Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 10

NOVEMBER 2019

LIFE SCIENCES P2
MARKING GUIDELINE

MARKS : **150**

This marking guideline consists of 10 pages.

SECTION A

QUESTION 1

1.1 1.1.1 D ✓✓

1.1.2 B ✓✓

1.1.3 A ✓✓

1.1.4 A ✓✓

1.1.5 B ✓✓

1.1.6 C ✓✓

1.1.7 B ✓✓

1.1.8 A ✓✓

1.1.9 D ✓✓

1.1.10 C ✓✓ (10 x 2) (20)

1.2 1.2.1 Closed ✓

1.2.2 Capillaries ✓

1.2.3 General diastole ✓

1.2.4 pH ✓

1.2.5 Ectothermic ✓

1.2.6 Hibernate ✓

1.2.7 Trophic ✓ levels

1.2.8 Nitrate ✓/ NO_2 (8 x 1) (8)

1.3 1.3.1 None ✓✓

1.3.2 B only ✓✓

1.3.3 Both A and B ✓✓ (3 x 2) (6)

1.4 1.4.1 A – Aorta ✓

B – Pulmonary artery ✓

G – Semilunar valve ✓ / pulmonary semilunar valve (3)

1.4.2 C ✓ and F ✓ (2)

1.4.3 Inferior vena cava ✓ (1)

1.4.4 D ✓ Septum ✓ (2)

1.5 1.5.1 (a) A – Decomposition ✓ (1)

(b) B – Combustion ✓ (1)

(c) C – Fossil fuel ✓ combustion (1)

1.5.2 Cellular respiration ✓ (1)

1.5.3 60 + 60 + 1,1 + 8,4 + 90 – 120 – 90 ✓ = 9,5 ✓ billion tons of CO_2 per year ✓ (3)

1.5.4 Global warming ✓ (1)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1 $\frac{160✓}{90✓}$ mm Hg ✓ (3)

2.1.2 High ✓ (1)

2.1.3 A shortage of oxygen supply to the brain ✓
from a blood clot ✓or a burst blood vessel ✓ (3)

2.1.4 Advanced age ✓
High blood pressure ✓
High cholesterol ✓
Smoking ✓
Diabetes ✓ (Any 2)
(Mark first TWO only) (2)

2.2 2.2.1 Nama Karoo ✓ (1)

2.2.2 Very hot summers ✓
Cold winters ✓
Semi-desert with very little rain ✓ (3)

2.2.3 Grasses ✓
Small shrubs ✓
Trees ONLY along rivers ✓ (Any 2) (2)

2.2.4 Provide small insects ✓ like flies / crickets / grasshoppers
To provide the chameleon with food ✓

OR

Provide a source of water ✓
so the chameleon can drink ✓

OR

A heater / thermostat ✓ or keep at high temperatures
As Karoo Dwarf Chameleons are adapted to high temperatures /
living in the Nama Karoo biome ✓

OR

Plant a small plant / shrub in the terrarium ✓
To provide the chameleon with camouflage ✓ (Any 2 x 2) (4)

2.3 2.3.1 (a) Number of Watsonia flowers that opened ✓ (1)

(b) Light intensity ✓ (1)

2.3.2 Give the Watsonias the same amount of water ✓

OR

Same type of soil / same amount of soil / count buds at same time of day (1)

2.3.3 He could have set up 5 more pots of Watsonias on the lawn ✓ with no shade cloth ✓ (2)

2.3.4 Percentage increase $= \frac{9-5}{5} \times 100$

$= \frac{4}{5}$ ✓ $\times 100$ ✓

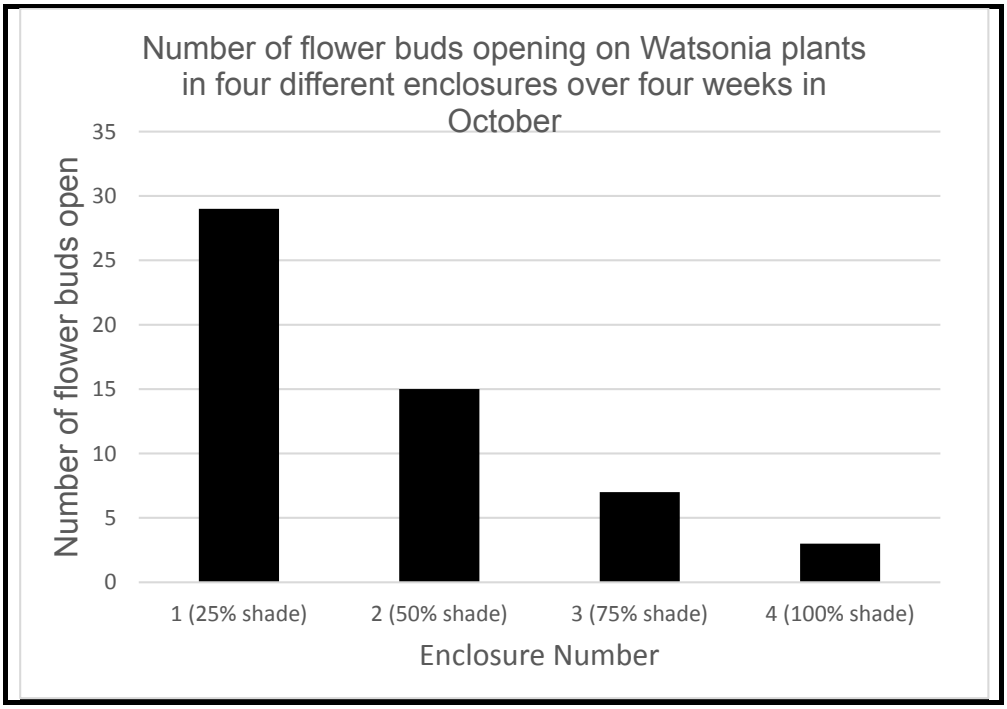
$= 80\%$ ✓ (3)

2.3.5 The higher the light intensity ✓ more flower buds will open ✓

OR

The lower the light intensity ✓ fewer flower buds will open ✓ (2)

2.3.6



Mark Allocation

Type	✓
Caption	✓
Label (X and Y)	✓
Scale	✓
Plotting	1–3 bars correct ✓
	All bars correct ✓✓

(6)

2.4 2.4.1 (a) Grass ✓ (1)

(b) Springbok ✓ / Zebra (1)

2.4.2 There would be fewer predators ✓
Which would cause there to be more springbok and zebra ✓
This would lead to an increase in the lion population ✓ (3)
[40]

QUESTION 3

3.1 3.1.1 Order – Carnivora ✓
Family – Felidae ✓ (2)

3.1.2 Panthera uncia (lowercase 'u') ✓ both underlined separately ✓ (2)

3.1.3 Five ✓ / 5 (1)

3.1.4 It has cells with a true nucleus ✓ / DNA enclosed in a membrane organelles in the cytoplasm (1)

3.1.5 Mode of nutrition – Heterotrophic ✓
Method of reproduction – Sexual ✓ (2)

3.1.6 Dichotomous key ✓ / Biological key / Verbal key (1)

3.2 3.2.1 Cenozoic ✓ Quaternary ✓ (2)

3.2.2 $\frac{190 + 140}{2}$ ✓ $= 165$ MYA ✓ (2)

3.2.3 There was a rapid increase ✓ in the number of species ✓ on earth (2)

3.2.4 Large amounts of dust and ash ✓ after an eruption
could block out the sun's rays ✓
leading to less photosynthesis ✓
and therefore less O_2 ✓ and food ✓
It could also cause the cooling of the atmosphere ✓
Since the dinosaurs could not adapt ✓
to the change in climate ✓ they went extinct
(Any 5 x 1) (5)

3.2.5 The sixth / 6th mass extinction ✓*
Threats to biodiversity:
Habitat destruction ✓
Planting of invasive / alien species ✓
Pollution ✓
Over-exploitation of resources ✓
Over-use of fertilisers and pesticides ✓
Trading in endangered species ✓
Poaching and hunting ✓ (*compulsory 1 + Any 2 threats)
(Mark first TWO threats only) (3)

3.3	3.3.1	Gondwanaland ✓	(1)
	3.3.2	Biogeography ✓	(1)
	3.3.3	Flightless birds like the rhea and ostrich may have developed from a common ancestor ✓ that lived on the same continent ✓/Gondwanaland Both birds became separated ✓ when South America and Africa broke apart ✓due to continental drift ✓ (Any 3)	(3)
	3.3.4	Looking at the continents through time we see that the arctic was never near the Antarctic ✓ Since they are both adapted to cold ✓ they were both unable to cross ✓ the temperate / tropical / warm areas ✓ that separated them ✓ And so they remained separated ✓ (Any 4)	(4)
3.4	3.4.1	National Heritage Site – Cradle of Humankind ✓ Caves – Sterkfontein Caves ✓	(2)
	3.4.2	It creates jobs ✓ It is a source of income ✓	(2)
	3.4.3	<u>Glossopteris</u> (Correct name) ✓ Correct format (Capital 'G' and underlined) ✓	(2)
	3.4.4	Trilobites ✓	(1)
	3.4.5	Coelacanth ✓	(1) **[40]**

TOTAL SECTION B: 80

SECTION C

QUESTION 4

Fossil Formation

- The organism (plant or animal) dies ✓
- and is rapidly ✓
- covered in sediment ✓
- either on land ✓
- or at the bottom of a lake ✓ / river / sea
- The soft tissue decay ✓
- due to bacteria ✓ / micro-organisms / decomposers
- while the hard parts of the body ✓ / bones / shells
- remain in tact ✓
- Organic material is replaced by minerals ✓
- Further layers of sediment cover the remains over many years ✓
- causing the layers to compact ✓ / compress
- The sediment solidifies to form sedimentary rock ✓ / shale / limestone / sandstone Max. 10 (10)

Relative Dating

- Scientists study the layers of rock above and below a fossil ✓
- To compare ✓ it to other fossils ✓/geological events
- knowing that fossils found below are older ✓
- while fossils found above are younger ✓
- This is not a very accurate method ✓
- Because it does not tell us the exact age of fossil ✓
- Scientists may also use index fossils ✓ to help date other fossils. Max. 4 (4)

Becoming Discovered

- Sedimentary rocks are pushed to the surface ✓
- by the movement of the earth ✓ / geological forces / earthquakes / volcanos / plate movement
- Over many centuries ✓ / a long period of time
- fossils become exposed due to erosion ✓ / or human activities / mining Max. 3 (3)

Content: (17)
Synthesis: (3)
(20)

NOTE: NO marks will be awarded for answers in the form of flow charts, tables or diagrams.

ASSESSING OF THE ESSAY

Relevance (R)	Logical Sequence (L)	Comprehensive (C)
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.
All the information provided is relevant to: • Fossil formation • How fossils become discovered • Relative dating methods There is no irrelevant information.	All the information regarding: • Fossil formation • How fossils become discovered • Relative dating methods is arranged in a logical manner.	At least the following points should be included: • Fossil formation **(F)** (7/10) • Relative dating methods **(R)** (2/4) • How fossils are discovered **(H)** (2/3)
1 Mark	**1 Mark**	**1 Mark**

TOTAL SECTION C: 20
GRAND TOTAL: 150