

## MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

### SECONDARY EDUCATION CERTIFICATE LEVEL 2025 MAIN SESSION

SUBJECT:	Agribusiness	
PAPER NUMBER:	Controlled - Unit 2	
DATE:	8 <sup>th</sup> May 2024	
TIME:	10:00 a.m. to 11:35 a.m.	
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# THIS PAPER SHOULD BE RETURNED TO THE INVIGILATOR AFTER THE EXAMINATION.

Name of candidate	 
I.D. number	
School	
Class	

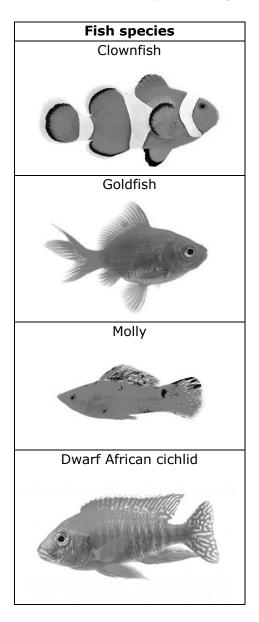
Answer **ALL** questions in the space provided.

#### **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.



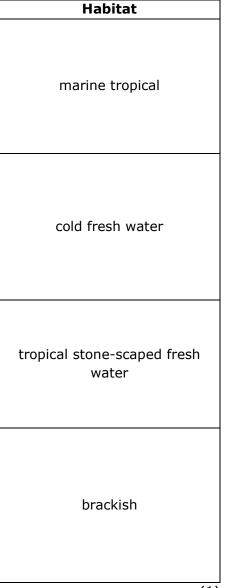


Figure 1: Fish and their habitats (Source: https://www.mysis.com)

(1

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

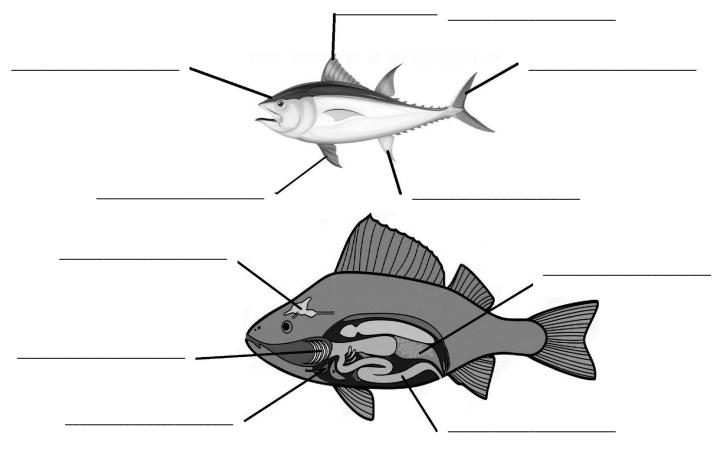


Figure 2: Internal and external morphology of a typical fish (Sources: http://www.freepik.com & http://www.dreamstime.com)

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

marine Mediterranean	cold fresh water
-	
	(2)

Please turn the page.

(1)

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.

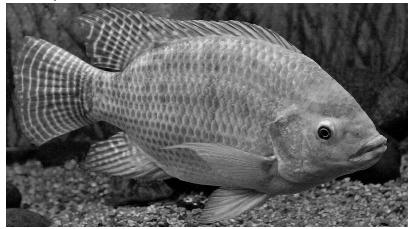


Figure 3: Tilapia (Source: https://phys.org)

i.	Fish size:	
_		
ii.	Aggression:	
ot	e of the benefits of performing a water change is to replenish trace minerals. Explain <b>T</b> ner benefits of a water change of a fish tank. nefit 1:	
_		
	nefit 2:	
_		

c.	Discuss the importance of using the sand substrate and limestone rocks as aquarium décor in relation to the fish's health.		
		(2)	
Qı	Question 3	K-5 (4 marks)	
a.	. List the <b>TWO</b> processes by which water travels through soil.		
	Process 1:	(0.5)	
	Process 2:	(0.5)	
	. Describe the following <b>TWO</b> plant structures that are responsible for transport of water and soil nutrients.	the intake and internal	
	·		
	Xylem vessels:		
		(0.5)	
	Rooting system:		
		(0.5)	

This question continues on next page.

Outline the <b>FIVE</b> steps in the process of transpiration.		
	(2	
uestion 4	K-6 (4 marks	
. Define `photosynthesis'.	· ·	
	(1	
. Describe how the following <b>TWO</b> factors affect the rate of Temperature:		
	(0.5	
Carbon dioxide concentration:		
	(0.5	
In order to maximise photosynthesis, plants react to the d this process.	irection of light and gravity. Describ	

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	- L)	
	ii. Light (increase and decrease):	_ _	
		- L)	
b.	Compare <b>TWO</b> characteristics of drip irrigation and mister/fogger irrigation systems.		
	Comparison of characteristic 1:	_	
	(1	L)	
	Comparison of characteristic 2:	_	
	(1	_ L)	
c.	Discuss how an increase in temperature can be used to control growth rate and germinatio in horticulture.	'n	
		_	
		_	
		_	
		_	
		_	
	(2	2)	

Please turn the page.

Q	uestion 6	C-4 (6 marks)
а.	Distinguish between synthetic chemicals and chemicals derived from natural	products.
b.	Discuss good practices when applying plant protection measures.	
	Use of PPE:	
	Keeping records:	
	Reeping records:	
	Observe recommendations on label:	
	Apply during favourable weather:	(0.5)
	Apply during lavourable weather.	

\_(0.5)

c. Explain the <b>FOUR</b> main principles of Integra	ted Pest Management (IPM).
	(2)
	(2)
Question 7	K-8 (4 marks)
a. List <b>FOUR</b> factors that contribute towards na	atural product spoilage and decay.
Factor 1:	
Factor 2:	(0.25)
Factor 3:	(0.25)
Factor 4:	(0.25)
<ul><li>b. Outline the following <b>TWO</b> practices that sl and decay:</li></ul>	ow down the process of natural product spoilage
i. Good hygiene:	
	(0.5)
ii. Rapid reduction in temperature:	
	(0.5)

This question continues on next page.

	(2)
	,
uestion 8	K-9 (4 marks)
. Mention <b>TWO</b> types of germination.	
Type 1:	(0.5)
Type 2:	(0.5)
. Outline why the following <b>FOUR</b> conditions are required for opti	mum 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)

c. Describe the following  $\ensuremath{\mathbf{FOUR}}$  propagation techniques.

Grafting for olive trees	Bulb for garlic
Stem tuber cutting for potatoes	Layering for rosemary
	(2)

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