

### MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

### SECONDARY EDUCATION CERTIFICATE LEVEL 2025 MAIN SESSION

SUBJECT:	Agribusiness
PAPER NUMBER:	Controlled – Unit 1
DATE:	15 <sup>th</sup> May 2023
TIME:	10:00 a.m. to 11:35 a.m.

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

Name of candidate	
I.D. number	
School	
Class	
Ciass	

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

#### **Scenario**

- Melix is an agribusiness enterprise is looking for interns.
- The interns need to be proficient in these topics:
  - the science of crops plants till harvest;
  - crop requirements throughout their growing stages;
  - marketing of agribusiness produce.

Question 1 K-2 (4 marks)

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

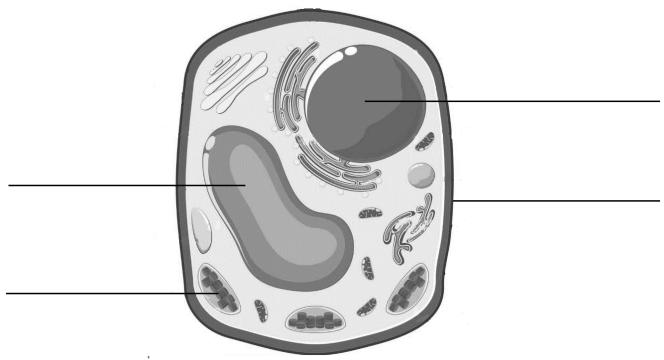


Figure 1: A typical plant cell (1) (Source: https://alamy.com)

b. Identify the xylem and phloem in the monocot and dicot stems in Figures 2 and 3.

#### Dicot Stem:

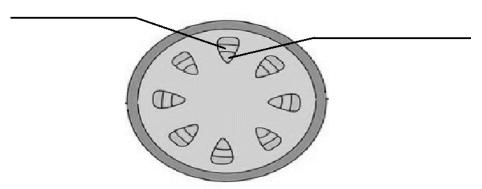


Figure 2: Cross-section for a typical dicot stem (0.5) (Source: https://www.thesciencehive.co.uk/xylem-and-phloem-a-level)

#### Monocot Stem:

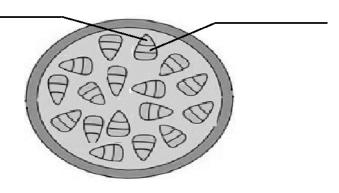


Figure 3: Cross-section for a typical monocot stem (Source: https:// https://www.thesciencehive.co.uk/xylem-and-phloem-a-level)

(0.5)

Descri	be the function of:	
i. Cell	l Wall:	
		(0.5
		(0.5
ii. Mito	ochondria:	
		(0.5
III. The	e xylem as a transport system:	
		(0.5)
iv The	e phloem as a transport system:	
iv. iiie	e princerii as a transport system.	
		(0.5)

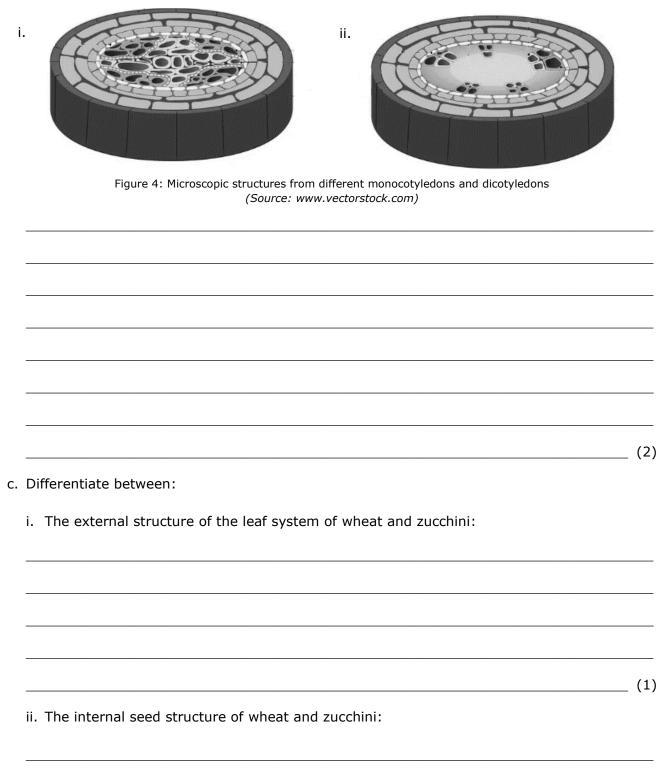
Question 2 C-1 (6 marks)

Table 1: Typical leaves of monocotyledons and dicotyledons

	Table 1: Typical leaves of mono  Leaf	Monocotyledon	Dicotyledon		
(a)					
(b)					
(c)					
(d)					

(Source: https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.15371)

b. Refer to Figure 4 to explain whether the following cross-section images belong to a monocotyledon or a dicotyledon. Your answer should include direct reference to vascular bundles.



Question 3 K-3 (4 marks)

a. Name the life cycle stages of a pea plant.

Life stage 1:	_ (0.2)
Life stage 2:	_ (0.2)
Life stage 3:	_ (0.2)
Life stage 4:	_ (0.2)
Life stage 5:	_ (0.2)

b. Organise the stages of the life cycle of a pea plant by assigning a number next to the pictures in Table 2 below. (1 represents the first stage and 5 represents the last.)

Table 2: Pea life stages

Image of life stage	Order in life stage (1-5)
(Source: https://www.thespruce.com)	(0.2)
(Source: https://www.bobvila.com)	(0.2)
(Source: https://www. https://gobotany.nativeplanttrust.org/)	(0.2)

	(0.2)
(Source: https://www.daviddarling.info)	
(Source: https://www.legumehub.eu/)	
(Source: https://www.legumenub.eu/)	(0.2)

c.	Outline the <b>FIVE</b> stages in the life cycle of a pea plant.	
		17

Please turn the page.

Question 4 K-4 (4 marks)

Personnel working within an agribusiness enterprise should be aware of potential hazards and possible risks.

a. Match different types of risks with hazards in a crop production enterprise, by drawing a line between them.

	Hazard
i.	Fuel
ii.	Heavy objects
iii.	Electricity
iv.	Direct sunlight
v.	Not wearing the appropriate PPEs

Risk	
Burns	
Heat stroke	
Back injury	
Eye irritation	
Electric Shock	
	(1

b. List **FOUR** pieces of information needed when calling for help in case of an emergency.

Information 1:	(0.25)
Information 2:	(0.25)
Information 3:	(0.25)
Information 4:	(0.25)

c.	State	TWO	reasons	for	maintaining	a sa	fe work	enviro	nment i	n a cr	ор	production	enterprise.

\_\_\_\_\_(2)

Question 5	K-6 (4 marks
Question 5	K-6 (4 mai

	erms like market, demand and supply are commonly used when profes gribusiness enterprise.	ssionally managing an			
a.	Define the term 'market' in relation to agribusiness.				
		(1)			
b.	Define the terms 'demand' and 'supply' in relation to agribusiness.				
	Demand:				
		(0.5)			
	Supply:				
		(0.5)			
c.	Describe the role of the following actors in agribusiness.				
	Agribusiness entrepreneur Pr	roducer			

	(2)
Overtion 6	<b>\</b>
Question 6 K-7 (4 mark	(S)
a. Define the following terms:	
i. plant macronutrients	
(0	.5)
ii. plant micronutrients	
(0	.5)
b. Select by underlining <b>ONE</b> appropriate nutrient in brackets for each of the following or requirements.	rop
i. Healthy flowering and fruiting: (Nitrogen / Sulfur / Potassium) (0.2	25)
ii. Leaf growth: (Nitrogen / Calcium / Phosphorus) (0.2	25)
iii. Healthy rooting: (Sulfur / Phosphorus / Calcium) (0.2	25)
iv. Fruit turgidity: (Nitrogen / Calcium / Phosphorus) (0.2	25)
c. Relate the following deficiency symptoms to <b>ONE</b> typical missing nutrient causing them:	
i. Necrosis on shoot tips: (0	.4)
ii. Deformed/stunted new leaves: (0	.4)
iii. Leaf margin necrosis: (0	.4)
iv. Interveinal chlorosis of new leaves: (0	.4)

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(0.4)

v. Total chlorosis on new leaves:

Question 7	K-9 (4 marks)
Soil sampling is part of good practice to get to know the health of a soil.	
a. List <b>TWO</b> tools required to take soil samples.	
Tool 1:	(0.5)
Tool 2:	(0.5)
b. List <b>FOUR</b> of the most commonly measured parameters in soil and water anal	ysis.
Parameter 1:	(0.25)
Parameter 2:	(0.25)
Parameter 3:	(0.25)
Parameter 4:	(0.25)
	(2)

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Question 8		K-10 (4 marks)			
Tŀ	This question is about soils and soil fertility.				
а.	Define soil fertility.				
		(1)			
b.	Outline the following Maltese soil types:				
	Calcisols:				
		(0.5)			
	Leptosols:				
		(0.5)			
c.	Relate the texture of a Leptosol soil to water and nutrient availability.				
		(2)			

Question 9

Distinguish between biotic and abiotic soil factors.	
	(
Explain how the following <b>TWO</b> activities can improve soil fertility.	
Crop rotation:	
	(1)
Mulching:	
	(1,
Describe how <b>ONE</b> biotic and <b>ONE</b> abiotic factor affect plant growth.	

C-5 (6 marks)

		(2

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