



L-Università
ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2025 MAIN SESSION**

SUBJECT:	Agribusiness
PAPER NUMBER:	Controlled – Unit 2
DATE:	8 th May 2024
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.

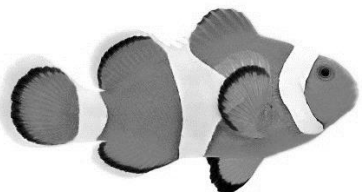
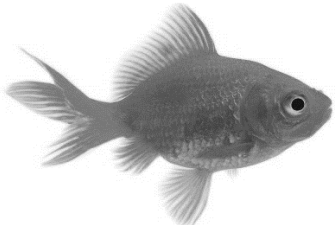
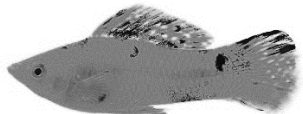
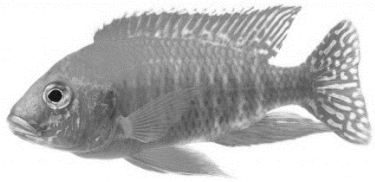
Scenario

- With the increase in population and urbanisation, nations and corporations are looking constantly towards improving the knowledge in the following areas which are directly linked to this paper:
 - Aquatic setups and fish breeding.
 - Protected cultivation systems.
 - Plant protection products.
 - Effective plant propagation.

Question 1

K-1 (4 marks)

- a. Match the **FOUR** fish species in Figure 1 to their respective habitat, by drawing a line between them.

Fish species	Habitat
Clownfish 	marine tropical
Goldfish 	cold fresh water
Molly 	tropical stone-scaped fresh water
Dwarf African cichlid 	brackish

(1)

Figure 1: Fish and their habitats
(Source: <https://www.mysis.com>)

b. Label the internal and external morphology of the fish indicated in Figure 2.

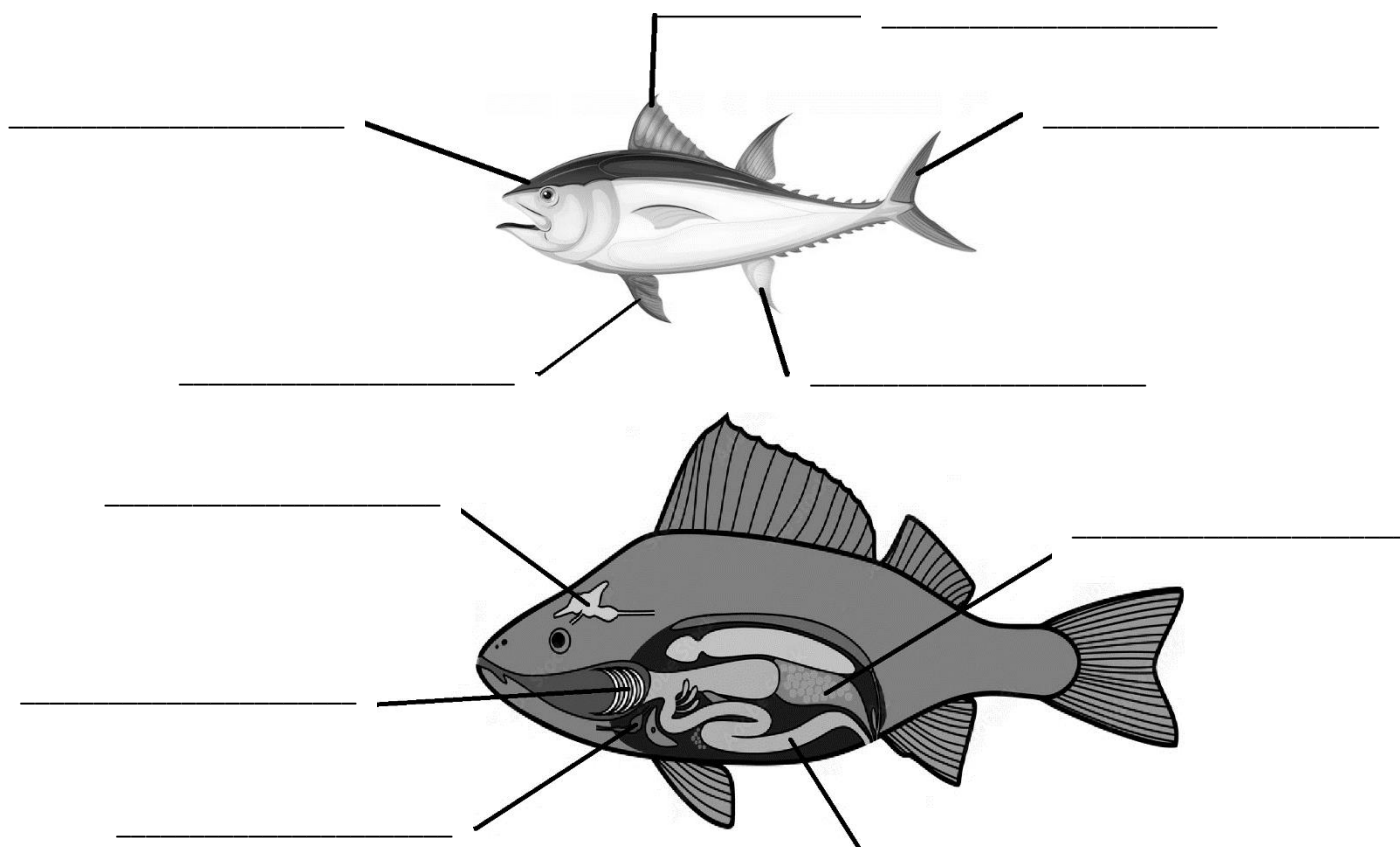


Figure 2: Internal and external morphology of a typical fish
(Sources: <http://www.freepik.com> & <http://www.dreamstime.com>)

(1)

c. Outline the following **TWO** fish habitats in terms of salinity and temperature.

marine Mediterranean cold fresh water

(2)

(2)

Please turn the page.

Question 2**C-2 (6 marks)**

- a. Figure 3 shows a Tilapia, a cichlid that reaches a size of 60cm. A guide book suggests the minimum volume of 2000 litres to keep 1 male and 3 females. Justify this aquarium size with reference to the **TWO** points mentioned below.

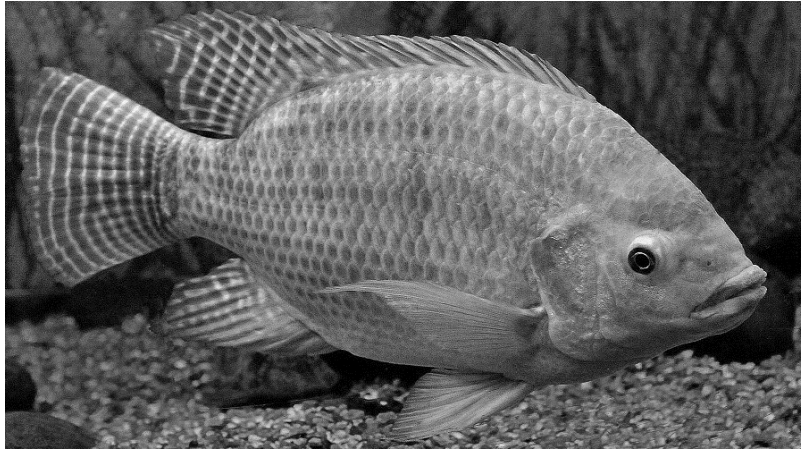


Figure 3: Tilapia
(Source: <https://phys.org>)

i. Fish size: _____

_____ (1)

ii. Aggression: _____

_____ (1)

- b. One of the benefits of performing a water change is to replenish trace minerals. Explain **TWO** other benefits of a water change of a fish tank.

Benefit 1: _____

_____ (1)

Benefit 2: _____

_____ (1)

- c. Discuss the importance of using the sand substrate and limestone rocks as aquarium décor in relation to the fish's health.

[illegible]

Question 3

K-5 (4 marks)

- a. List the **TWO** processes by which water travels through soil.

Process 1: _____ (0.5)

Process 2: _____ (0.5)

- b. Describe the following **TWO** plant structures that are responsible for the intake and internal transport of water and soil nutrients.

Xylem vessels: _____

(0.5)

Rooting system: _____

(0.5)

This question continues on next page.

c. Outline the **FIVE** steps in the process of transpiration.

Question 4

K-6 (4 marks)

a. Define 'photosynthesis'.

(1)

b. Describe how the following **TWO** factors affect the rate of photosynthesis:

Temperature: _____

(0.5)

Carbon dioxide concentration: _____

(0.5)

c. In order to maximise photosynthesis, plants react to the direction of light and gravity. Describe this process.

[illegible]

Question 5**C-3 (6 marks)**

- a. An example of a protected cultivation is an indoor vertical hydroponic farm. For control, farmers artificially adjust the environment of the farm. Explain how the following parameters can be modified in a protected cultivation.

i. Heat (increase and decrease): _____

_____ (1)

ii. Light (increase and decrease): _____

_____ (1)

- b. Compare **TWO** characteristics of drip irrigation and mister/fogger irrigation systems.

Comparison of characteristic 1: _____

_____ (1)

Comparison of characteristic 2: _____

_____ (1)

- c. Discuss how an increase in temperature can be used to control growth rate and germination in horticulture.

_____ (2)

Please turn the page.

Question 6**C-4 (6 marks)**

a. Distinguish between synthetic chemicals and chemicals derived from natural products.

(2)

b. Discuss good practices when applying plant protection measures.

Use of PPE: _____

(0.5)

Keeping records: _____

(0.5)

Observe recommendations on label: _____

(0.5)

Apply during favourable weather: _____

(0.5)

c. Explain the **FOUR** main principles of Integrated Pest Management (IPM).

[illegible]

Question 7

K-8 (4 marks)

a. List **FOUR** factors that contribute towards natural product spoilage and decay.

Factor 1: _____ (0.25)

Factor 2: _____ (0.25)

Factor 3: _____ (0.25)

Factor 4: _____ (0.25)

b. Outline the following **TWO** practices that slow down the process of natural product spoilage and decay:

i. Good hygiene: _____

(0.5)

ii. Rapid reduction in temperature: _____

(0.5)

This question continues on next page.

c. Describe suitable packaging for the following **TWO** products, to avoid spoilage and decay:

Soft fruits	Carrots
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[illegible]

Question 8

K-9 (4 marks)

a. Mention **TWO** types of germination.

Type 1: _____ (0.5)

Type 2: _____ (0.5)

b. Outline why the following **FOUR** conditions are required for optimum propagation of plants.

i. Suitable temperature/humidity: _____ (0.25)

ii. Water availability: _____ (0.25)

iii. Suitable growing medium: _____

_____ (0.25)

iv. Freedom from pathogens/pests: _____ (0.25)

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