education

Department of
Education
FREE STATE PROVINCE

GRADE 11

LIFE SCIENCES

Stanmorephysics.com

NOVEMBER 2024

MARKS: 150

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MARKING GUIDELINES

This marking guidelines consists of 10 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 memo discussion meeting.

14. **If only the letter is asked for but only the 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. 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 learner's 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.



SECTION A
QUESTION 1

1.1	1.1.1	C✓✓		
	1.1.2	C✓✓		
	1.1.3	D✓✓		
	1.1.4	B✓✓		
	1.1.5	D✓✓		
	1.1.6	D✓✓		
	1.1.7	B✓✓		
	1.1.8	C✓✓		
	1.1.9	C✓✓		
	1.1.10	A✓✓	(10 x 2)	**(20)**
1.2	1.2.1	Pleura✓		
	1.2.2	Chemical digestion✓		
	1.2.3	Stroma✓		
	1.2.4	(Clear) Lime water✓		
	1.2.5	Mitochondria✓		
	1.2.6	Assimilation✓		
	1.2.7	Ciliated columnar✓		
	1.2.8	Starch✓	(8 x 1)	**(8)**
1.3	1.3.1	Only A✓✓		
	1.3.2	Both A and B✓✓		
	1.3.3	None✓✓	(3 x 2)	**(6)**
1.4	1.4.1	(a) B✓ Renal Capsule✓		(2)
		(b) D✓ Bladder✓		(2)
		(c) E✓ Urethra✓		(2)
	1.4.2	Oxygenated blood✓/rich in metabolic waste products		(1)
	1.4.3	- Regulation of the water content✓/osmoregulation - Regulation of salt content - Regulation of pH		(1)
		(Mark first ONE only)		**(8)**
1.5	1.5.1	Photosynthesis✓		(1)
	1.5.2	To de-starch the plant✓		(1)
	1.5.3	To soften the leaf✓		(1)
	1.5.4	To extract✓ chlorophyll from a leaf✓		(2)
	1.5.5	Iodine solution✓		(1)
	1.5.6	The iodine will change from yellow✓/brown to blue-black✓		(2)
				(8)

TOTAL SECTION A: 50

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SECTION B

QUESTION 2

2.1 2.1.1 (a) Deoxygenated blood✓ (1)

(b) Diffusion ✓ (1)

(c) Red blood cell✓/erythrocyte (1)

2.1.2
- The surface is moist✓ which is important for diffusion✓
- Surface is thin✓ there are only one cell layer for easy diffusion✓
- Many alveoli ✓ that enlarge surface for optimum diffusion✓
- Have a lot of blood vessels✓ that makes transport efficient✓

(ANY 3 x 2) (6)

2.1.3 -As oxyhaemoglobin✓
-Dissolved in blood plasma✓ (2)

2.1.4
- CO_2 levels in the blood increase above normal levels.✓
- Receptor cells in the carotid artery in the neck✓ are stimulated.
- To send impulses to the medulla oblongata ✓ in the brain.
- Medulla oblongata stimulates respiratory muscles OR (intercostal muscles and diaphragm) and heart✓
- Respiratory muscles contract more actively✓-this accelerates
- The rate and depth(both) of breathing.✓
- Increasing the heartrate.✓
- More CO_2 is taken to the lungs✓
- More carbon dioxide is taken to the lungs and more carbon dioxide is exhaled✓/more oxygen is inhaled.
- The imbalance in the blood is restored✓ **(Any 7)**

(7)
(18)

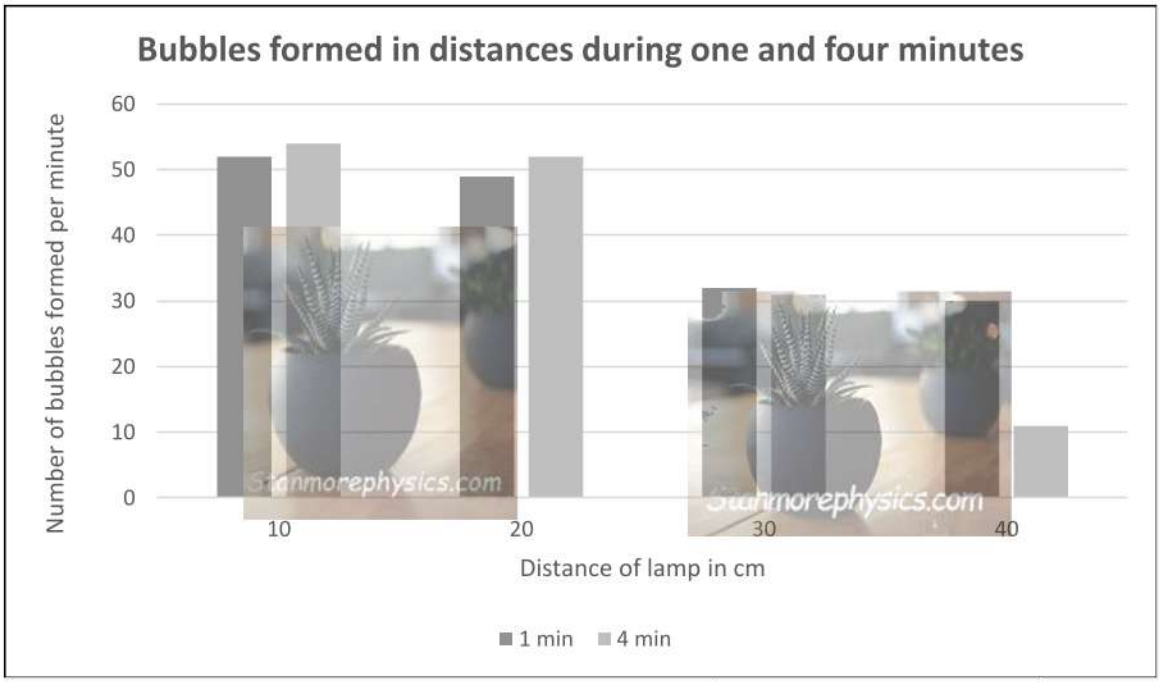
2.2 2.2.1 What is the effect of light intensity on the rate of photosynthesis in a water plant? ✓✓ (2)

2.2.2 Oxygen✓ (1)

2.2.3 30+10+9+11= 60✓

$\frac{60}{4}$ ✓ = 15✓ (3)

2.2.4



Criteria	Mark allocation
Caption of the graph includes both variables **(C)**	1
Bar graph is drawn **(T)**	1
Correct labels of x-axis and y- axis with correct units on the y-axis **(L)**	1
Correct scale of y-axis and bars of equal width and spaces between bars for x-axis**(S)**	1
Plotting**(P)** correctly done for: Only bars of min 1 and 4 was drawn 1-7 bars plotted correctly All bars plotted correctly	 1 1 1

(6)

2.2.5 The nearer the lamp to the water plant the higher the rate of photosynthesis✓✓

OR

The further away the lamp is from the water plant the lower the rate of photosynthesis✓✓ (2)

2.2.6 - Use the same type of lamp✓
- Use the same strength of lamp✓

- Use the same type of water plant✓
- Use the same length/size of water plant✓
- Same apparatus✓ (2)

(Mark first TWO only) **(ANY 2)**

(16)

2.3.1 (a) Glomerulus✓ (1)

(b) Podocytes✓ (1)

(c) Medulla✓ (1)

2.3.2 Filtration✓/Ultrafiltration/Glomerular filtration (1)

2.3.3 (a) Glucose✓
Amino Acids✓
Vitamins✓
(Mark first TWO only) (2)

(b) -The tube is long and convoluted✓
-The peritubular capillary network surrounds the renal tubule✓
-The cuboidal epithelial cells, have many mitochondria✓
-The cuboidal epithelial cells have finger-like projections✓ (2)
(Mark first TWO only) **(ANY)**

2.3.4 - The afferent arteriole is wider than the efferent arteriole, ✓
- Which causes a high blood pressure in the glomerulus, ✓
- Promoting filtration. ✓ (3)

2.3.5 - During deamination✓
- In the liver✓
- Amino acids ✓are broken down to urea (3)

2.3.6 - Liver✓ and
- Small intestines✓
- Skin✓ (2)
- Lungs✓
(Mark first TWO only) **(ANY)**

(16)

TOTAL QUESTION 2: (50)

QUESTION 3

3.1.1 (a) Liver✓ (1)

(b) Bile✓ (1)

(c) Small intestines✓/duodenum ✓ (1)

3.1.2
- Produces bile✓
- Conversion of glucose into glycogen✓
- Excess glucose converted to fat✓
- Excess amino acids broken down to form urea and glucose✓
- Liver is a detoxifying organ✓
- Stores Vitamins A, D, E, K and B_{12}✓
- Synthesises heparin which prevent blood clotting✓ (3)

(Mark first THREE only) **(ANY)**

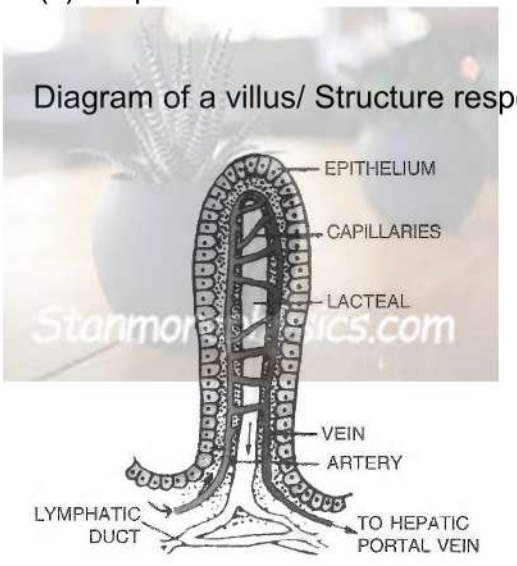
3.1.3 Peristalsis✓ (1)

3.1.3. (a) Diffusion✓ (1)

(b) Amino Acids✓ (1)

(c) Lipase✓ (1)

3.1.5 Diagram of a villus/ Structure responible for increse absorption area



	Mark allocation
Heading **(H)**	1
Correct drawing **(D)**	1
Any THREE correct labels **(L)**	3

(5)
(15)

3.2 3.2.1 To prevent any CO_2 form entering or leaving the test tube✓ so that the results cannot be influenced.✓ (2)

3.2.2 **A** will be Purple✓ The leaf photosynthesises and the CO_2 are absorbed which leads to low CO_2 concentration✓
B will be yellow✓ due to the insects that respire and release CO2 thus more CO_2 will be present in the test tube✓ (4)

3.2.3 ✓Table

Photosynthesis	Respiration
Occurs in the plant cells✓	Occurs in all living cells✓
Occurs only in the presence of light✓	Occurs day and night✓
Uses carbon dioxide and water✓	Uses oxygen and glucose✓
Oxygen is released as a product ✓	Carbo dioxide is released as product✓
Food/Glucose is manufactured✓	Food/ Glucose is broken down✓
Occurs in a chloroplast✓	Occurs in the Mitochondria✓

(ANY 3 + TABLE) (7)
(13)

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3.3.1 Hot day✓ (1)

3.3.2 Coffee✓ (1)

3.3.3. - Blood contains more water than normal✓
- The hypothalamus is stimulated✓ and
- Sends impulses to the pituitary gland✓
- To secrete less ADH✓.
- And the walls of the renal tubules✓/convoluted tubule and collecting ducts
- Becomes less permeable✓ to water.
- Less water is re-absorbed ✓
- More water is lost✓.(diluted urine)
- The water balance decrease and the water level in the blood returns to normal.✓ (6)

(ANY 6)

3.3.4 Aldosterone✓ (1)
(9)

3.4.1	(a) Insulin✓ and Glucagon✓	(2)
	(b) Pancreas✓	(1)
3.4.2	8:00 – 9:00✓	(1)
3.4.3	The glucose levels in the blood increased above✓ 7,1 mmol/L✓ to 8,4 mmol/L	(2)
3.4.4.	-Glucose levels in the blood decreased under 3,9mmol/L✓ at 14:00 - It stimulated the islands of Langerhans/pancreas✓ - to secrete glucagon✓ - That converted glycogen into glucose✓ -glucose levels in the blood increased✓ at 15:00 - and glucose levels in the blood returned to normal✓ **(ANY 5)**	(5)
3.4.5	Glucose levels in the blood would have stayed high✓ for a longer period✓	(2)
		(13)
	TOTAL QUESTION 3:	**[50]**
	TOTAL SECTION B:	**100**
	GRAND TOTAL:	**150**

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