GRADE 10
LIFE SCIENCES
JUNE 2017
TOTAL:150
MEMORANDUM

Section A
Question 1

1.1.1	B√√	1.2.1	CHLOROPLAST √	1.3.1	B√√
1.1.2	A√√	1.2.2	GOITRE √	1.3.2	B√√
1.1.3	B√√	1.2.3	CANCER √	1.3.3	B√√
1.1.4	B√√	1.2.4	COLLENCHYMA √	1.3.4	BOTH√√
1.1.5	B√√	1.2.5	SUBSTRATE √	1.3.5	BOTH√√
1.1.6	A√√	1.2.6	WET MOUNT √	1.3.6	NONE√√
1.1.7	C√√	1.2.7	STOMATA √	1.3.7	NONE√√
1.1.8	D√√	1.2.8	NEURON √	1.3.8	A√√
1.1.9	A√√ (18)	1.2.9	BLOOD PLATELETS√	1.3.9	BOTH√√ (18)
		1.2.10	DENATURE√ (10)		

1.4.2 B√
1.4.2 B√
1.4.3 A√
1.4.4 C√ (4)

TOTAL SECTION A [50]

SECTION B
QUESTION 2

2.1.1
i. B√
II A√ 2

2,1,2 E√ 1

2.1.3 E√ 1

2.1.4 D√ 1
(5)

2.2.1 Animal Cell√ 1

2.2.2
- It has no cell wall, √
- No chloroplast√
- Contains lysosomes√
- No specific shape√ any 2 2

2.2.3 6 – Smooth ER √ 10 - Golgi Body√ 2

2.2.4 Rubric:
Drawing: 1
Heading: 1
Any two labels: 2
(9)

2.3.1 A – Centromere√

B - Chromatid√
D – Nucleus√
E - centriole√ 4

2.3.2 4 – 1 – 5 – 2 - 3 √√√√ 4

2.3.3 4√ 1

2.3.4 5√ 1

2.3.5 Chromosomes are arrange on the equator√ 1

(11)

2.4.1 Reduce the risks of heart attacks and strokes√ 1

2.4.2 25/100 x 100√ = 25√ 2

2.4.3 Rubric:

Correct graph:	1
Caption:	1
Correct name and scale – y axis	1
Correct name and proportions x-axis:	1
Plotting	2

6

(9)

2.5.1 Epidermis

2.5.2 To allow sunlight to pass through so that the leaf photosynthesise

2.5.3 X – Oxygen Y – Carbon dioxide

{40}

Question 3

3.1.1 Weeks 5 √ 1

3.1.2 10 – 5 = 5 weeks √ 2

3.1.3 He will have more red blood cells to carry extra oxygen to his muscle to allow cellular respiration to occur – more energy√√√ 3

3.1.4 There is no other illegal or banned substances in the blood of these athletes. √√ 2

3.1.5 They will have an unfair advantage over the other athletes√√ 2

(10)

3.2.1 Uncontrolled cell division√√ 2

3.2.2 cigarette smoke, radioactive substances, viruses√√ any 2 2

3.2.3 Surgery, Chemotherapy, Traditional healing (kankerbos) √√any 2 2

3.2.4 i – false√ ii - false√ 2(8)

3.3.1 i. – root pressure√ ii - guttation√ 2

3.3.2 to indicate how high the water has risen√√ 2

3.3.3 Humidity√, Temperature√, Wind√, Light intensity√ 4
(8)

3.4.1 A – Root hair √ B – Leaf√ 2

3.4.2 A – has an outgrowth (root hair) and no cuticle√
B – Has stomata and guard cells√ 2

3.4.3 1 – epidermis√ 4 – cell sap√ 9 - stomata√ 3

3.4.4 i- CO_2√ 1
Ii – O_2 √ 1
(9)

3.5.1 Phloem√ 1

3.5.2 The roots do not get any food, die√ and no water will then be absorbed √ any one 1

3.5.3 Rubric:
Correct drawing: 1
Heading : 1
Any lable: 1
(5)

{40}

SECTION B TOTAL: [80]

SECTION C

4.1

<u>The Absorption of water from the soil into the root hair.</u>

- **Water moves from the soil into the root hair by means of OSMOSIS√**
- **Osmosis is the movement of water molecules from a high water potential to a low water potential √through a semi-permeable membrane. √**
- **The water potential in the soil is higher√ than that of the vacuole of the root hair. √**
- **Water then moves from the soil with its high water potential√ through the cell wall√ into the root hair`s**

ANY 6

<u>Movement of water across the root to the xylem</u>

1. **Along the cell walls: quickest way for water to move through the cortex. √ – CELL WALL PATHWAY√**
2. **From cell to cell through the cytoplasm√ – CYTOPLASM PATHWAY√**
3. **From cell to cell through the vacuoles√ – VACUOLAR PATHWAY√**

The three forces involve in the upward movement of water is:

a. Capillarity
b. Root Pressure
c. Transpiration Pull

A. Capillarity√

- **This is when water moves up in very narrow tubes. √**
- **The xylem of stems are very narrow therefore water moves up freely √**

B. Root Pressure√

- **this upward force develop in the root due the continuous inflow of water from the soil√**
- **water moves through osmosis from root hair to the root xylem CONTINOUSLY√**

C. Transpiration Pull√

- **Leaves lose water through transpiration. √**
- **Water moves continuously from the xylem to replace the water which was lost through transpiration**
- **This cause transpiration pull – which is the main cause of upward movement of water√**

ANY 5

Content: 17
Synthesis: 3
Total: 20

Assessment of Question 4

Criterion	Relevance (R)	Logical sequence (L)	Comprehensive (C)
Generally	All information provided is relevant to the topic	Ideas are arranged in a logical/cause-effect sequence	All aspects required by the essay have been sufficiently addressed
In this essay	Only information regarding movement of water into root, movement of water to root xylem and upward movement is given. (no irrelevant information).	Movement of water into root, movement of water to root xylem and upward movement is in the correct sequence.	At least **3** correct points on movement of water into root, 3 movement of water to root xylem and 3 ways of upward movement are given
Mark	1	1	1