



**L-Università
ta' Malta**

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2020 MAIN SESSION**

SUBJECT:	Agribusiness
PAPER NUMBER:	Controlled – Unit 2
DATE:	21 st May 2019
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 _____

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

Scenario:

Your employer, a company in the agricultural and fisheries sector, is starting a project to educate students about the products that are farmed in Malta and Gozo. As a young expert, you have been asked to answer a few questions about the growth of crops and fish to provide guidance to student workers in your business.

Question 1

K1 (4 marks)

Figure 1 below shows a mosquitofish (*Gambusia affinis*) and Figure 2 shows the Atlantic bluefin tuna (*Thunnus thynnus*). The mosquitofish is a small freshwater fish with females reaching an overall length of around 7cm. The Atlantic bluefin tuna is a fished species that is native to the Atlantic Ocean. Fully mature adults can be more than 2 m long and weigh up to around 250 kg.

a.

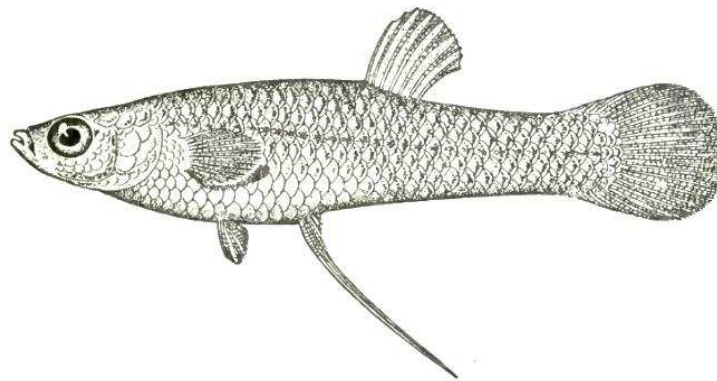


Figure 1: The mosquitofish (*Gambusia affinis*).

b.

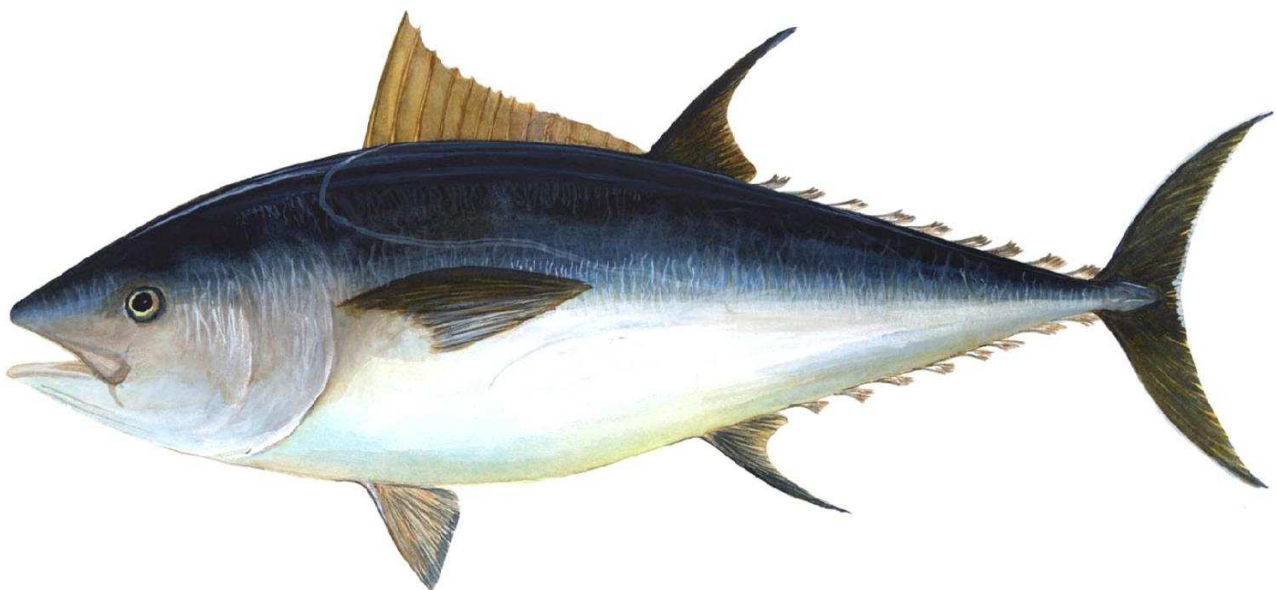


Figure 2: The Atlantic bluefin tuna (*Thunnus thynnus*).

Fill in the following table by outlining **ONE** morphological difference between the mosquitofish and the Atlantic bluefin tuna in each part of their body.

	Morphology	a. Mosquitofish	b. Tuna
i.	Head		
		(0.5)	(0.5)
ii.	Scales		
		(0.5)	(0.5)
iii.	Fins		
		(0.5)	(0.5)
iv.	Lateral line		
		(0.5)	(0.5)

Please turn the page.

Question 2

K2 (4 marks)

Fill in the following table by identifying **ONE** role in fish for each of the identified nutrients.

	Nutrient	Role in fish
a.	Proteins	
		(0.5)
b.	Carbohydrates	
		(0.5)
c.	Fats	
		(0.5)
d.	Vitamin A	
		(0.5)
e.	Vitamin D	
		(0.5)
f.	Calcium	
		(0.5)
g.	Phosphorus	
		(0.5)

h.	Iron	
		(0.5)

Question 3

K4 (4 marks)

Describe **ONE** correct treatment procedure to control the following fish diseases and disorders:

a. Fish pop eye:

(1)

b. Bloat:

(1)

c. Disorders caused by in-breeding:

(1)

d. Lateral line disease:

(1)

Please turn the page.

Question 4

C3 (6 marks)

Explain how the following elements can be used to control flowering in horticulture:

a. Photoperiodism

(2)

b. Vernalisation

(2)

c. Blackout Systems

(2)

Question 5

K6 (4 marks)

Describe the following plant physiological processes:

a. Transpiration

(1)

b. Photosynthesis

(1)

c. Respiration

(1)

d. Phototropism

(1)

Please turn the page.

Question 6

K8 (4 marks)

Describe **ONE** symptom for each of the following diseases and nutritional deficiencies in potato.

a. Early blight

(1)

b. Late blight

(1)

c. Potassium deficiency

(1)

d. Nitrogen deficiency

(1)

Question 7**C4 (6 marks)**

Continue the following sentences by selecting the appropriate measure to fight against diseases and nutritional deficiencies in vegetable production. You are to underline the correct answer/s

- a. Select **ONE** appropriate measure that may be used to control weeds in vegetable production:
- i. Soil solarisation
 - ii. Application of manure
 - iii. Application of artificial fertiliser (1)
- b. Select **ONE** appropriate cultural practice that a farmer growing tomato in his fields may use to control pests and diseases whilst also improving the availability of nutrients in the soil:
- i. Application of artificial fertiliser
 - ii. Application of pesticides
 - iii. Crop rotation (1)
- c. To reduce dependence on pesticides, the farmer growing tomato in his fields may also apply **ONE** of the following practices:
- i. Application of artificial fertiliser
 - ii. Application of manure to the soil
 - iii. Increase the number of insect predators for biological control (1)
- d. These **TWO** cultural practices may also be used to reduce dependence on pesticides by the farmer growing tomato in his fields:
- i. Use of pheromone traps
 - ii. Addition of manure
 - iii. Choice of resistant crop varieties (2)
- e. Select **ONE** cultural practice which involves growing two or more crops in proximity to increase crop diversity, reduce artificial fertiliser use and control weeds:
- i. Intercropping
 - ii. Using resistant crop varieties
 - iii. Crop rotation (1)

Please turn the page.

Question 8

C5 (6 marks)

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

a. Soil fertility

(2)

b. Choice of cultivar

(2)

c. Drought

(2)

Question 9**K10 (4 marks)**

Consider the following sentences and select the most suitable growing medium for specific growing objectives. Underline the correct answer.

- a. Select **ONE** growing medium that may be used for improving aeration, but has the disadvantage of having very few nutrients.
- i. Compost
 - ii. Perlite
 - iii. Peat (1)
- b. Select **ONE** growing medium that may be used for having good aeration and water-holding capacity and a high percentage of organic matter.
- i. Perlite
 - ii. Peat
 - iii. Vermiculite (1)
- c. Select **ONE** growing medium that may be used because it is pathogen/pest free.
- i. Soil
 - ii. Coconut fibre
 - iii. Peat (1)
- d. Select **ONE** inorganic growing medium that may be added to other growing media to improve aeration and drainage.
- i. Vermiculite
 - ii. Compost
 - iii. Peat (1)

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