

LIFE SCIENCES Grade 12

Assignment Term 3 2024

Marking Guideline

Total	
	50

QUESTION 1

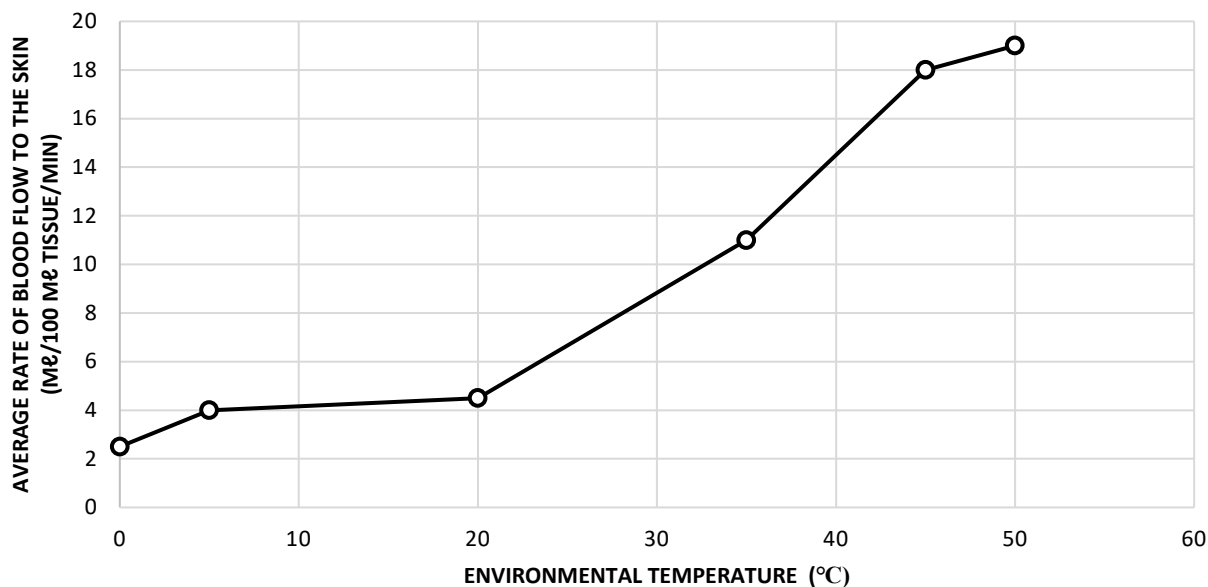
- 1.1 9 ✓ (1)
- 1.2 i) 321 ✓
ii) 309 ✓
iii) 340 ✓ (3)
- 1.3 a) B ✓
b) C ✓ (2)
- 1.4 Increase ✓ in oxygen consumption (1)
- 1.5 A ✓ (1)
- 1.6 a) Y ✓
b) Z ✓ (2)
- (10)**

QUESTION 2

- 2.1 0 °C ✓ (1)
- 2.2 Low temperatures have a lower average blood flow to the skin compared to high temperatures. ✓ ✓
- [High temperatures have a higher average blood flow to the skin compared to low temperatures. ✓ ✓] (2)
- 2.3 $\left[\frac{11 - 4}{4} \right] \times 100$ ✓
= 175 % ✓ (3)
- 2.4 - Less blood flows to the skin ✓ at low temperatures
- Less oxygen/nutrients reach the (cells of the) tissue ✓ and the cells may die. (2)

2.5

Line graph representing the average rate of blood flow to the skin at different environmental temperatures



Criteria	Mark allocation
Correct type of graph (line graph) (T)	1
Title of graph including both variables (C)	1
Correct scale of the X and Y-axis (S)	1
Correct label of the X and Y-axis including units (L)	1
Plotting of points (P)	1: 1 to 5 points correctly plotted 2: all 6 points correctly plotted

(6)
(14)

QUESTION 3

- 3.1 Islets of Langerhans ✓/ Beta cells (1)
- 3.2 Fatigue✓/ hunger (1)
- 3.3 Over-eating carbohydrates ✓ (1)
- 3.4 - Glucose cannot be absorbed into the cells✓
- therefore, it cannot be used in cellular respiration✓/to release energy (2)
- 3.5 - Blood glucose levels remain high✓
- Pancreas will continue secreting insulin✓ (2)

(7)

QUESTION 4

- 4.1 a) Plant growth hormones✓
b) Apical dominance✓ (2)

4.2 $120 - 80✓ = 40✓$ mm (2)

- 4.3 Use more than 9 pea plants. ✓
Repeat the investigation✓ (2)

- 4.4 The plants were all grown under the same conditions✓
Measurements were taken at the same time for all treated plants✓ (2)

- 4.5 - Group 3 is the control✓
- The results of group 3 can be compared to the results of the other two groups✓
- to see if there is a difference in the results because of the treatment given to group 1 and 2✓/ if the growth hormones given to group 1 and 2 gave different results than the untreated group 3

Any (2)

- 4.6 - The group of plants treated with Auxins have the lowest average length of lateral branches✓
- because the auxins moved down the plant✓
- and inhibited the growth of lateral branches✓

(3)

(13)

QUESTION 5

- 5.1 Carbon dioxide levels in the blood will increase. ✓ (1)

- 5.2 When carbon dioxide levels in the blood increase above normal:
- It decreases the pH of the blood✓/ forms carbonic acid
- which stimulates receptors✓
- in the carotid artery ✓
- to send an impulse to the medulla oblongata✓
- The medulla oblongata stimulates the breathing muscles /(intercostal muscles and diaphragm) ✓
- to contract faster✓
- and the breathing rate increases✓
- so that excess/more carbon dioxide is exhaled faster. ✓

Any (5)

(6)

[50]

Assignment Term 3
Weighting: Practical Skills

Practical Skills						
Follow instructions	Handle equipment	Make observations	Draw a diagram	Calculation	Interpret	Design/Plan
		✓		✓	✓	✓

Weighting: Cognitive Levels & Levels of Difficulty

Question	Cognitive Levels				Levels of Difficulty			
	Level A Knowledge	Level B Understanding	Level C Application	Level D Evaluate, analyse & synthesize	Easy	Medium	Difficult	Very difficult
1.1	1				1			
1.2		3				3		
1.3a)		1			1			
1.3b)		1			1			
1.4			1			1		
1.5			1				1	
1.6a)			1			1		
1.6b)			1			1		
2.1	1				1			
2.2				2			2	
2.3		3					3	
2.4				2				2
2.5	1	3	2			6		
3.1	1				1			
3.2	1				1			
3.3	1				1			
3.4			2				2	
3.5				2				2
4.1a)				1			1	
4.1b)				1			1	
4.2		2				2		
4.3				2			2	
4.4				2			2	
4.5				2				2
4.6				3			3	
5.1		2				2		
5.2			5				5	
Total	6	15	13	17	7	16	22	6
Percentage	12	30	26	34	14	32	44	12

