



**L-Università
ta' Malta**

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2024 MAIN SESSION**

SUBJECT:	Agribusiness
PAPER NUMBER:	Controlled – Unit 2
DATE:	15 th 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 _____

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

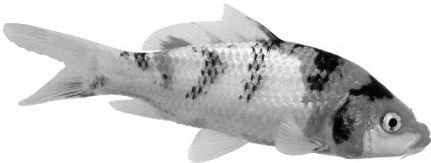
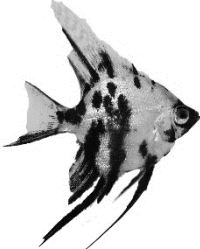
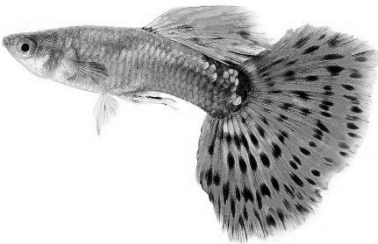
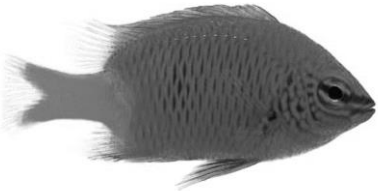
Scenario

- Peter works at a pet shop that supplies customers with a variety of agricultural, pet care and aquarium materials.
- He specialises in aquarium setups and fish breeding.
- He is also in charge of the horticulture section.
- Peter is very popular with customers as he provides advice on the use of plant protection products and ways to grow crops from seeds and seedlings.

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
<p style="text-align: center;">Koi</p> 	marine tropical
<p style="text-align: center;">Angel fish</p> 	cold fresh water
<p style="text-align: center;">Guppy</p> 	tropical planted fresh water
<p style="text-align: center;">Damsel fish</p> 	brackish

(1)

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

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

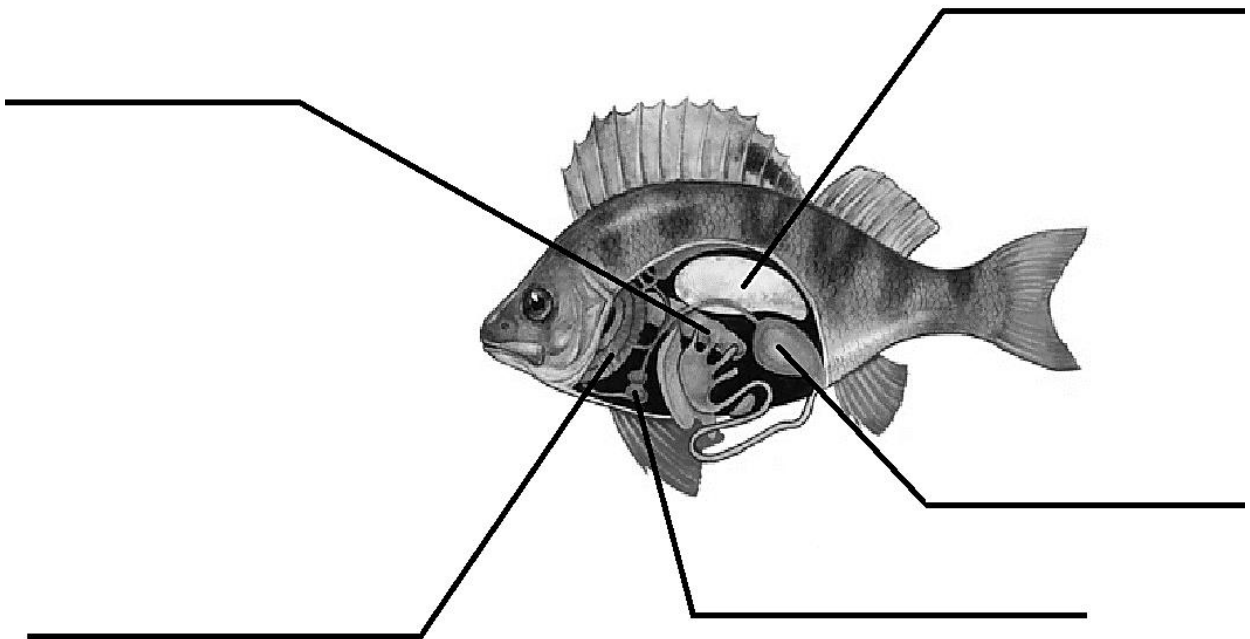
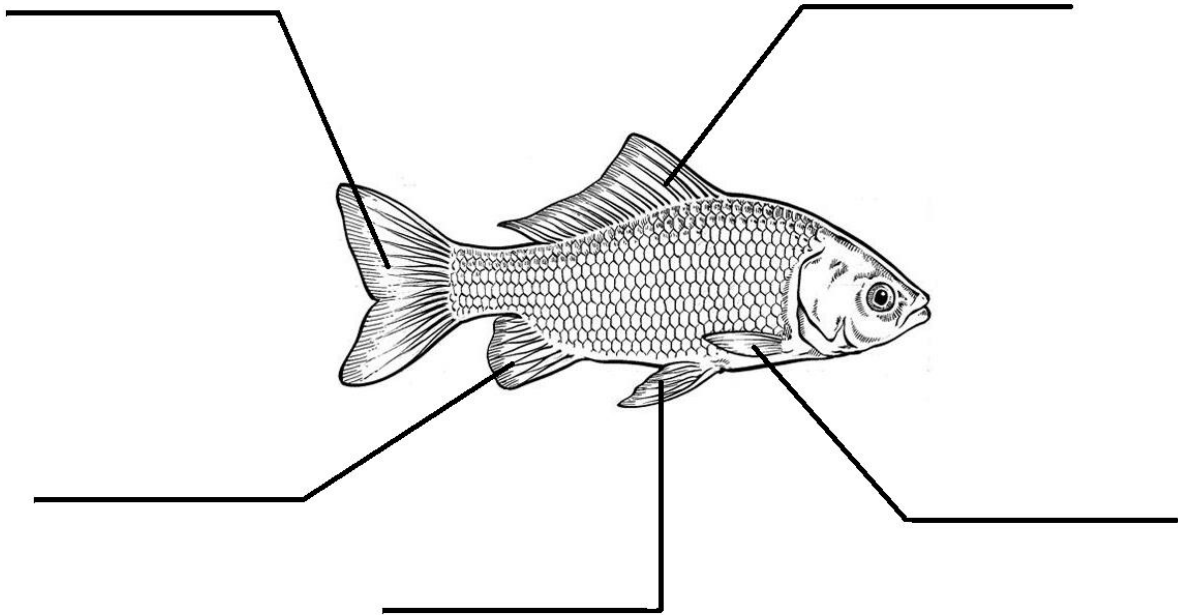


Figure 2: Features of typical fish
(Sources: <http://www.pinterest.com> & <http://www.shutterstock.com>)

(1)

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

tropical stone-scape fresh water	marine Mediterranean
brackish	marine tropical

Question 2

C-2 (6 marks)

a. Figure 3 shows a typical dwarf African cichlid that reaches a size of between 10 to 17cm. Most breeders recommend a minimum volume of 300 litres to keep 2 males and 6 females. Justify this aquarium size as indicated below.



Figure 3: Dwarf African cichlid
(Source: <https://www.encyclo-fish.com/>)

i. Fish size: _____

 _____ (1)

ii. Aggression: _____

 _____ (1)

b. Explain **TWO** benefits of water change of a fish tank.

Benefit 1: _____

_____ (1)

Benefit 2: _____

_____ (1)

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

_____ (2)

Please turn the page.

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 in relation to the intake and internal transport of water and soil nutrients.

Rooting system: _____

_____ (0.5)

Xylem vessels: _____

_____ (0.5)

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

_____ (2)

Question 4

K-6 (4 marks)

a. Define 'photosynthesis'.

(1)

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

i. Temperature: _____

(0.5)

ii. Light intensity: _____

(0.5)

c. Describe how plants react to gravity and the direction of light to maximise photosynthesis.

(2)

Please turn the page.

Question 5

C-3 (6 marks)

a. A greenhouse is a type of protected cultivation that allows modification of its micro-environment to increase the growth and yield of a plant. Explain how the following parameters can be modified in a protected cultivation.

i. Heat (increase and decrease): _____

_____ (1)

ii. Humidity (high and low): _____

_____ (1)

b. Compare **TWO** characteristics of drip irrigation and sprinkler irrigation systems.

Comparison of characteristic 1: _____

_____ (1)

Comparison of characteristic 2: _____

_____ (1)

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

Germination: _____

Growth rate: _____

_____ (2)

Question 6

C-4 (6 marks)

a. Different types of plant protection products are used. Distinguish between chemicals derived from natural products and biological products.

(2)

b. Plant protection products are generally applied with caution. Discuss the following good practices when applying plant protection measures:

i. Use of PPE: _____

(0.5)

ii. Check for compatibility issues: _____

(0.5)

iii. Observe recommendations on label: _____

(0.5)

iv. Respect pre-harvest time window: _____

(0.5)

This question continues on next page.

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

Carrots	Garlic
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(2)

Question 8 **K-9 (4 marks)**

a. Mention the **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 growing medium: _____ (0.25)

ii. Water availability: _____ (0.25)

iii. Temperature/humidity: _____ (0.25)

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

This question continues on next page.

