KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

Stanmorephysics.com

LIFE SCIENCES

JUNE EXAMINATION

2025

MARKING GUIDELINE

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MARKS: 150

N.B This marking guideline consist of 11 pages.

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PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
   Stop marking when maximum marks is 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 a part of it is required**
   Read all and credit the relevant part.

4. **If comparisons are asked for but descriptions are given**
   Accept if the 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 muddled 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-recognised abbreviations**
   Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of the 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 recognisable, accept the answer, provided it does not mean something else in Life Sciences or if it is out of context.

13. **If common names are given in terminology**
   Accept, provided it was accepted at the national memo discussion meeting.

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14. **If only the letter is asked for but only the name is given (and vice versa). DO NOT 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, graphs, tables, etc.) must have a caption.

18. **Code-switching of official languages (terms and concepts)**
    A single word or two that appear(s) in any official language other than the learners' assessment language used to the greatest extent in his/her answers 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.

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SECTION A

QUESTION 1

1.1 1.1.1 D✓✓
1.1.2 C✓✓
1.1.3 B✓✓
1.1.4 D ✓✓
1.1.5 D✓✓
1.1.6 B/C✓✓
1.1.7 **No answer**
1.1.8 B✓✓
1.1.9 C✓✓
1.1.10 C✓✓



2x9 **(18)**

1.2 1.2.1 Polysaccharides ✓
1.2.2 Goblet✓ cells
1.2.3 Amino acids ✓
1.2.4 Chromoplast ✓
1.2.5 Cranium ✓
1.2.6 Atria ✓
1.2.7 Fibrous✓connective tissue
1.2.8 Phloem ✓
1.2.9 Stem ✓

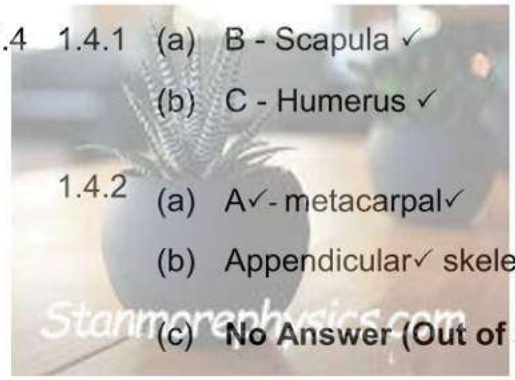
1x9 **(9)**

1.3 1.3.1 A only ✓✓
1.3.2 Both A and B ✓✓
1.3.3 A only ✓✓
1.3.4 None ✓✓

4x2 **(8)**

1.4 1.4.1 (a) B - Scapula ✓ (1)

(b) C - Humerus ✓ (1)



1.4.2 (a) A✓- metacarpal✓ (2)

(b) Appendicular✓ skeleton (1)

(c) **No Answer (Out of scope)**

(5)

1.5 1.5.1 (a) Vein ✓ (1)

(b) Capillary✓ (1)

1.5.2 (a) V ✓ - Artery✓ (2)

(b) W ✓- Vein✓ (2)

(6)

TOTAL QUESTION 1 (46)
TOTAL SECTION A 46

SECTION B

QUESTION 2

2.1.1 (a) Y- parenchyma ✓ (1)

(b) Z – columnar epithelium ✓ (1)

2.1.2 (a) Thin✓/ flat /single layer of cells
lining blood vessels✓/mouth / lungs (2)

(b) Long ✓/elongated/ single layer of cells
lining the stomach✓/intestines/ parts of respiratory tracts (2)

2.1.3
- Act as a packaging tissue✓
- Store food in the form of starch and other sugars✓
- Allows for movement of water and gases through their intercellular spaces ✓

(Mark Any ONE) (1)

2.1.4
- The cells are elongated cells, ✓/ where the cross walls disappear to form continuous tubes for the transport of water✓
- Xylem tissue does not contain cytoplasm✓/ contains no living tissue so that the path of water is not blocked ✓by the cytoplasm
- The cellulose cell walls are strengthened with lignin, ✓ to prevent them from collapsing ✓under the strong suction pressure

Any (2x2) (4)
(11)

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2.2 2.2.1 Osmosis ✓ (1)

2.2.2

Passive transport	Active transport
-Does not require energy✓/ carrier molecule	-Requires energy/ ✓carrier molecule
-Movement along concentration gradient✓	-Movement against concentration gradient✓

(Table* + any 1 × 2) (3)

2.2.3 (a)
- To serve a baseline✓/ reference point
- where the results will be compared✓ after two hours
- To see how much water the beaker lost✓ after two hours

Any (TWO) (2)

(b) There is an increase in the amount of solution in the visking tubing ✓
Since the water has moved from the beaker✓ into the visking tubing.
Through the selectively permeable membrane✓
and the visking tubing increased in size✓
(4)

(c) They are large✓ to pass through the selectively permeable membrane✓ of the visking tubing (2)
(12)

2.3 2.3.1 (a) Plant cell ✓ (1)
(b) Vacuole✓ (1)
(c) Cell wall✓ (1)

2.3.2 Has :
- Cell wall✓
- Chloroplast✓
- Regular shape✓
- Large vacuole✓ (Any TWO) (2)

(Mark the first TWO)

2.3.3
- Provide support to the plant cell✓
- Serves a s storage organelle✓/Stores water/salts (2)

(Mark the first TWO)

2.3.4 (a)
- During cellular respiration part D/mitochondrion produces/store energy✓
which will be used by the cell for to function✓/for metabolic process. (2)

(b)
- No movement of substances in and out of the cell✓
- there will be shortage of useful substances inside the cell✓
- the waste material will also accumulate inside the cell✓
- resulting to the death of the cell✓/cell become dysfunctional (4)

(13)

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2.4 2.4.1 Action of pepsin ✓ (1)

2.4.2 37°✓C (1)

2.4.3 - Increase the sample size✓ / amount of stomach fluid and proteins
- Repeat investigation✓several times (2)

2.4.4 % increase = $\frac{9.5 - 4.0}{4.0}$ ✓ x 100 ✓
= 137.5%✓ (3)

2.4.5 (a) The starch would not be digested✓✓ (2)

(b) **No Answer**

2.4.6 **No Answer**

(9)

TOTAL QUESTION 2 **[45]**

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QUESTION 3

3.1 3.1.1 Vacuole ✓ (1)

3.1.2 - Controls all the activities of the cell✓
- Contains DNA which controls hereditary characteristics✓
(**Mark the first ONE)** (Any ONE) (1)

3.1.3 Root hair region ✓ (1)

3.1.4 - Root pressure✓
- Transpiration pull✓
- Capillarity ✓ (3)

3.1.5 (a) - Part C/ cell wall of a root hair is fully permeable✓ and allows both salt and water to pass through✓ whereas
- Part D/ cell membrane of a root hair is semi-permeable ✓ and does not allow dissolves salt molecules to pass through✓ (4)

(b) Has:
- finger like projections✓
to increase surface area for absorption of water✓
- Thin cell wall✓ /without cuticle
to absorb water from the soil✓
- Low water potential in cell sap✓
increases the absorption of water✓ Any(2x2) (4)
(**Mark the first TWO)**

(14)

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3.2 3.2.1 D✓ (1)

3.2.2
- Oxygenated blood returns from the lungs ✓
- Enters the heart through pulmonary veins✓
- Into the left atrium✓
- Pass the bicuspid valve✓/mitral valve enters the left ventricle
- which pumps the blood to part A✓/aorta (5)

3.2.3 Part C/left ventricle is thicker and muscular✓/Larger while part E/right ventricle is thinner and less muscular✓ (2)

3.2.4
- The heart will be starved of oxygen✓
- Since the blood with oxygen cannot enter✓
- Leading to serious heart diseases✓ like heart attack /death of heart muscle (3)

(11)

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3.3 3.3.1 To measure the rate of transpiration under different environmental conditions✓✓ (2)

3.3.2 Plastic bag✓ (1)

3.3.3 (a) **No Answer**

(b) Same Leafy twig was used ✓ (1)

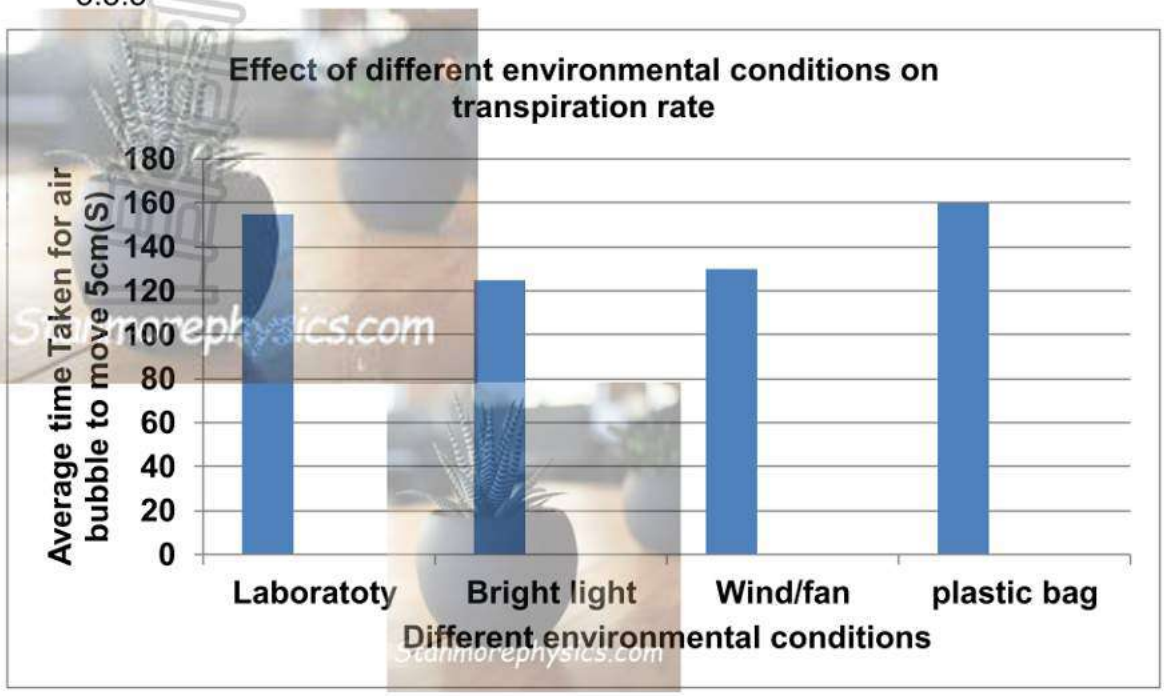
3.3.4

(a) Leafy twig shoot should be cut at oblique angle ✓

To increase surface area for water absorption ✓ (2)

(b)
- The stomata would be clogged✓ /blocked
- Causing the leaf to retain water✓
- and stopping transpiration✓ (3)

3.3.5



Criteria for marking of the graph:

Criteria	Marking allocation
Bar graph drawn **(T)**	1
Caption of the graph includes both variables **(C)**	1
Correct labels on the X- axis and Y-axis with correct units of Y-axis **(L)**	1
Correct scale for Y – axis and bars of equal width and equal spaces in between bars on X-axis **(S)**	1
Plotting **(P)** correctly done for: 1-3 points All four points	 1 2

(6)
[15]

3.4

3.4.1 Cancer is a disease caused by abnormal and uncontrolled cell division in the body✓✓ (2)

3.4.2 (a) Destroys healthy bone marrow✓ (1)

(b) -Replace the diseased and damaged bone marrow✓

- Produces the blood cells and platelets ✓

-Contains stem cells ✓

-Stores fat✓ (Any ONE) (1)

(c) Is caused by abnormal stem cells in the bone marrow✓

producing defective✓/ immature blood cells (2)

3.4.3 Surgery ✓
Radiotherapy ✓
(**Mark the first TWO only**) (2)
(8)

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TOTAL QUESTION 3 [48]
TOTAL SECTION B 93
GRAND TOTAL 150

CONVERSION TABLE	
0-6	**+0**
7-18	**+1**
19-31	**+2**
32-44	**+3**
45-56	**+4**
57-69	**+5**
70-82	**+6**
83-94	**+7**
95-107	**+8**
108-120	**+9**
121-132	**+10**
133-139	**+11**

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