



L-Università
ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2020 SUPPLEMENTARY SESSION**

SUBJECT:	Agribusiness
PAPER NUMBER:	Synoptic – Unit 2
DATE:	4 th November 2019
TIME:	10:00 a.m. to 12:05 p.m.

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

Scenario:

A young entrepreneur has been engaged to provide scientific and practical information about the aquatic and land-based production activities in Malta and Gozo.

- This information will be used by businesses in the sector to improve the quality of their products.
- It will also help them to provide background information to their customers.

Question 1**(5 marks)**

Identify **FIVE** nutrients that are important for the correct functioning of a fish's body and identify **ONE** role for each.

a. _____

_____ (1)

b. _____

_____ (1)

c. _____

_____ (1)

d. _____





_____ (1)

e. _____

_____ (1)

Question 2**(14 marks)**

- Identify the following diseases/disorders of ornamental or edible fish.
- Describe **ONE** correct treatment procedure for each disease/disorder.

	a. Disease/Disorder	b. Description of treatment procedure
<p>i.</p>	 <p>Source: https://bit.ly/3290cC8 Lost tissue on the fins.</p> <p>_____ (1)</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____ (2.5)</p>
<p>ii.</p>	 <p>Source: https://bit.ly/2M4S28e</p> <p>_____ (1)</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____ (2.5)</p>
<p>iii.</p>	 <p>Source: https://bit.ly/2Vyc0Lt</p> <p>_____ (1)</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____ (2.5)</p>
<p>iv.</p>	 <p>Source: https://bit.ly/2nxnsuh</p> <p>_____ (1)</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____ (2.5)</p>

Please turn the page.

Question 3**(6 marks)**

- a. Explain the cage requirements of gilthead seabream *Sparus aurata* and European seabass *Dicentrarchus labras*, for which production processes are virtually identical.

Cage requirement	Explanation
i. Size	Juveniles: Adults: (2)
ii. Location	Juveniles: Adults: (2)

- b. What is the minimum size of an aquarium tank to hold a small group (around five) of guppies? Explain why this size was chosen.

(2)

Question 4**(8 marks)**

List **TWO** safety precautions for the identified routine tasks in the maintenance and upkeep of a fish tank.

Routine Task	Safety precautions
a. Water change	i. _____ ii. _____ (2)
b. Cleaning	i. _____ ii. _____ (2)
c. Feeding	i. _____ ii. _____ (2)
d. Water testing and amendments	i. _____ ii. _____ (2)

Question 5**(6 marks)**

Describe the following plant physiological processes:

a. Transpiration:

_____ (1)

This question continues on next page.

b. Photosynthesis:

(1)

c. Germination:

(1)

d. Phototropism:

(1)

e. Geotropism:

(1)

f. Respiration:

(1)

Question 6

(10 marks)

Explain how the following measures can be used to control flowering in horticulture.

a. Blackouts:

(2.5)

b. Vernalisation:

(2.5)

c. Artificial lighting:

(2.5)

d. Heating of greenhouses:

(2.5)

Question 7

(9 marks)

Describe **TWO** benefits of keeping records of:

a. crop pests and pathogens for proper pest control.

(3)

This question continues on next page.

b. pesticide name and active ingredient.

(3)

c. fertilizer nutrient content and quantity.

(3)

Question 8**(6 marks)**

Complete the following table by selecting **ONE** growing medium for the respective growing objectives.

Soil, Peat, Perlite, Vermiculite, Coconut fibre, Compost

Growing medium	Growing objective
a.	holds nutrients, absorbs and holds on to water very well (1)
b.	high in organic matter; high water holding capacity; can be used to improve structure, add nutrients and increase water holding capacity of soil (1)
c.	depends on soil texture but can normally store water and air and provide nutrients. (1)
d.	good water drainage and aeration; pathogen/pest free (1)
e.	good water drainage and aeration; pathogen/pest free; inert (1)
f.	excellent water holding ability; good aeration (1)

Question 9**(9 marks)**

Select **THREE** appropriate measures from the following list that help to fight against the diseases and nutritional deficiencies in the table below. Each measure can be used more than once.

Manure application, Crop rotation, Biological control, Intercropping with leguminous plant, Pesticides, Monitor weather conditions, Crop rotation with leguminous plant, Artificial fertiliser, Intercropping, Choose resistant cultivars

Diseases and nutritional deficiencies	Appropriate measures
a. High level of aphid infestation on a crop	i. _____ ii. _____ iii. _____ <div style="text-align: right;">(3)</div>
b. Nitrogen deficiency in a vegetable crop	i. _____ ii. _____ iii. _____ <div style="text-align: right;">(3)</div>
c. Late blight in potatoes	i. _____ ii. _____ iii. _____ <div style="text-align: right;">(3)</div>

Please turn the page.

Question 10**(5 marks)**

Explain how the following factors influence the harvesting time of vegetables.

Main Factor	Influence on harvesting time
Species	(1)
Cultivar	(1)
Heavy rainfall and flooding	(1)
Soil fertility	(1)
Drought	(1)

Question 11**(6 marks)**

Describe **THREE** post-harvest practices that may be applied for potato crop.

Post-harvest practice 1: _____

_____ (2)

Post-harvest practice 2: _____

_____ (2)

Post-harvest practice 3: _____

_____ (2)

Question 12**(16 marks)**

Describe how the following crops may be propagated.

a. Potato:

_____ (4)

This question continues on next page.

b. Tomato:

(4)

c. Mint:

(4)

d. Peach tree:

(4)