MARKING MEMORANDUM
LIFE SCIENCES - GRADE 10 - P2
NOVEMBER EXAMINATIONS - 2019

SECTION A

QUESTION 1

1.1.1	C✓✓		1.2.1	nitrogen ✓	
1.1.2	A✓✓		1.2.2	prokaryotic/ prokaryote✓	
1.1.3	D✓✓		1.2.3	ice age/ glaciation✓	
1.1.4	B✓✓		1.2.4	pericardium✓	
1.1.5	B✓✓		1.2.5	food web✓	
1.1.6	C✓✓		1.2.6	altitude✓	
1.1.7	B✓✓		1.2.7	carnivores✓	
1.1.8	C✓✓		1.2.8	fossils✓	
1.1.9	A✓✓ C✓		1.2.9	classification✓	
1.1.10	D ✓✓	(2 X 10) **(20)**	1.2.10	physiographic✓	(10 x 1) **(10)**

1.3.1 A only✓✓
1.3.2 None✓✓
1.3.3 A only✓✓
1.3.4 B only✓✓
1.3.5 B only✓✓ (5 X 2) **(10)**

1.4.1 - Long tail✓
- Clawed hands✓
- Spiky /sharp/ serrated teeth✓

(mark first 3 only) (3)

1.4.2 ✓-table

	Pigeon	Archaeopteryx	
1.	Short parson's nose	Long tail	✓✓
2.	No teeth	Spiky teeth	✓✓
3.	Pubis rotated backwards	Pubis: bird-like or reptile-like	✓✓
4.	A large breast bone	No breast bone	✓✓

Any 2 x2 **(mark first 2 differences only)** (5)

1.4.3 - This is a transitional fossil ✓
- Is evidence for evolution✓ / or
Showing intermediate forms of a species (2)

(10)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1.1 - the carbon cycle ✓
- the nitrogen cycle✓ **(mark first 2 only)** (2)

2.1.2 a) photosynthesis ✓ (1)
b) combustion ✓ (1)
c) respiration ✓ (1)
d) ammonification ✓ / decomposition (1)

2.1.3 - Deforestation will result in barren and exposed land✓/ desertification ✓
- resulting in soil erosion ✓
- and food sources removed✓
- CO_2 build up in the atmosphere✓
- increase in global warming✓
- Reduces biodiversity✓
- Habitat destruction✓
- Affects carbon cycle✓
- Affects oxygen cycle✓
- Affects water cycle✓ **(mark first 2 only)** (any 2) (2)
(8)

2.2.1 a) Grass✓ (1)
b) Rabbit✓ (1)
c) Fox✓ (1)

2.2.2 $\frac{1}{100} \times \frac{100}{1}$✓ = 1 %✓ (2)

2.2.3 Energy is lost through:
- Respiration✓ /movement✓ /growth✓/maintenance✓/ reproduction✓/faeces✓/urination✓/metabolic wastes✓ **(mark first 2 only)** (2)

2.2.4 - it accumulates✓ in the organisms body at each trophic level✓ (2)
(9)

2.3.1 a) soil sample A✓ (1)
b) soil sample B✓ (1)
c) soil sample C✓ (1)

2.3.2 Soil water retention is low/ high water permeability✓
Because of large air spaces✓/or

Humus content is too low✓
Therefore less nutrients in soil✓ (any 1x2) (2)

2.3.3 Tiny particles/ grains/ compact ✓
Very little air spaces✓ (2)

2.3.4 - Humus is the organic component✓ of soil/ dead organic matter
- formed by decomposition of dead✓ leaves/ plant and animal matter
- improving the mineral content of the soil. ✓ (3)
(10)

2.4.1 Ferns prefer to grow in shade✓✓ **OR**
Ferns prefer to grow in sunlight✓✓ **OR**
Fern growth is unaffected by change in light intensity✓✓ (2)

2.4.2 Light (intensity) ✓ (1)

2.4.3 - same amount of water used to water the plant✓
- same time of day for watering the plant✓
- same species of fern✓ **(mark first 2 only)** (2)

2.4.4 increase the sample size✓ /increase the number of plants planted✓ (1)
(6)

2.5.1 Tertiary✓ (1)

2.5.2 Devonian✓✓ (2)

2.5.3 570 mya - 408 mya = 162✓ mya✓ (2)

2.5.4 (a) Permian✓ (1)
(b) Pangea✓ (1)
(7)

TOTAL : 40

QUESTION 3

3.1.1 a) *Petrus*✓
b) *rupestris* ✓ } (mark wrong if spelling is incorrect) (1) (1)

3.1.2 Carolus Linnaeus✓ (1)

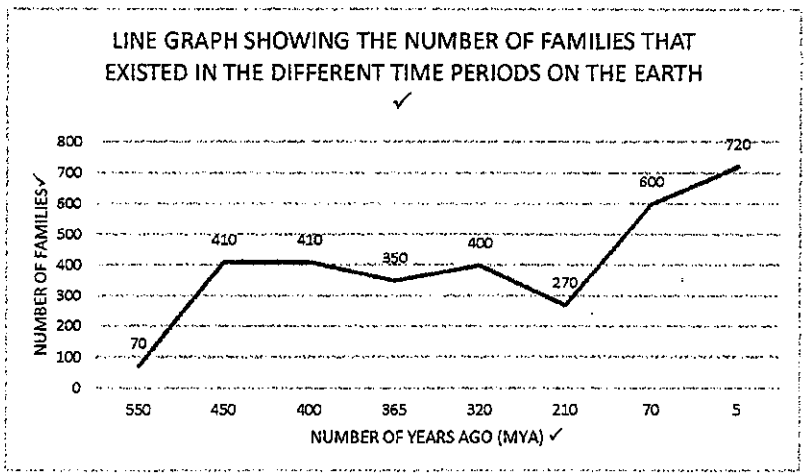
3.1.3 Binomial nomenclature✓ / two name system ✓ (1)

3.1.4 - Introduce bag limit✓ /limit the number of fish caught✓
- Ban fishing during breeding times/ ban catch of undersized fish✓
- Implement fines✓ / Imprisonment✓
- Monitor coastline/ fishing✓ **(mark first 2 only)** (2)
(6)

3.2.1 Criteria for marking the graph:

CRITERIA	MARK/S
Title of graph:	✓
Type of graph	✓
X-axis: Heading ; scale; unit	✓
Y-axis: Heading ; scale; unit	✓
All 8 points plotted correctly	✓✓
2 - 7 points plotted correctly	✓

(6)



✓ TYPE

✓✓ PLOTTING (see guidelines above)

3.2.2 2✓ (1)

3.2.3 Mass extinction✓ **(Do NOT accept extinction)** (1)

3.2.4 - Drop in sea level✓ as a result of glaciation ✓/global cooling✓
- rise in sea levels✓ as glaciers melted due to global warming✓
- volcanic activity ✓leading to drop in oxygen levels✓/ global warming✓
- meteorite impact✓ leading to low oxygen levels/ global warming ✓

(mark first 2 explained only) **any (2x2)** (4)
(12)

3.3.1 nectar of flowers✓/ seeds✓/ dead leaves✓/ plant roots✓ (2)

3.3.2 moths✓/ earthworms✓/ dassie✓ (2)

3.3.3 They are omnivores✓
feeding on a variety of plants and animals✓
so that if there is a shortage of the one type of food, they can feed on something else✓ (2)
(any 2)

3.3.4 dead leaves ⟶ earthworms ⟶ frogs ⟶ genets✓✓
Plant roots ⟶ earthworms ⟶ frogs ⟶ genets✓✓ (2)

3.3.5 -Earthworm numbers increase✓ causing a drop in availability of plant roots✓and dead leaves✓
OR
-Moth numbers increase✓ causing wag-tail numbers to increase as they have more food✓
OR
-Spider numbers increase✓ since they have just one instead of two predators✓
(any 1 explained x 2) (2)
(10)

3.4.1 (i) 245 million years old **(with unit)** ✓ (1)
(ii) recent soil layers✓ (1)
(iii) they are between 3 million and 220 million years ago✓✓ (2)
(iv) Mrs Ples✓ (1)

3.4.2 200 ✓million years old✓ (2)

3.4.3 relative dating✓/ absolute dating✓/ radiometric dating✓ **(any 2)** (2)

3.4.4 (a) A type of tourism where people visit an area to view fossils. (1)

(b) - provides employment✓
- brings revenue into a country✓
- fossil sites provide important research facilities for paleontologists ,etc✓
- people are educated about history of life✓ **(mark first 2 only)** **(any 2)** (2)
(12)
[40]

TOTAL SECTION B: 80

SECTION C
QUESTION 4

CARDIAC CYCLE

1. **Atrial Systole *✓**
- Muscles of both the atria contract. ✓
- The tricuspid and bicuspid valves are open to allow blood to flow from the atria into the two ventricles.✓
- Duration; 0.1 seconds. ✓

2. **Ventricular Systole *✓**
- Muscles of both the ventricles contract. ✓
- Both tricuspid and bicuspid valves close (the lub sound). ✓
- Semi-lunar valves of the pulmonary artery and aorta open. ✓
- Deoxygenated blood from the right ventricle is forced up the pulmonary artery and moves to the lungs. ✓
- Oxygenated blood from the left ventricle is forced up the aorta and moves to all parts of the body. ✓Duration: 0.3 seconds. ✓

3. **Atrial & Ventricular Diastole */ General Diastole*✓**
- Muscles of the atria and ventricles relax. ✓
- Semi – lunar valves in aorta and pulmonary artery close to prevent any back flow of blood (the dub sound).✓
- Deoxygenated blood from the vena cavae fills the right atrium; oxygenated blood from the pulmonary veins fills the left atrium. ✓
- The cycle then starts again. ✓
- Duration: 0.4 seconds. ✓ *** 3 compulsory + 8** (11)

STRUCTURAL ADAPATATIONS OF THE HEART
- Valves✓
- To prevent backflow✓

- Septum✓
- To separate right and left sides✓of the heart
- To prevent oxygenated blood from mixing with the deoxygenated blood✓

- Walls of chambers are muscular✓
- To be able to contract and relax✓ **(6)**

Synthesis:

Criterion:	Relevance (R)	Logical Sequence (L)	Comprehensive (C)
Generally:	All information provided is relevant to the topic.	Ideas are arranged in a logical sequence.	All aspects required by the essay have been sufficiently addressed.
In this essay Q4	Only cardiac cycle and adaptation are described	Each aspect atrial systole, ventricular systole, atrial and ventricular diastole and adaptations are described in a logical sequence.	Minimum marks: - Cardiac cycle 8/11 - Adaptations 3/6
Mark:	1	1	1

GRAND TOTAL: 150