



L-Università
ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2022 SUPPLEMENTARY SESSION**

SUBJECT: **Agribusiness**
PAPER NUMBER: Synoptic – Unit 1
DATE: 31st October 2022
TIME: 2:30 p.m. to 4:35 p.m.

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

For examiners' use only:

Question	1	2	3	4	5	6	7	8	Total
Score									
Maximum	6	8	8	12	8	8	8	12	70

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

Scenario

- Paul works at the warehouse of an agricultural importer.
- He is also involved in stock management.
- Although he is not directly involved with customers, he trains sales persons to offer advice to the public visiting the nursery.

Question 1

K-1 (6 marks)

a. Figure 1 shows a plant. Identify the main organs of this plant.

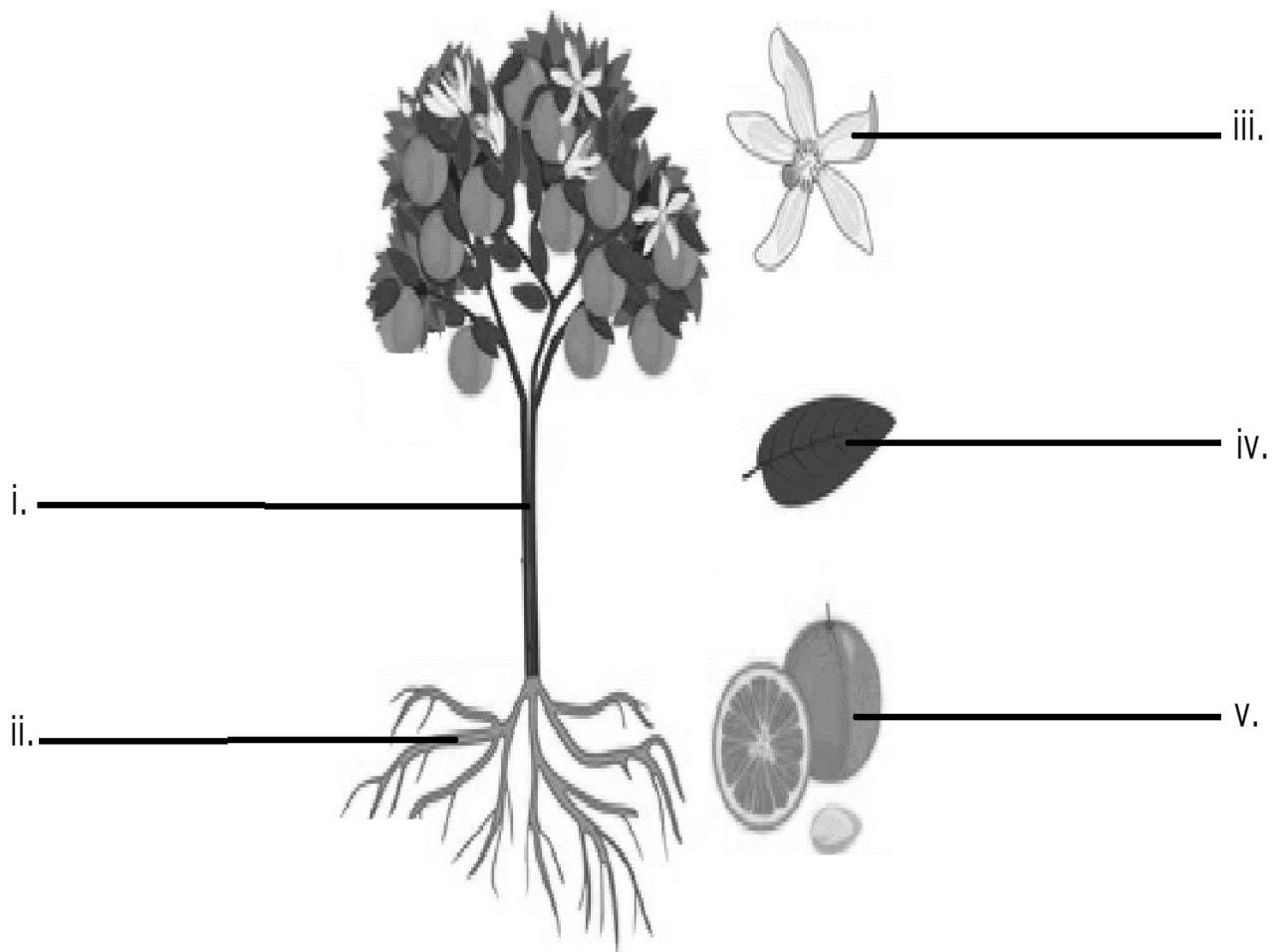


Figure 1: A plant
(Source: <https://shutterstock.com>)

b. Label the different organs of the tomato plant in Figure 2. Use the words in the following box.

flower	root	leaf	fruit	stem
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Figure 2: A tomato plant

(Source: [https:// https://www.homestratosphere.com/](https://www.homestratosphere.com/))

(2)

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c. Label the **FOUR** different specialised versions of different crop/ornamental plants' organs in Figure 3.

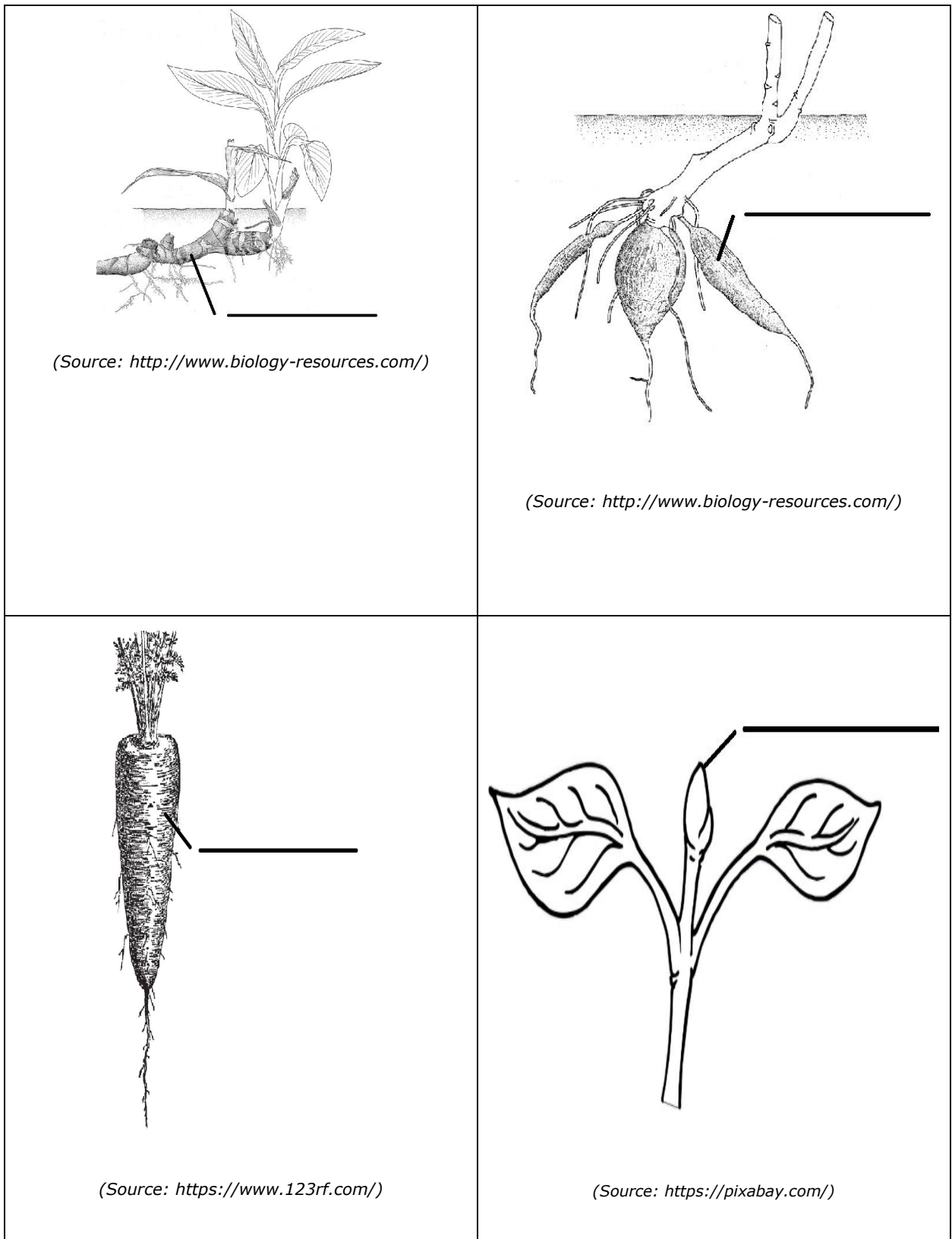


Figure 3: Versions of different crop/ornamental plants' organs.

Question 2

K-2 (8 marks)

a. Label the different plant cell components in Figure 4.

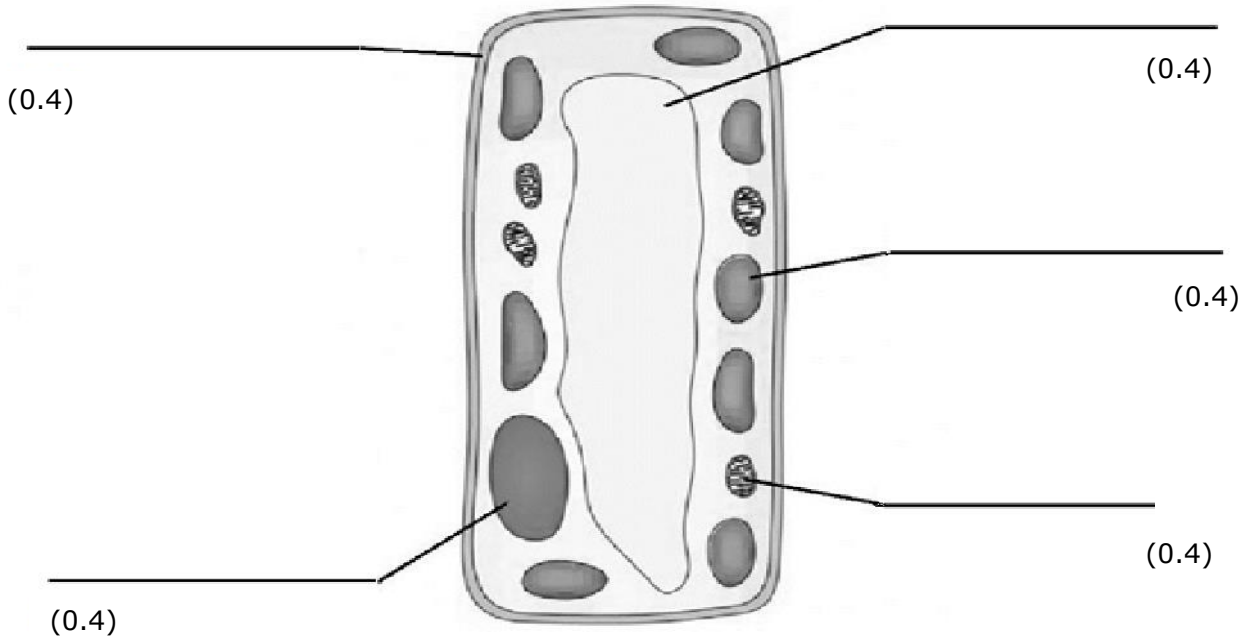


Figure 4: A typical plant cell
 (Source: <https://www.liveworksheets.com/xm2970327fx>)

b. Identify the xylem and phloem in the monocotyledon and dicotyledon root cross-sections in Figure 5.

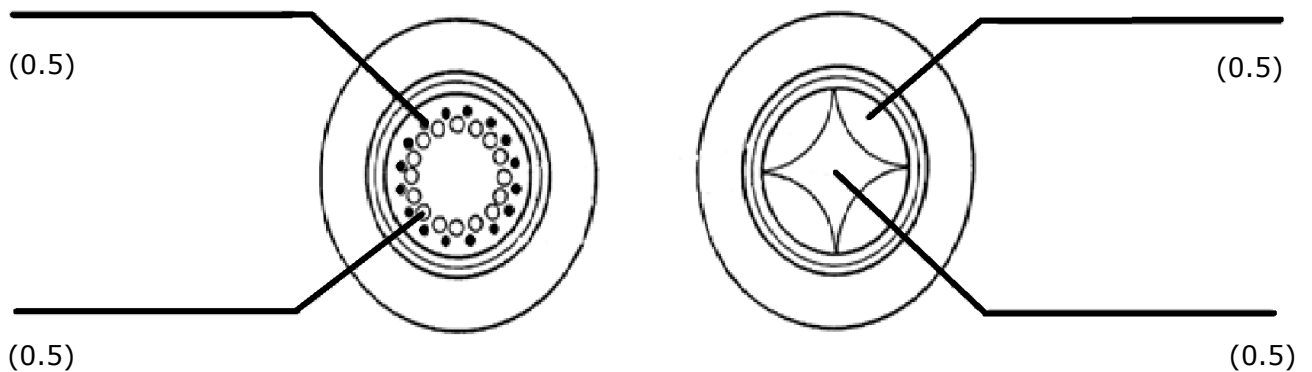


Figure 5: Monocot root (left) and dicot root (right) cross-sections
 (Source: <https://silo.tips/download/laboratory-plant-structure>)

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c. Describe **ONE** function of each of the following:

i. Cell membrane:

(1)

ii. Xylem:

(1)

iii. Phloem:

(1)

iv. Cytoplasm:

(1)

8

Question 3

K-4 (8 marks)

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

Hazard
lifting heavy objects
direct sunlight
dust
electricity

Risk
heat stroke
electric shock
back injury
respiratory problems

(2)

b. List the information needed when calling for help in an emergency.

- i. _____ (0.5)
- ii. _____ (0.5)
- iii. _____ (0.5)
- iv. _____ (0.5)

c. State **TWO** reasons for maintaining Health and Safety measures in a crop production enterprise.

Reason 1: _____

 _____ (2)

Reason 2: _____

 _____ (2)

8

Question 4

C-2 (12 marks)

a. Outline **TWO** preventive measures required for maintaining a safe work environment in a crop production enterprise.

Preventive measure 1: _____

 _____ (2)

Preventive measure 2: _____

 _____ (2)

b. Describe the use of the items shown in Figure 10, that should be present in a First Aid box according to legislation.





 <p>Item 1 (Source: https://www.shopee.com.my)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <p>(1)</p>	 <p>Item 2 (Source: https://sanizekart.com)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <p>(1)</p>
 <p>Item 3 (Source: https://mt.rsdelivers.com)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <p>(1)</p>	 <p>Item 4 (Source: https://www.airgas.com)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <p>(1)</p>

Figure 10: First Aid box items

c. Explain **TWO** ways of dealing with each of the following injuries:

i. Ron is in pain after having burnt his hand by accidentally placing it in a very hot tractor exhaust pipe.

(2)

ii. Lisa was picking grapes all morning, but she forgot to wear a hat and take enough water to work. She may be suffering from a heat stroke.


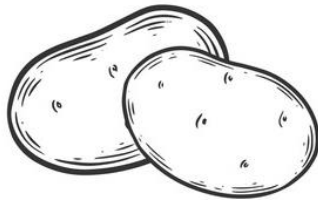
(2)



12

Question 5

K-5 (8 marks)

a. Identify the following crop types.

 <p>(Source: alamy.com)</p> <p>i. _____ (0.5)</p>	 <p>(Source: shutterstock.com)</p> <p>ii. _____ (0.5)</p>
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 <p>(Source: shutterstock.com)</p> <p>iii. _____ (0.5)</p>	 <p>(Source: alamy.com)</p> <p>iv. _____ (0.5)</p>
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b. Outline the following crop production types:

i. Greenhouse soil-based (geoponic) production:

_____ (1)

ii. Outdoor soil-based (geoponic) production:

_____ (1)

c. Describe **FOUR** production requirements for **ONE** of the crops in the below box.

cabbage	potatoes	garlic	tomatoes
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_____ (4)

Question 6

K-7 (8 marks)

a. Plants require both macro and micronutrients. Define the terms:

i. Macronutrients:

_____ (1)

ii. Micronutrients:

_____ (1)

b. Select the appropriate macronutrient from the options below for the following crop requirements. Each macronutrient should be selected only **ONCE**.

Nitrogen	Calcium	Potassium	Phosphorus	Sulfur	Iron
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i. Fruit turgidity: _____ (0.5)

ii. Healthy rooting: _____ (0.5)

iii. Leaf growth: _____ (0.5)

iv. Healthy flowering: _____ (0.5)

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

i. Interveinal chlorosis of older leaves: _____ (1)

ii. Leaf margin necrosis: _____ (1)

iii. Total leaf chlorosis of older leaves: _____ (1)

iv. Necrosis of shoot tips: _____ (1)

8

Please turn the page.

Question 8

C-4 (12 marks)

a. Explain how a soil sample is taken.

(4)

b. The results of soil and water samples for pH and electrical conductivity are shown in Table 1.

Table 1: Results of Soil and Water Samples for two fields

	Soil and Water samples	pH	Conductivity (µS/cm)
Field 1	Irrigation water 1	8.95	1879
	Soil 1	6.85	3998
Field 2	Irrigation water 2	5.24	175
	Soil 2	7.71	202

i. Which of the two soil samples is more alkaline? Why?

(2)

ii. Which of the two irrigation water samples is less saline? Why?

(2)

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