



L-Università
ta' Malta

MATSEC
Examinations Board



Specimen Paper
SEC 35 Agribusiness

2027

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Specimen Assessment: Sample Controlled Paper



L-Università
ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
SAMPLE CONTROLLED PAPER**

SUBJECT: **Agribusiness**

PAPER: **Level 1 – 2 – 3**

DATE:

TIME: **2 Hours**

Directions to Candidates

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

This paper carries a total of 100 marks.

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

For examiners' use only:

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
Score																						
Maximum	6	4	2	2	9	8	8	6	6	2	4	6	4	4	2	4	3	6	4	10	100	

1. Label the plant cell components in Figure 1 below:

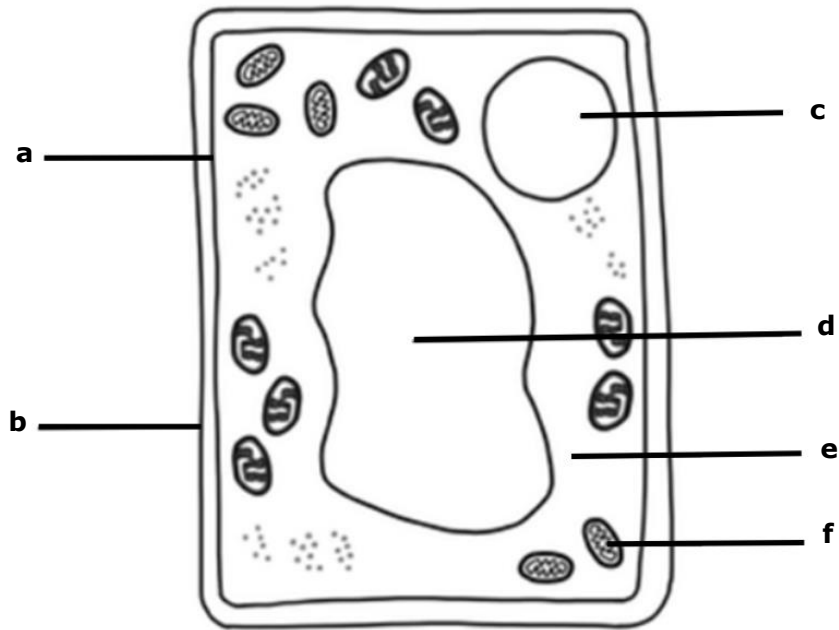


Figure 1. A plant cell (Source: <https://www.tes.com/>)

- a. _____ (1)
- b. _____ (1)
- c. _____ (1)
- d. _____ (1)
- e. _____ (1)
- f. _____ (1)

(Total: 6 marks)

2. Personal protective equipment should always be made available to maintain a safe work environment. Outline **TWO** other preventive measures for maintaining a safe work environment in a crop production enterprise.

Outline 1: _____
 _____ (2)

Outline 2: _____
 _____ (2)

(Total: 4 marks)

3. Define the following terms.

a. Plant macronutrients: _____
_____ (1)

b. Plant micronutrients: _____
_____ (1)

(Total: 2 marks)

4. Define the following terms in relation to agribusiness.

a. Demand: _____
_____ (1)

b. Supply: _____
_____ (1)

(Total: 2 marks)

5. Explain how the following activities can improve soil fertility.

i. Crop rotation:

_____ (3)

ii. Addition of manure:

_____ (3)

iii. Tilling:

(3)

(Total: 9 marks)

6. Describe how the following biotic and abiotic soil factors can affect plant growth.

a. Biotic

i. Earthworms:

(2)

ii. Pathogens:

(2)

b. Abiotic

i. Soil water:

(2)

ii. Soil temperature:

(2)

(Total: 8 marks)

7. The broad bean is one of the crops traditionally grown in Malta in winter. Describe the process from sowing to harvesting the broad bean in relation to the following **FOUR** considerations:

soil requirements	irrigation system and intensity
planting method and spacing	general crop care

(Total: 8 marks)

8. Match the following fish species to their respective habitat.

Goldfish
Angel fish
Sea bream
Clown fish
Guppy
African cichlid

marine Mediterranean
cold fresh water
tropical planted freshwater
marine tropical
brackish
tropical stone-scape fresh water

(Total: 6 marks)

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

(Total: 6 marks)

10. This question is about different fish fins. Label the **TWO** missing fins in Figure 2 below.

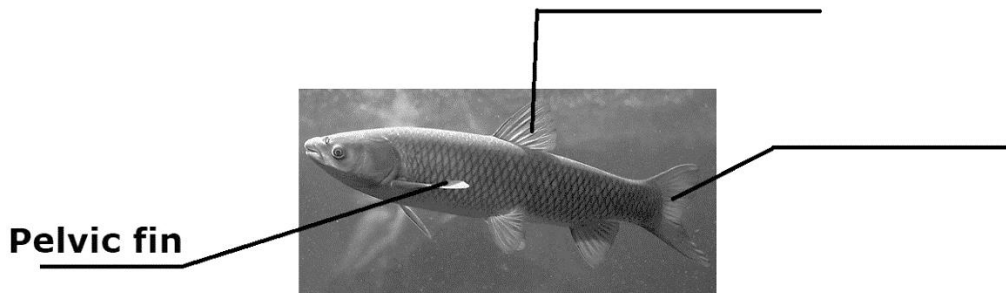


Figure 2. A typical fish (Source: <https://www.worldatlas.com>)

(Total: 2 marks)

11. Outline the following **TWO** factors that affect the rate of photosynthesis.

a. Light intensity:

(2)

b. Carbon dioxide concentration:

(2)

(Total: 4 marks)

12. Describe how a plant reacts to the following external stimuli to maximise photosynthesis.

a. Light direction:

(3)

15. Define F1 and F2 generations in commercial rabbit breeding.

F1: _____
_____ (1)

F2: _____
_____ (1)

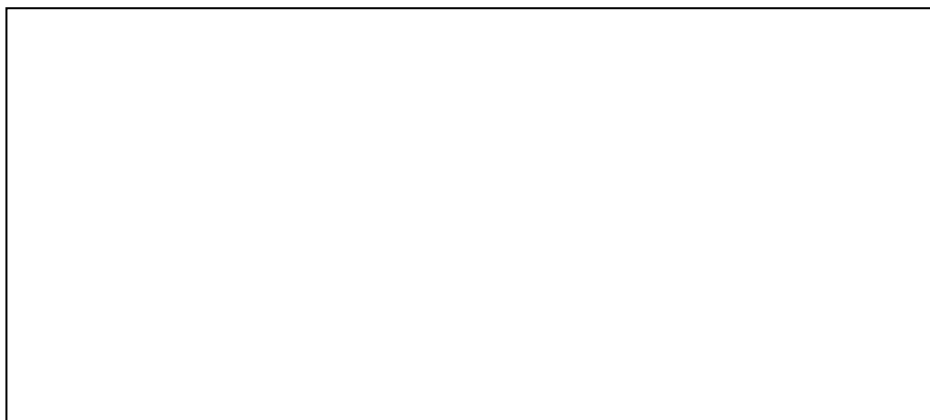
(Total: 2 marks)

16. In a commercial rabbit farm, the buck's genotype for coat colour is Rr and the doe's genotype for coat colour is RR, where:

R = Gene for black coat colour

r = Gene for white coat colour

a. Draw a Punnet square or genetic cross diagram to illustrate the F1 offspring generation.



(1)

b. Based on the answer of question a. above, calculate how many rabbits out of 4 will have a black coat in the F1 generation.

(1)

- c. Draw a Punnet square or genetic cross diagram to cross any two individuals from the F1 generation offspring.



(1)

- d. Based on the answer of question c above, calculate how many rabbits out of 4 will have a white coat in the F2 generation:

(1)

(Total: 4 marks)

17. Rabbits are inflicted by various diseases and disorders. Identify the correct treatment procedure to control the following:

a. Sorehocks: _____ (1)

b. Ringworm: _____ (1)

c. Buckteeth: _____ (1)

(Total: 3 marks)

18. List **SIX** different common ingredients found in animal feed.

Ingredient 1: _____ (1)

Ingredient 2: _____ (1)

Ingredient 3: _____ (1)

Ingredient 4: _____ (1)

Ingredient 5: _____ (1)

Ingredient 6: _____ (1)

(Total: 6 marks)

19. List the buck's and doe's behaviour and anatomical features in relation to reproduction.

a. Buck

Behaviour of a buck: _____ (1)

Anatomy of a buck: _____ (1)

b. Doe

Behaviour of a doe: _____ (1)

Anatomy of a doe: _____ (1)

(Total: 4 marks)

20. When determining a market price for meat rabbits, a farmer takes a number of factors into consideration. Outline **FIVE** factors that need to be considered when setting up the price.

Factor 1: _____
_____ (2)

Factor 2: _____
_____ (2)

Factor 3: _____
_____ (2)

Factor 4: _____
_____ (2)

Factor 5: _____
_____ (2)

(Total: 10 marks)

Specimen Assessment: Sample Marking Scheme for Controlled Paper



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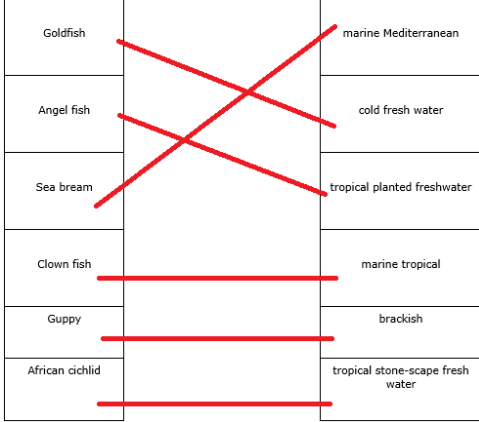
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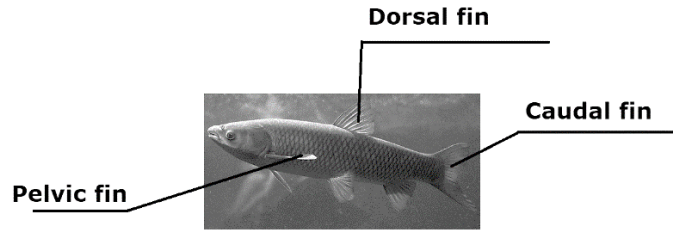
**SECONDARY EDUCATION CERTIFICATE LEVEL
SAMPLE MARKING SCHEME FOR CONTROLLED PAPER**

SUBJECT: **Agribusiness**
PAPER: **Level 1 – 2 – 3**
DATE:
TIME: **2 Hours**

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer
1	6	1 mark for each correctly labelled component.	<ul style="list-style-type: none"> a. cell membrane b. cell wall c. nucleus d. vacuole e. cytoplasm f. mitochondria

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer
2	4	1 mark for each correct preventive measure that is only listed.	Any TWO of the following or any other valid measure: training in Health and Safety on the workplace; perform a risk assessment; minimise hazards to the minimum. Accept other suitable answers. No marks should be awarded to personal protective equipment.
		2 marks for each correct preventive measure that is outlined.	Workers should be trained in Health and Safety to carry out their job and use any equipment correctly. Accept other suitable answers. No marks should be awarded to personal protective equipment.
3	2	1 mark for each correct definition.	Plant macronutrients are nutrients needed by the plant in large amounts for overall plant health. Accept other suitable answers.
4	2	1 mark for each correct definition.	Demand is the amount of goods which the consumer is willing to buy. Accept other suitable answers.
5	9	1 mark for each activity that is only correctly outlined.	Crop rotation is when different crops are planted in the same plot of land year after year. Accept other suitable answers.
		3 marks for each activity that is correctly explained.	When the same crop is planted year after year, the soil can be depleted of nutrients. Crop rotation allows the soil to replenish itself between cycles. It results in better soil health and structure as well as less pest and pathogen outbreaks. Accept other suitable answers.

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer
6	8	1 mark for each factor that is only correctly outlined.	<p>Earthworms burrow through in the soil, mixing it up, thus facilitating the aeration of soil.</p> <p>Accept other suitable answers.</p>
		2 marks for each factor that is correctly described.	<p>Earthworms burrow through in the soil, mixing it up, thus facilitating the aeration of soil. They also help in the cycling of soil nutrients, thus improving soil fertility which benefits healthy plant growth.</p> <p>Accept other suitable answers.</p>
7	8	1 mark for each consideration that is only correctly outlined.	<p>Soil requirements: A fertile soil that is well aerated and has good drainage is ideal for healthy growth.</p> <p>Accept other suitable answers.</p>
		2 marks for each consideration that is correctly described.	<p>Soil requirements: A fertile soil that is well aerated and has good drainage is ideal for healthy growth. Soil is rotovated before sowing to achieve an aerated soil.</p> <p>Accept other suitable answers.</p>
8	6	1 mark for each correct match.	

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer
9	6	1 mark for each correct benefit that is only named.	Any TWO of the following or other benefits: reduction of nitrogenous pollutants; replenish trace minerals; control water clarity; removal of decomposing organic material. Accept other suitable answers.
		2 marks for each correct benefit that is only outlined.	Water changes in a fish tank are vital for reducing toxic ammonia and nitrite levels, which can harm fish. Accept other suitable answers.
		3 marks for each benefit that is correctly explained.	Water changes in a fish tank are vital for reducing toxic ammonia and nitrite levels, which can harm fish. By replacing water, water changes dilute nitrate, preventing algae blooms and maintaining water quality. Moreover, these changes support the growth of beneficial bacteria crucial for biological filtration, ensuring a balanced nitrogen cycle. Accept other suitable answers.
10	2	1 mark for each correct label.	
11	4	2 marks for each correct outline.	The rate of photosynthesis increases as the light intensity increases up to a certain point. Accept other suitable answers.

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer
12	6	1 mark for each stimulus that is only correctly outlined.	The shoot of the plant grows towards the direction of light. Accept other suitable answers.
		3 marks for each stimulus that is correctly described.	The shoot of the plant is sensitive to light and thus it grows towards the direction of the light. The rate of photosynthesis is proportion to the light intensity, this maximises the rate of photosynthesis. The roots do not react to light. Accept other suitable answers.
13	4	2 marks for each correct outline.	The shorter the time, the less chance a product has to meet pathogens or be affected by external factors which ultimately lead to decay. Accept other suitable answers.
14	4	2 marks for each correct outline.	Compost's rich organic matter holds essential nutrients, improving soil fertility. Microbial activity and humus formation further enhance nutrient availability for healthy plant growth. Accept other suitable answers.
15	2	1 mark for each correct definition.	F1: the first generation of offspring when crossing a buck and a doe. Accept other suitable answers.

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer																
16	4	a. 1 mark for F1 Punnet square or genetic cross diagram.	<p>a. Punnet Square:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">F1</td> <td colspan="2" style="text-align: center;">Buck</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">R</td> <td style="text-align: center;">r</td> </tr> <tr> <td style="text-align: center;">Doe</td> <td style="text-align: center;">R</td> <td style="text-align: center;">RR</td> <td style="text-align: center;">rR</td> </tr> <tr> <td></td> <td style="text-align: center;">R</td> <td style="text-align: center;">RR</td> <td style="text-align: center;">rR</td> </tr> </table> <p>Accept other suitable answers.</p>		F1	Buck				R	r	Doe	R	RR	rR		R	RR	rR
			F1	Buck															
				R	r														
		Doe	R	RR	rR														
	R	RR	rR																
b. 1 mark for calculating number of rabbits with black coats in F1.	b. Number of rabbits with black coats: 4																		
c. 1 mark for F2 Punnet square or genetic cross diagram.	c. The candidate is to take any two genotypes from offspring in Punnet square above and cross by using another Punnet square.																		
d. 1 mark each for calculating number of rabbits with black coats in F2.	d. Question should be answered on the results of the Punnet square.																		
17	3	1 mark for each correct identification.	<p>Sorehocks: applying disinfectants</p> <p>Accept other suitable answers.</p>																
18	6	1 mark for each correct ingredient listed.	<p>Any SIX of the following ingredients:</p> <p>wheat, soya, maize, barley, other legumes, oils, minerals, vitamins</p> <p>Accept other suitable answers.</p>																
19	4	1 mark for each correct answer.	Anatomy of buck: well-developed genitals																

Question No.	Total Marks	Allocation of Marks	Example of Expected Answer
20	10	1 mark for each correct factor that is only identified.	<p>Any FIVE of the following or any other valid factor:</p> <p>capital costs; running costs; competitors' price; consumers' willingness to pay; profit margin; product diversification; product presentation; consumer demands.</p> <p>Accept other suitable answers.</p>
		2 marks for each factor that is correctly outlined.	<p>Running costs: farmer has various expenses that need to be made to run the farm on a day-to-day basis. When establishing the price, the farmer needs to be sure that such costs are covered.</p> <p>Accept other suitable answers.</p>