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LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION



NATIONAL
SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES

JUNE EXAMINATION 2023

MARKING GUIDELINES

MARKS: 150

This MARKING GUIDELINE consists of 9 pages including the cover page.

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PRINCIPLES RELATED TO MARKING LIFE SCIENCES 2023

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 spelling errors. If recognizable accept provided it does not mean something else in Life Sciences or if it is out of context.

12. If common names given in terminology Accept provided it was accepted at the Provincial memo discussion meeting.

13. If only letter is asked for and only name is given (and vice versa) No

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credit.

14. If units are not given in measurements Candidates will lose marks. Memorandum will allocate marks for units separately.

15. Be sensitive to the sense of an answer, which may be stated in a different way.

16. Caption All illustrations (diagrams, drawings, graphs, tables, etc.) must have a caption

17. 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. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.

18. No changes must be made to the marking memoranda without consulting the Provincial Internal Moderator.

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SECTION A
QUESTION 1

1.1.1. B✓✓
1.1.2. C✓✓
1.1.3. B✓✓
1.1.4. C✓✓
1.1.5. D✓✓
1.1.6. A✓✓
1.1.7. A✓✓
1.1.8. D✓✓
1.1.9. B✓✓
1.1.10 D✓✓ (10×2) (**20**)



1.2.1. Lipids ✓
1.2.2. Denaturation / Denature✓
1.2.3. protoplasm✓
1.2.4. Leucoplasts✓
1.2.5. Epidermis / Epidermal cells✓
1.2.6. Chlorosis ✓
1.2.7. Guttation ✓
1.2.8. Cytokinesis✓
1.2.9 Nucleolus ✓ (9×1) **(9)**

1.3.1. B Only✓✓
1.3.2. A only✓✓
1.3.3. B0th A and B✓✓ (3 x 2) **(6)**

1.4.1. Lock and key mechanism ✓ (1)
1.4.2. Speed up chemical reactions ✓ without being used up in a reaction✓. (2)
1.4.3. – proteases are enzymes that breaks down proteins.✓ (3)
-- helps to work on breaking down, eggs ✓, and gravy✓ (any stains that are protein in nature.✓
1.4.4. 5: glucose ✓
6: glucose ✓ (2)
(8)

1.5.1. - A compound which has carbon with hydrogen and oxygen✓ (1)
1.5.2. (a) Carbohydrate✓
(b) Lipid / Fat✓
(c) Protein✓ (3)
1.5.3. - B does not have N ✓ whereas C has N ✓ (2)
1.5.4. A✓ (1)

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TOTAL SECTION A: 50

QUESTION 2

2.1.1 B: cytoplasm ✓
E: nucleoplasm ✓ (2)

2.1.2 (a) D ✓
(b) A ✓
(c) H / I ✓ (3)

2.1.3 - Rod shaped ✓
- Surrounded by a double membrane ✓ (Any 2 x 1) (2)
- Inner membranous projections called cristae ✓

2.1.5 ✓

	Plant cell		Animal Cell
1.	Cell wall present ✓	1.	No cell wall present ✓
2.	Plastids present ✓	2.	No plastids present ✓
3.	Large vacuoles ✓	3.	Small or no vacuoles ✓

Any 2 reasons (2 x 2)
1 mark for table (5)

(12)

2.2 2.2.1 A: Interphase ✓
B: Prophase ✓
C: Metaphase ✓
D: Anaphase ✓ (4 x 1) (4)

2.2.2 - Spindle fibres contract ✓
- Two chromatids pull apart ✓
- to opposite sides of the cell (poles) ✓
- Chromosomes split at the centromere ✓ (Any 3 x 1) (3)

2.2.3 - Growth: Increase in size of the organism ✓
- Replacement of dead cells ✓
- Responsible for asexual reproduction in certain plants and animals ✓
- Repairs damaged tissues ✓ (Any 2 x 1) (2)

2.2.4. In an animal cell Cytokinesis occurs through a constriction / invagination ✓ of the cell membrane, and two cells are formed and, in a plant, cell Cytokinesis occurs through the formation of a cell plate

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✓from the centre of a cell and divides the cell into two (2)

2.2.5 (a) - Smoking ✓
- Radiation ✓
- Hormonal imbalances ✓
- Viruses ✓
- Exposure to certain chemicals and pollutants ✓

(Any reasonable answer) (Any 3 x 1) (3)

(b) Chemotherapy / Surgery / Radiotherapy ✓✓ (2)

(16)

2.3.1. **4**- Air space / air chamber. ✓

8- spongy mesophyll✓

9-palisade mesophyll ✓ (3)

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2.3.2. it traps moisture and prevent evaporation. ✓ it is a translucent layer that allows sunlight to enter ✓ (Any 1×1) (1)

2.3.3. **3-** chloroplast ✓ (1)

2.3.4. **5**- has brick shaped cells ✓Has no chloroplasts ✓ (any 1×1) (1)

7- has bean like cells ✓ Has chloroplasts ✓ (any 1×1) (1)

2.3.5. consist of dead cells

- They are elongated and hallowed cells.✓
- joined end to end.✓
- has unevenly thickened walls made of lignin.✓
- they may have spiral or round thickened walls. ✓ (any 3×1) (3)

(10)

2.4.1. 7.8g ✓ (1)

2.4.2. – Storage of energy✓

-- makes up the cell membrane ✓

--component of chromosomes ✓

-- Enzymes are proteins, control chemical reactions in organisms ✓

-- Hormones are proteins that controls growth and development✓

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(any 2x1) (2)

2.4.3. These fats are derived from animals✓, Excessive intake of this fats leads to high cholesterol level in the blood✓, which causes fat deposits in the arteries therefore narrowing them✓. (3)

2.4.4. Yes✓, low level of saturated fat✓ in relation to total fat content✓ (3)

2.4.5. Amount of sodium in one sausage = 380 mg (0.38g)

Amount of sodium in three sausages= 3×380mg / (3×0.38g)✓ (3)

= 1140✓ mg✓ / (1.14g) **(12)**

[50]



QUESTION 3

3.1.1.

a) Columnar epithelium ✓ (1)

b) B- Ciliated Columnar epithelium (1)

3.1.2. Lines the nose✓ and windpipe✓ (2)

3.1.3.

Simple columnar	**Ciliated columnar**
No cilia ✓	Have cilia ✓

ONE MARK FOR THE TABLE✓ (3)

3.1.4. Produces mucus to trap dust ✓

- Has cilia to move dust away the body✓ (2)

(9)

3.2.1. (a). B✓ Xylem ✓ (2×1) (2)

(b). C ✓Sclerenchyma✓ (2×1) (2)

3.2.2. Cells are elongated and non living✓/joined end forming continuous tubes✓

-Contains thickened✓/lignified walls to withstand pressure of water✓

-Perforated with pits✓for lateral water transport✓ (Any 2×2) (4)

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(8)

3.3.1 B- cytoplasm ✓ (1)

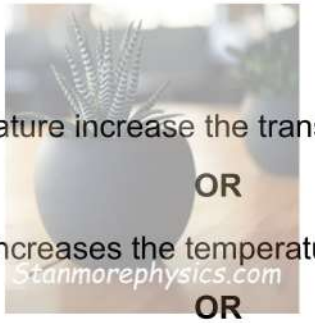
3.3.2. It has no cuticle, so it can absorb water. ✓

It has a vacuole to stop water.✓

Root hair is unicellular with a thin wall.✓ (any 2×2) (4)

(5)

3.4.



3.4.1. As the temperature increase the transpiration rate will increase ✓✓

OR

As the temperature increases the temperature will decrease ✓✓

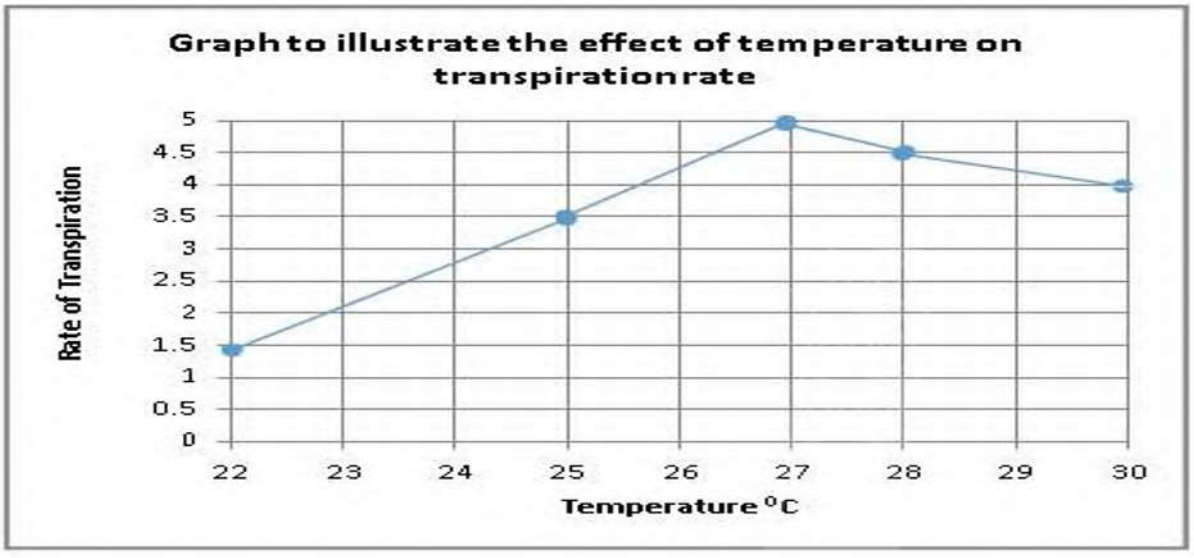
OR

Change of temperature will have No effect on the rate of transpiration. ✓✓ (2)

3.4.2. (a) Transpiration rate ✓ (1)

(b) Temperature ✓ (1)

3.4.3.



Rubric: Graph

Type of graph	1✓
Heading for the graph	1✓

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Correct scale X-axis and Y-axis	1✓
Correct label X and Y Axis	1✓
Plotting values	1✓
Joining of points	1✓

(6)

3.4.4. – as the temperature increases the rate of transpiration increases to an optimum temperature, the transpiration rate then starts to decrease✓ (1)

(11)

3.5.1 - Movement: Skeleton with attached muscles allows for movement ✓
- Protection: Protects internal organs of the body ✓
- Storage of minerals: Various minerals such as calcium stored by the bones ✓
- Framework: Gives body shape ✓ (Any 2 x 2) (4)

3.5.2 A ✓ and B ✓ (2)

3.5.4 G ✓ (1)

3.5.5 (a) Biceps ✓ and triceps ✓ (2)

(b) Protein ✓ (1)

(c) - Muscles work in opposition ✓ to each other (antagonistic)
- When one contracts ✓ the other relaxes ✓ **OR**
(biceps contract, triceps relax) ✓ (3)

(d) It will prevent✓ the straightening ✓ of the arm. (2)

3.5.6 Osteoporosis, ✓ Rickets ✓ of Arthritis ✓ (Any 2 x 1) (2)

(17)

[50]

TOTAL SECTION B: 100

GRAND TOTAL: 150

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