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education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

LIFE SCIENCES P1
MARKING GUIDELINES

NOVEMBER 2024

MARKS: 150

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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 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 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 unrecognized 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 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.

14. **If only letter is asked for and only name is given (and vice versa)**
    Do not credit.

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15. **If units are not given in measurements**
    Candidates will lose marks. Marking guideline 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 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. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.

19. **Changes to the memorandum**
    No changes must be made to the memoranda. The provincial internal moderator must be consulted, who in turn will consult with the national internal moderator (and the Umalusi moderators where necessary).

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SECTION A

QUESTION 1

1.1.1 A✓✓

1.1.2 C✓✓

1.1.3 C✓✓

1.1.4 B✓✓

1.1.5 D✓✓

1.1.6 A✓✓

1.1.7 C✓✓

1.1.8 B✓✓

1.1.9 B✓✓

1.1.10 D✓✓

10 x

1.2.1 Endothelium✓

1.2.2 Meristematic✓/ cambium

1.2.3 Iron✓

1.2.4 Centromere✓

1.2.5 Phloem✓

x

1.3.1 ✓✓

1.3.2 ✓✓

1.3.3 Both A and B✓✓

(3 x 2) **(6)**

1.4.1 (Light) Microscope✓ (1)

1.4.2 (a) Eyepiece✓lens (1)

(b) Coarse adjustment knob✓ (1)

✓

1.4.3 ✓

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1.4.4 The process of enlarging the apparent size of an object and not its physical size✓ (1)

1.4.5 50 mm x 0,9 µm ÷ 8✓
=5,6✓
=0,0056✓ (3)
(9)

1.5.1 (a) D✓ (1)

(b) B✓ (1)

(c) A✓ (1)

1.5.2 (a) G✓ (1)

(b) F✓ (1)

(e) E✓ (1)

1.5.3 It contains chloroplast✓ (1)

1.5.4 -The cell membrane will pull away from the cell wall✓/ the cell will plasmolyse
-since water will leave the cell✓by osmosis/exosmosis
-and move into the concentrated sugar solution✓/ because of concentration gradient. (3)

TOTAL SECTION A: [50]

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SECTION B

QUESTION 2

2.1.1 Organic compound is a compound which has carbon✓with hydrogen and oxygen✓

or

An organic compound is a compound which contain carbon ✓and bond to other elements like hydrogen, oxygen and nitrogen✓ (2

2.1.2 A ✓

B Lipid✓/Fats

C Protein✓

2.1.3 Monosaccharides✓/Saccharides

✓

2.1.4 A✓

(8)

2.2.1 Prophase✓ (1)

2.2.2 (a) A✓ (1)

(b) E✓ (1)

2.2.3 Chromatid✓

(b) Cytoplasm✓/ Cytosol (1)

2.2.4 -DNA replication occur✓ (2)
-To double the genetic material✓
-So that each cell after mitosis has identical genetic material✓

(Any two)

2.2.5 4✓ (1)

2.3.1 Chem ✓ 1

2.3.2 *Sutherlandia*✓ 1

2.3.3 There will be no DNA replication✓and hence no mitosis✓ (2)

2.3.4 -Repeat the investigation more than once✓ (2)
-Increase the number of the monkeys✓/use more than 10 monkeys
-Increase the sample size/use more than 500 males and 500 females

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2.4.1 Sensory neuron✓/ Unipolar (1)

2.4.2 (a) Cell body✓ (1)

(b) Dendrites✓/ Motor end plate (1)

2.4.3 Sensory neuron: conduct nerve impulses from the receptors/ sense organs to the central nervous system✓
Motor neuron: conduct nerve impulses from the central nervous system to the effectors✓/ muscles and glands
(5)

2.5.1 - Decide on what time✓to do the investigation (2)
- Decide on place✓where to do the investigation
- decide on the recording tool✓to use
- decide on the type of shirts✓ to use
Mark the first two only **(Any two)**

2.5.2 - Shirt type✓ (2)
- Type of detergent✓
- Time✓
Mark first two only **n**

2.5.3 Serve as a control✓to compare the results✓ (2)

2.5.4 The high temperature of the boiling✓ affects the fat- digesting enzyme activity. ✓ (2)
(8)

2.6.1 **B-** Parenchyma✓
C- Collenchyma✓ (2)

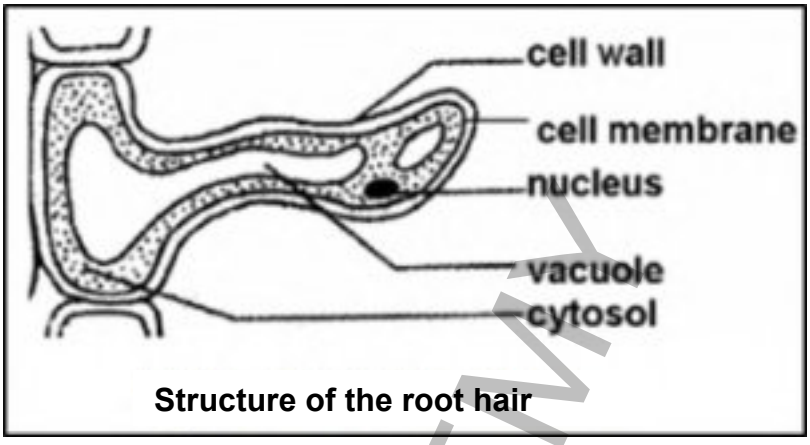
2.6.2 -The epidermal cells are transparent✓
- to allow sunlight to enter the leaf for photosynthesis✓
-The epidermal cells are closely packed✓
- to protect underlying cells✓
-The epidermal cells in the leaves are covered by **a** cuticle✓
- to reduce water loss✓
-The presence of guard cells with stomata✓
- allows for gaseous exchange✓
-The guard cells contain chloroplasts✓
- to allow for photosynthesis✓
Mark the first two only **(2x2)** (4)

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2.6.3



Structure of the root hair

(3)

RUBRIC TO ASSESS DRAWING

CRITERIA		MARK
Caption	**C**	1
Correct Dra	**D**	1
Correct	**L**	1

2.6.4 -It is a long tube-like outgrowth from the epidermis✓, to increase the surface area for absorption of water and nutrients✓ (4)
-It contains mitochondria✓ which releases energy for active transport✓
-Large vacuole✓ with lower water potential in cell sap than ground water✓
-Thin cell wall without cuticle✓ to maximise water movement into root✓
(Any two)

2.6.5 Water molecules will have a high amount of kinetic energy✓, allowing them to move into the root hair more readily✓ (2)

(15)

TOTAL QUESTION 2: [50]

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QUESTION 3

3.1.1 Axial skeleton✓ (1)

3.1.2 Foramen magnum✓ (1)

3.1.3 Atlas✓/ first cervical vertebra (1)

3.1.4 2:1:2:3
2:1:2:3 ✓

3.1.5 16✓ (1)

3.1.6 The number, type✓and arrangement✓of teeth of a specific animal (2)
(7)

3.2.1 A- Pivot joint✓
B- Hinge✓
C- Gliding joint✓

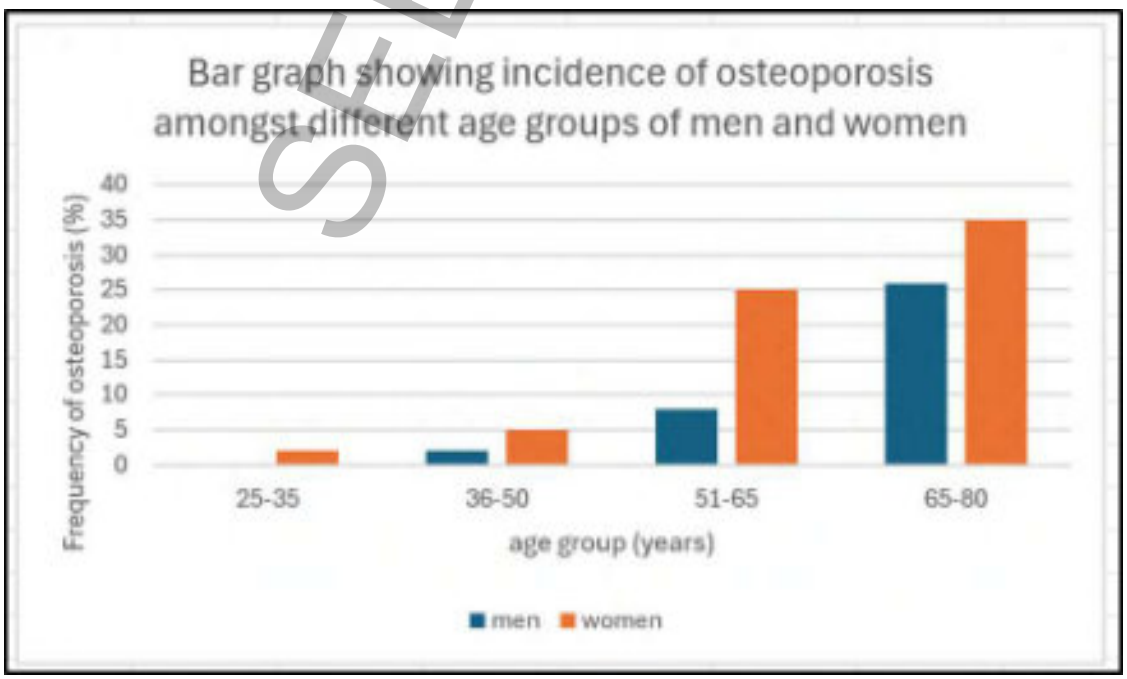
3.2.2 - Support
- Movement
- Hearing
- Storage of minerals **(Any three)** (3)
(6)

3.3.1 ✓

20- 35✓

3.3.2 Women✓

3.3.3



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RUBRIC TO ASSESS GRAPH

CRITERIA	MARK
Caption- **(C)**	1
Correct graph- **(T)**	1
Correct label on Y- and X-axes- **(L)**	1
Correct scale on Y- and X-axes- **(S)**	1
Plotting- **(P)**	1: 2 sets plotted correctly 2: ALL sets plotted correctly

(6)
(9)

3.4.1 1✓ and 4✓

(b) 2✓ and 3✓ (2)

3.4.2 Temperature✓ 1

3.4.3 - The leaves are smaller✓to reduce/decrease the surface area for evaporation✓ (4)
- The leaves have thorns✓which have fewer stomata✓
- The stomata occur in the lower epidermis of the leaf✓not exposed to direct sunlight✓
- Sunken stomata✓reduces the diffusion gradient between the outside of the leaf and air within the leaf✓
- Hairs on the leaf✓traps the water vapour✓
-Thick cuticle✓lowers the transpiration✓ **(Any two)** **(2x2)**

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3.4.4

Dicotyledonous root	Dicotyledonous stem
Xylem and phloem occur in a central stele.	Xylem and phloem occur in vascular bundles.
Xylem alternates with phloem/ xylem is arranged in a cross with phloem between the arms of the cross.	Xylem and phloem are arranged along the same radius/ vascular bundles are .
Clearly defined endodermis is present.	Endodermis is absent or not clearly visible.
Root hairs present.	Root hairs absent.
Pith absent.	Pith present.

Table 1 + any 2x2 (5)

3.5.1 The cuticle✓ ✓that is waterproof✓/ keeps water in and out

3.5.2 ✓

3.5.3 - Cross walls are perforated✓to form continuous tubes for movement of water.✓ (4)
- Xylem vessels have no cell content✓/dead/hollow, to allow the water to flow freely✓
- Walls are strengthened with lignin✓to prevent the walls of collapsing✓/ withstand sucking force of transpiration/ to allow water to move freely
- Walls have pits✓to allow lateral movement of water✓
- They are long and cylindrical✓to allow continuous movement of water✓

Mark the first two only **(2x2)**

3.5.4 Photosynthesis✓ (1)

3.5.5 Osmosis✓/Root pressure/ Transpiration pull/ Transpiration (1)
(10)

3.6 - Cut the stem of the plant underwater✓,to prevent air from entering the xylem✓ (4)
- Apply petroleum jelly✓/Vaseline, to make the potometer airtight✓
- Cut the stem at an angle✓, to expose more of the xylem for water absorption ✓

(Any two) **(2x2)**
(4)

TOTAL QUESTION 3: **[50]**

TOTAL SECTION B: **100**
GRAND TOTAL: **150**

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