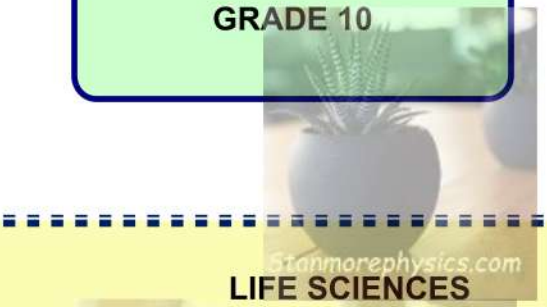
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SENIOR CERTIFICATE

GRADE 10

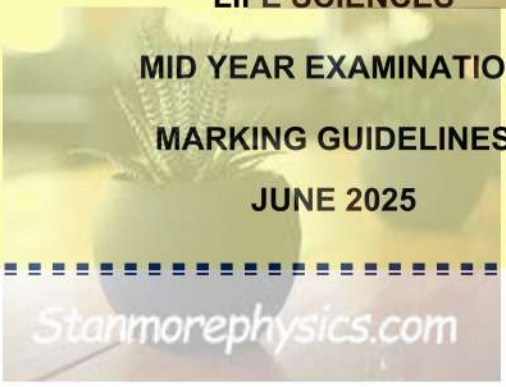


LIFE SCIENCES

MID YEAR EXAMINATION

MARKING GUIDELINES

JUNE 2025



Marks: 150

Time: 2½hours

This Marking Guideline consists of 11 pages

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PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. If more information than the 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 the 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
   Learners will lose marks for not tabulating.

6. If diagrams are given with annotations when descriptions are required
   Learners will lose marks.

7. If flow charts are given instead of descriptions
   Learners 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 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 the questions but the wrong number is given, it is acceptable.

11. If the language used changes the intended meaning
    Do not accept.

12. Spelling errors
    If recognisable, accept answer, provided it does not mean something else in Life Sciences or if it is used 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 the letter is asked for but only the name is given (and vice versa)
    Do not accept.

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15. If units are not given in measurements
Learners 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.



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SECTION A

QUESTION 1

1.1

1.1.1 B✓✓

1.1.2 B✓✓

1.1.3 C✓✓

1.1.4 C✓✓

1.1.5 D✓✓

1.1.6 B✓✓

1.1.7 C✓✓

1.1.8 A✓✓

1.1.9 D✓✓

1.1.10 A✓✓



(10 x 2) **(20)**

1.2

1.2.1 Denature/denaturation✓

1.2.2 Karyokinesis✓

1.2.3 Centromere✓

1.2.4 Epidermis/epidermal cells✓

1.2.5 Cancer✓

1.2.6 Xylem✓

1.2.7 Cell✓

(1 x 7) **(7)**

1.3

1.3.1 A only✓✓

1.3.2 A only✓✓

1.3.3 B only✓✓

1.3.4 B only✓✓ (2x4) **(8)**

1.4

1.4.1 Diagram 1✓ (1)

1.4.2
- Xylem is arranged in the form of a cross✓
- phloem occurs between the arms of the cross✓
- clearly defined endodermis is visible✓
- Root hairs are present✓ **ANY TWO** (2)

1.4.3 A✓, B✓, E✓, G✓ **ANY TWO**
Pericycle✓
Endodermis✓
Phloem✓
Xylem✓ **ANY THREE** (5)

1.4.4 **P** epidermis✓ (1)

1.4.5 Because they are groups✓ of similar cells which perform a common function✓ (2)

1.4.6 Cells are cylindrical✓
thick walls impregnated with lignin✓
large lumen✓
Long tubes with openings✓
No cell contents (dead cells)✓ (2)

1.4.7 (a) B and C✓ (Any 1) (1)
(b) A✓ (1)
(15)

[50]

TOTAL SECTION A: 50

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SECTION B

QUESTION 2

2.1

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

2.1.2 Carbon✓, Hydrogen✓, Oxygen✓ (3)

2.1.3
- source of reserve energy✓
- insulating material ✓
- Shock absorption ✓
- Water proofing✓ (3)

2.1.4 fatty acids✓ and glycerol✓ (2)

2.1.5 Yes✓, low level of saturated fat✓ in relation to total fat content✓ (2)

2.1.6 Amount of sodium in one sausage = 380 mg (0,38g)

Amount of sodium in three sausage = 3 x 380 mg/ 3 x 0,38 g✓

=1140 ✓mg✓ / (1,14 g) (3) **(16)**

2.2

2.2.1 Motor neuron✓ (1)

2.2.2 Motor neuron carry impulses✓

from the brain / spinal cord ✓ to the effectors / gland /

Muscle ✓to bring about a response ✓.(Any 2) (2)

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2.2.3 1 Nucleus✓
2 Myelin sheath✓
5 Dendrite✓ (3)

2.2.4 **(a) 5** Receive and transmit impulses to the cell body✓ (1)

(b) 2 Protects the axon✓ (1)

(c) 6 Transmit impulse away from the cell body / transmits impulse to the effector organ /muscle / forms synaptic knob / node with effector organ / muscle✓ (1)

2.2.5 A junction between two neurons/nerve cells✓ (1)
(10)

2.3

2.3.1 Traps sunlight for photosynthesis✓
Allow gaseous exchange for photosynthesis / respiration / and transpiration✓ **ANY ONE** (1)

2.3.2 1 – Cuticle✓
2 – (Upper) epidermis ✓ (2)

2.3.3 1 – protects the epidermis reducing excessive moisture loss✓

- Allowing sunlight to pass through for photosynthesis✓
ANY ONE
3 – Photosynthesis✓ (2)

2.3.4 carbon dioxide✓ , oxygen✓ and water vapour✓
ANY TWO (2)

2.3.5
- **Spongy parenchyma** is rounded✓ while **palisade parenchyma** is elongated✓
- **Spongy parenchyma** contains few✓ number of chloroplasts while **palisade parenchyma** contains a large✓ number of chloroplasts
- **Spongy parenchyma** contains large intercellular spaces✓ while **palisade parenchyma** does not have✓ intercellular spaces **ANY 2X2** (4)
(11)

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2.4

2.4.1 **Protection**: protects internal organs of the body ✓
Storage of minerals: Various minerals such as calcium stored by the bones✓
Framework: Gives the body shape✓ **ANY TWO** (2)

2.4.2
(a) D✓ and E✓ (2)
(b) Pectoral girdle✓ (1)

2.4.3
(a) F✓ (1)
(b) C✓ (1)

2.4.4
(a) Biceps/triceps✓ (1)
(b) Protein✓ (1)
(c) They bring about movement ✓
They work antagonistically to make movement possible✓ **ANY ONE** (1)

2.4.5 (a) It will prevent the straightening of the arm✓ (1)
(b) Osteoporosis✓
Rickets✓
Arthritis✓ **ANY 2** (2)
(13)
(50)

QUESTION 3

3.1

3.1.1 **X** - Mitochondrion✓ and **Y**- Chloroplast✓ (2)

3.1.2 (a) Cellular respiration✓✓ (2)
(b) Photosynthesis✓✓ (2)

3.1.3 1 – Stroma✓ (2)
2 – Granum ✓

3.1.4 **A** – Carbon dioxide / CO_2✓
B – Oxygen / O_2✓
C – Carbon dioxide / CO_2✓
D – Oxygen / O_2 ✓ (4)

3.1.5 -Has differentially permeable double membrane✓

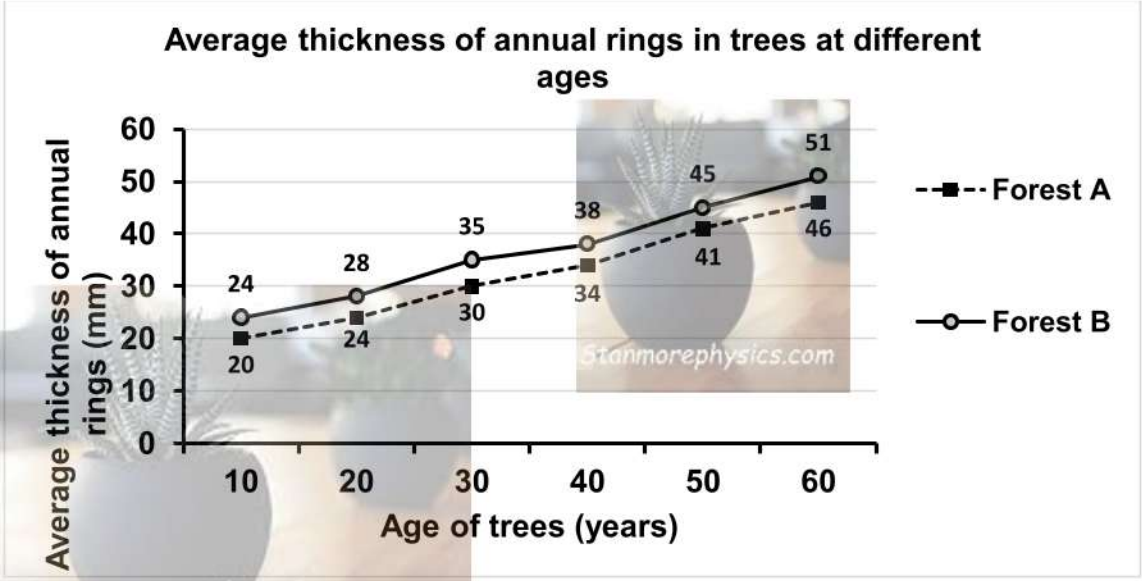
- Outer membrane is smooth for easy movement through the cytoplasm✓
- Inner membrane is folded / has cristae that increase surface area ✓
- Cristae coated with enzyme for maximum chemical ✓

ANY THREE (3)

(15)

3.2

3.2.1



Criteria and marks		Mark Allocation
Caption (both variables)	**C**	1
Line graphs are drawn (type)	**T**	1
X and Y axes (label, unit, scale)	**A**	1
Two graphs drawn	**G**	1
Plotting	**P**	1 – 10 readings correctly plotted: 1 All 12 readings correctly plotted: 2

(6)

3.2.2 24 + 28 + 35 + 38 + 45 + 51 = 221✓

$\frac{221}{6}$ ✓

= 36,8✓mm ✓ OR 37mm

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(4)

3.2.3 34mm✓ (unit must be given) (1)

3.2.4 Forest **B** trees are healthier✓ / in a better condition than those in forest **A**✓, with increased age of trees✓ , the thickness of the annual rings increase✓ (4)

(15)

3.3



3.3.1 **A** – Interphase✓
B – Prophase✓ (2)

3.3.2 (a) D -Anaphase✓

(b) - Spindle fibres contract✓

- Two chromatids pull apart✓

− To opposite sides of the cell (poles) ✓

-Chromosome spilt at the centromere ✓

(1)

(3)

3.3.3 The process of cell division where one cell divide into two identical daughter cells ✓ ✓ (2)

3.3.4 – **Growth**:✓ Increase in size of the organism ✓
- **Replacement**✓ of dead cells✓

-Responsible of **asexual reproduction**✓ in certain plant and animals✓

- **Repairs** damaged tissues ✓

(6)

ANY 6

(14)

3.4

3.4.1	Glucose ✓✓	(2)
3.4.2	Starch✓ and Protein✓	(2)
3.4.3	Lipids✓ and protein✓	(2) **(6)** **(50)** **[100]**

TOTAL SECTION B: 100

GRAND TOTAL : 150



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