once.

sulfur	phosphorus	nitrogen	magnesium	potassium	calcium
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i. Fruit turgidity: \_\_\_\_\_ (0.25)

ii. Healthy rooting: \_\_\_\_\_ (0.25)

iii. Leaf growth: \_\_\_\_\_ (0.25)

iv. Healthy fruiting: \_\_\_\_\_ (0.25)

c. Relate the following deficiency symptoms to **ONE** typical missing nutrient causing them:

i. Necrotic spots on new leaves: \_\_\_\_\_ (0.25)

ii. Leaf margin necrosis: \_\_\_\_\_ (0.25)

iii. Leaf purpling: \_\_\_\_\_ (0.25)

iv. Interveinal chlorosis of older leaves: \_\_\_\_\_ (0.25)

v. Total chlorosis on new leaves: \_\_\_\_\_ (0.25)





**Question 9**

**C-5 (6 marks)**

a. Distinguish between biotic and abiotic soil factors.

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(2)

b. Explain how the following **FOUR** activities can improve soil fertility.

mulching: \_\_\_\_\_  
\_\_\_\_\_ (0.5)

tilling: \_\_\_\_\_  
\_\_\_\_\_ (0.5)

fertilisation: \_\_\_\_\_  
\_\_\_\_\_ (0.5)

addition of manure: \_\_\_\_\_  
\_\_\_\_\_ (0.5)

c. Describe how earthworms and organic matter affect plant growth.

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