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LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES

Mid-year Examinations

20 May 2024

MARKING GUIDELINES

MARKS: 150

These marking guidelines consists of 10 pages including the cover page

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PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. If more information than marks allocated is given Stop marking when maximum marks are reached and put a wavy line and 'max' in the right hand margin.
2. If, for example, three reasons are required and five are given Mark the first three irrespective of whether all or some are correct/incorrect.
3. If whole process is given when only part of it is required Read all and credit relevant part.
4. If comparisons are asked for and descriptions are given Accept if differences / similarities are clear.
5. If tabulation is required but paragraphs are given Candidates will lose marks for not tabulating.
6. If diagrams are given with annotations when descriptions are required Candidates will lose marks.
7. If flow charts are given instead of descriptions Candidates will lose marks.
8. If sequence is muddles and links do not make sense Where sequence and links are correct, credit. Where sequence and links are incorrect, do not credit. If sequence and links become correct again, resume credit.
9. Non-recognized abbreviations Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of answer if correct.
10. Wrong numbering If answer fits into the correct sequence of questions but the wrong number is given, it is acceptable.
11. If language used changes the intended meaning Do not accept.
12. Spelling errors if recognizable accept provided it does not mean something else in Life Sciences or if it is out of context.
13. If common names given in terminology: only accept if provided as an alternative in the marking guideline.
14. If only letter is asked for and only name is given (and vice versa) No credit.
15. If units are not given in measurements: Candidates will lose marks. Memorandum will allocate marks for units separately
16. Be sensitive to the sense of an answer, which may be stated in a different way.
17. Caption: All illustrations (diagrams, drawings, graphs, tables, etc.) must have a caption
18. Code-switching of official languages (terms and concepts) A single word or two that appears in any official language other than the learners' assessment language used to the greatest extent in his/her answer should be credited, if it is correct.
19. No changes must be made to the marking guidelines without consulting the Provincial office through your District office.

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SECTION A

QUESTION 1

1.1. 1.1.1. C✓✓
1.1.2. D✓✓
1.1.3. A✓✓
1.1.4. B✓✓
1.1.5. D✓✓
1.1.6. B✓✓
1.1.7. B✓✓
1.1.8. D✓✓
1.1.9. A✓✓
1.10. A✓✓

(10x2) **(20)**

1.2. 1.2.1. Root pressure ✓
1.2.2. Chromatin✓
1.2.3 Goblets✓
1.2.4. Sensory✓
1.2.5 Cranium✓
1.2.6. Joint✓
1.2.7. Neuron✓
1.2.8. Endoplasmic reticulum✓
1.2.9. Potometer✓

(9 x 1) **(9)**

1.3. 1.3.1. A only✓✓ (2)
1.3.2. B only✓✓ (2)
1.3.3. A Only✓✓ (2)

(3x2) **(6)**

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1.4.	1.4.1.	(a) Substrate molecule ✓	(1)
		(b) Enzyme-substrate molecule ✓	(1)
		(c) Products ✓	(1)
	1.4.2	Lock and Key Model ✓	(1)
	1.4.3	Enzymes are specific to the reaction they catalyse ✓	(1)
	1.4.4	• Enzymes are sensitive to temperature✓ • Enzymes are sensitive to pH✓ • Enzymes can be used repeatedly✓ **(ANY 2)**	(2)
	1.4.5	To show that the enzyme has catalyzed /acted on the substrate molecule✓	(1)
			(8)
1.5.	1.5.1	(a) B/D ✓	(1)
		(b) C✓	(1)
		(c) B✓	(1)
		(d) Food D has 10 mg Vitamin C/ 100 g 30 mg/ 10 mg = 3✓ So: 3 x 100g✓ of food D provide 30 mg ✓of Vitamin C	(3)
	1.5.2.	D ✓	(1)
			(7)
		TOTAL SECTION A:	**[50]**

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SECTION B

QUESTION 2

2.1 2.1.1 Animal Cell ✓ (1)

2.1.2 (2)
- Small vacuole✓
- Irregular shape✓

2.1.3 3✓ (1)

2.1.4 (3)
- 1 - Golgi body✓
- 2 – Mitochondrion✓
- 3 - Cell membrane✓

2.1.5 (5)

Plant cell	Animal cell
• Has a regular shape✓ • Cell wall present✓ • Has a large vacuole✓ • Has no centriole✓ • May have plastids✓	• Has an irregular shape✓ • Cell wall absent✓ • Has small numerous vacuole✓ • Has centriole✓ • Have no plastids✓

1 mark for table plus first 2 in each pair in the table

(12)

2.2. 2.2.1 A: Spindle fibres✓ (1)

B: Equator ✓ (1)

C: Cell membrane ✓ (1)

2.2.2 Metaphase (3)
- Chromosomes arrange themselves along the equator✓
- Chromosome attach to spindle fibres✓
- By centromeres✓

2.2.3 It forms new cells used for: (2)
- Growth in the size of the organism ✓
- Repair and replacement of work out or damaged tissue✓
- Brings about asexual/ vegetative reproduction✓ (Any 2)

2.2.4 (2)
- Spindle fibre contract ✓
- Chromatids are pulled to opposite direction/poles ✓

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2.2.5 (a) Causes of cancer (3)

- Radiation ✓
- Genetics ✓
- Infectious agent ✓

(Any other relevant answers)

(b) Treatment of cancer (3)

- Chemotherapy/ radiotherapy ✓
- Surgery ✓
- Traditional medicine ✓

(16)

2.3.

2.3.1. (a) A✓ (1)

. (b) E✓ (1)

2.3.2. Mesophyll✓ (1)

2.3.3.
- They are below surface of the epidermis enable pocket of still, moist air to be in direct contact with the stoma✓
- This pocket of air reduces the water potential gradient between the inside and outside of the leaf. ✓
- Thus decrease the transpiration rate. ✓

(3)

2.3.4 - Contains many chloroplasts✓ for absorption of sunlight✓ (4)

- cells are thin walled✓ and this facilitate gaseous exchange ✓

(10)

2.4. 2.4.1. Carbohydrates✓ (1)

2.4.2. Monosaccharides✓✓ /glucose (2)

2.4.3.
- Building blocks of all organic material in cells✓
- Enzymes are proteins which control many reactions ✓
- Hormones are proteins which control metabolic✓activities/processes✓
- Reserve source of energy✓ (Any Four)

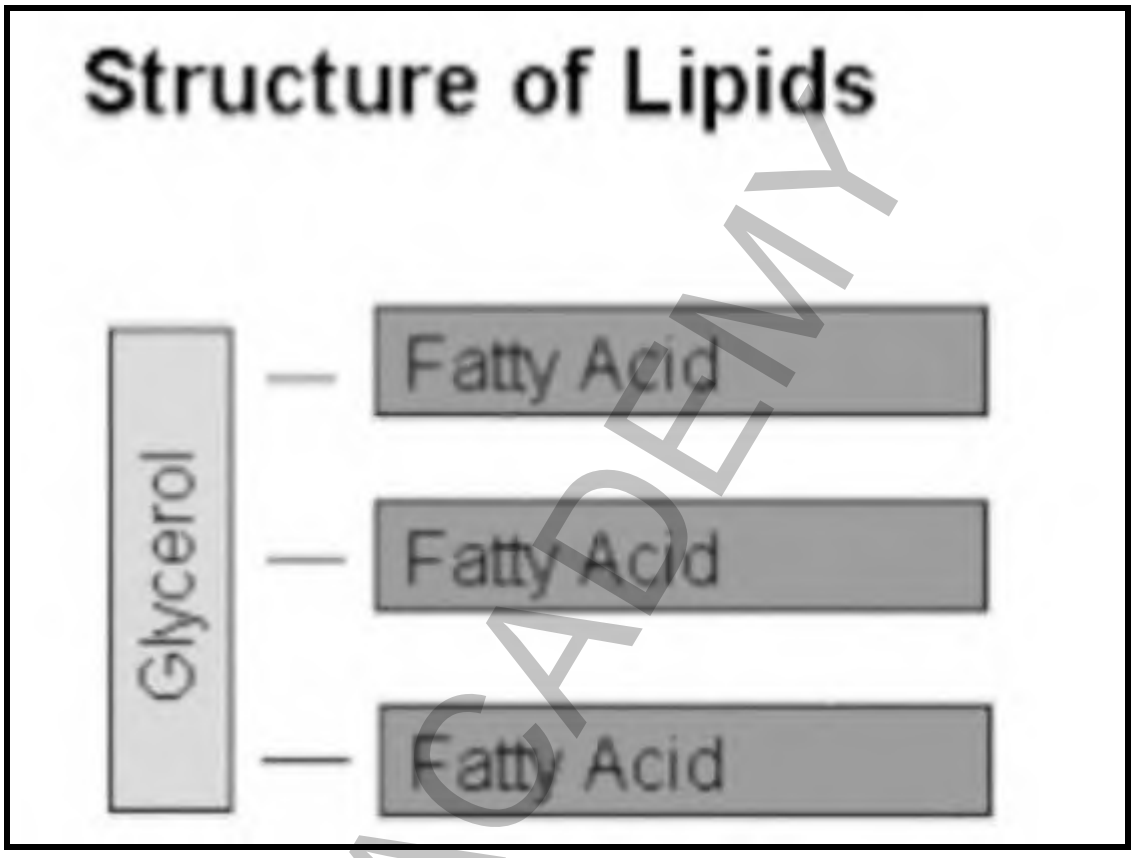
(4)

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2.4.4. **Rubric to be used to assess the diagram of lipid** (4)



Heading	1
One glycerol	1
Three fatty acids	1
Structure E-shaped	1

2.4.5. Iron ✓ (1)

(12)

[50]

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QUESTION 3

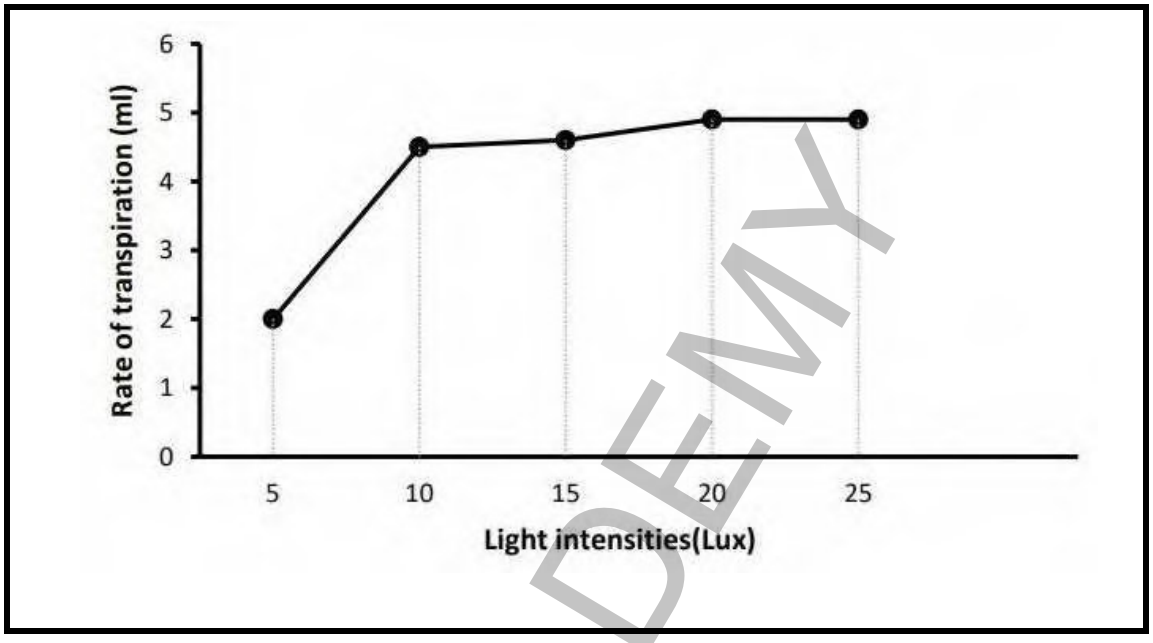
3.1			
	3.1.1	Ciliated columnar epithelium✓	(1)
	3.1.2	A - Goblet ✓	(1)
		B - nucleus✓	(1)
	3.1.3	Stomach ✓ Small intestines ✓	(2)
	3.1.4	• Provides support to other cell types. ✓ • Absorbs food, water and minerals. ✓ • Goblet cells secrete mucus✓	(3)
	3.1.5	• Has goblet cells ✓ • That produces mucus to trap the germs/moisten the surface✓ • Has cilia✓ • Remove dust particles ✓	(4)
			(12)
3.2	3.2.1	(a) B✓ – xylem ✓	(2)
		(b) C✓ - Sclerenchyma ✓	(2)
	3.2.2	- Cells are elongated and non living ✓/ joined and forming continuous tubes✓ - Contains thickened / lignified walls to withstand pressure of water ✓ - Perforated with pits for lateral water transport ✓	(4)
			(8)
3.3	3.3.1	Root✓	(1)
	3.3.2	• cross walls are perforated or completely absent ✓ • xylem of the roots forms continuous tubes with xylem of stem and leaves✓ • xylem vessels have no living contentsΠ allowing water to flow freely inside✓ • walls of vessels tracheids not completely thickened✓ • that allow pits water to move across the roots and stem✓ **(Any 2 x2)**	(4)
			(5)
3.4	3.4.1	(a) rate of transpiration in leaves ✓	(1)
		(b) different light intensities ✓	(1)
	3.4.2	it increased the rate of transpiration. ✓	(1)
	3.4.3	– repeat the investigation ✓ - increase sample size ✓	(2)

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3.4.2



Marking Criteria:

Correct type of Graph **(T)**		1
Caption (C)		1
X- axis with label and correct units		1
Y-axis with label and correct (units		1
Plotting	1-4 correct points plotted	1
	All correct sectors	2

(6)

3.4.5 The rate of transpiration increases with an increase with the light intensity up to a point where it no longer increases ✓✓ (2)

(13)

3.5 3.5.1 (a) Metatarsal✓ (2)

(b) Tibia✓

3.5.2
- **Sprain** -the ligaments and connective tissue✓ is torn and swells✓ (6)
- **Fracture**- the bone✓ is cracked or completely broken✓
- **Dislocation** – the bone✓ has moved out of position✓

3.5.3 Vertebral column✓ (1)

3.5.4 Protects the spinal cord. ✓✓ (2)

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3.5.5
- Good support and attachment for muscles✓
- Reduces water loss✓
- Thin and flexible at joints for quick movement✓
- Protection✓

(4)

(15)

TOTAL SECTION B: [100]

GRAND TOTAL: 150

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