Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 10

NOVEMBER 2020

LIFE SCIENCES P2
MARKING GUIDELINE
(EXEMPLAR)

MARKS: 150

This marking guideline consists of 9 pages.

SECTION A

QUESTION 1

1.1	1.1.1	B ✓✓		
	1.1.2	A ✓✓		
	1.1.3	D ✓✓		
	1.1.4	D ✓✓		
	1.1.5	B ✓✓		
	1.1.6	D ✓✓		
	1.1.7	B ✓✓		
	1.1.8	D ✓✓		
	1.1.9	D ✓✓		
	1.1.10	C ✓✓	(10 x 2)	(20)
1.2	1.2.1	Cardiac ✓		
	1.2.2	Haemoglobin ✓		
	1.2.3	Tissue fluid ✓		
	1.2.4	Hibernation ✓		
	1.2.5	Altitude ✓		
	1.2.6	Global warming ✓		
	1.2.7	Deforestation ✓		
	1.2.8	Tectonic plate ✓		
	1.2.9	*Glossopteris* ✓	(9 x 1)	(9)
1.3	1.3.1	None ✓✓		
	1.3.2	B only ✓✓		
	1.3.3	B only ✓✓		
	1.3.4	B only ✓✓	(4 x 2)	(8)
1.4	1.4.1	1 – Aorta ✓ 4 – Septum ✓ 6 – Tricuspid valve ✓		(3)
	1.4.2	Lungs ✓		(1)
	1.4.3	Ventricular systole ✓		(1)
	1.4.4	Low in oxygen ✓		(1)

1.5	1.5.1	(a)	Ordovician ✓	(1)
		(b)	Trilobites ✓	(1)
	1.5.2		Geological time scale ✓	(1)
	1.5.3		Cambrian ✓	(1)
	1.5.4		Relative dating ✓	(1)
	1.5.5		Index fossil ✓	(1)
	1.5.6		Palaeontologist ✓	(1)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1 2 – Sinoatrial node ✓
3 – Atrioventricular node ✓ (2)

2.1.2 Septum ✓✓ (2)

2.1.3 If the medulla oblongata ✓ /brain detects
too much CO_2 ✓ / a drop in blood pressure,
it sends an impulse to the sinoatrial node ✓
which causes the atria to contract ✓
Then the atrioventricular node ✓
causes the ventricles ✓
to contract faster ✓ (Any 4) (4)

2.1.4 Cholesterol ✓ / plaque build-up (1)

2.1.5 A stent ✓ (1)

2.1.6 The stent holds the blocked artery open ✓
so that blood can flow through ✓ (2)

2.1.7 Improved diet ✓
More / regular exercise ✓
Medication ✓ (3)

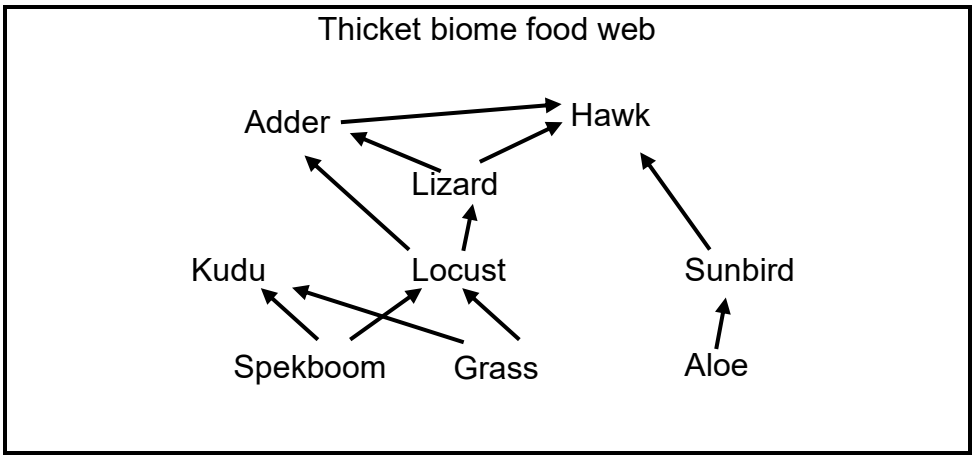
2.2 2.2.1 An area with a distinct climate ✓ together with the plants and
animals that live there ✓ (2)

2.2.2 Grass ✓
Aloe ✓
Spekboom ✓ **Mark first TWO only** (Any 2) (2)

2.2.3 Kudu ✓
Locust ✓
Sunbird ✓ **Mark first ONE only** (Any 1) (1)

2.2.4 Hawk ✓
Adder ✓ **Mark first ONE only** (Any 1) (1)

2.2.5



Mark Allocation:

Title	✓
Arrows facing right way	✓
ALL organisms used in food web	✓
ALL connections logical / feasible	✓

(4)

2.3 2.3.1 Nirogen fixation ✓ (1)

2.3.2 As nitrates ✓ / NO_3 (1)

2.3.3 Precipitation ✓ (1)

2.3.4 Eutrophication ✓ (1)

2.3.5 Nutrient runoff / eutrophication causes
algae to grow rapidly ✓ / an algal bloom
which can block light ✓
Plants in the water may die as a result ✓
Decomposing bacteria remove oxygen from the water ✓
Causing other organisms to die too ✓ (Any 3) (3)

2.4 2.4.1 Light ✓ (1)

2.4.2 The tilt of the Earth's axis
causes one side of the planet to face towards the sun ✓
while the other side faces away from the sun ✓
The side that faces towards the sun receives more light ✓
and experiences summer, ✓
while the side that faces away receives less light ✓
and experiences winter ✓ (Any 3) (3)

2.4.3 (a) Photoperiod ✓ (1)

(b) Seasonal movement of animals from one place to another ✓
in response to climatic conditions ✓ (2)

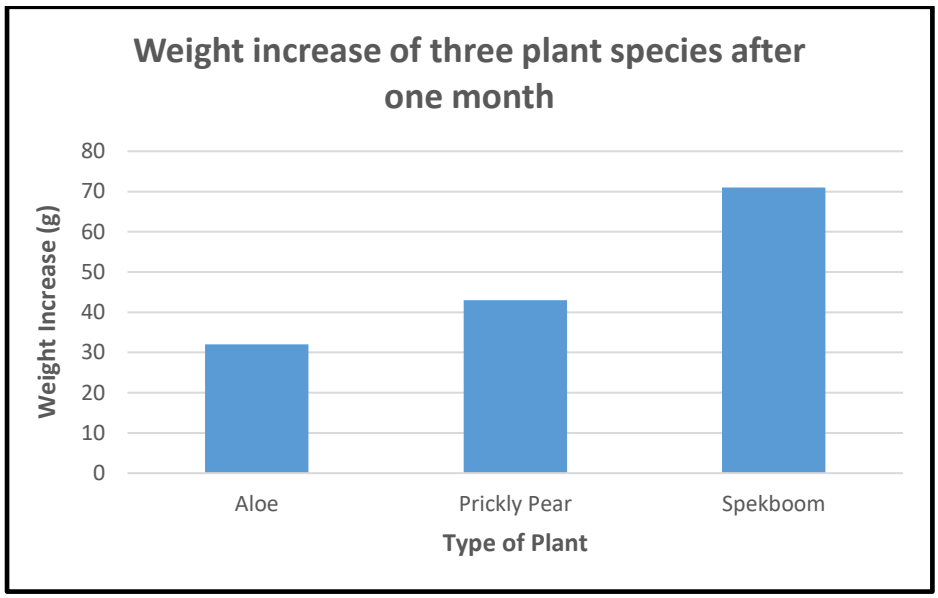
(c) To avoid cold conditions ✓
To find more food ✓
To find more water ✓ **Mark first ONE only** (Any 1) (1)

2.5	2.5.1	(a) Protista ✓	(1)
		(b) Chitin ✓	(1)
		(c) Cellulose ✓	(1)
		(d) Autotrophic ✓	(1)
	2.5.2	Has a true nucleus ✓	(1)
2.6	2.6.1	Mammalia ✓	(1)
	2.6.2	<u>Panthera</u> <u>leo</u> Name: Panthera leo ✓ Underlined ✓	(2)
	2.6.3	To avoid confusion ✓ / be accurate as common names vary from region to region ✓	(2)
			[50]

QUESTION 3

3.1 3.1.1 Type of plant ✓ (1)

3.1.2



Mark Allocation:

Type of Graph (T)		1 Mark
Caption (C) Both variables included		1 Mark
X and Y axis labels and Y axis unit (L)		1 Mark
X and Y axis scales and bars same width (S)		1 Mark
Plotting of points (P)	No bars plotted correctly	0 Marks
	1–2 bars plotted correctly	1 Mark
	All bars plotted correctly	2 Marks

(6)

3.1.3 So that they can know what the increase in weight is at the end ✓ (1)

3.1.4 They chose plants of the same height ✓
They put the plants in equal sized pots ✓
All plants had the same type of soil ✓
All plants had the same amount of soil ✓
All plants were in the same location ✓
All plants received the same amount of water ✓
Mark first TWO only (Any 2) (2)

3.1.5 Increase the sample size ✓ and repeat the experiment ✓ (1)

3.1.6 $\frac{71}{800} \times 100$ ✓ $= 8{,}88\%$ ✓ (2)

3.1.7 When plants absorb CO_2 out of the atmosphere
they use it to create organic compounds ✓ / carbohydrates
which they use to grow ✓
The more they grow the more they gain weight ✓ (Any 2) (2)

3.2 3.2.1 (a) Trilobite ✓ (1)

(b) Ammonite ✓ (1)

3.2.2 The organism dies and covered rapidly ✓
by sediment ✓ / silt
As time passes layers of sediment build up over the body ✓
The layers compress ✓ / are squashed
by immense pressure building up ✓
Minerals begin to replace animal tissues ✓
and the body petrifies ✓ (Any 4) (4)

3.2.3 Frozen in ice ✓
Trapped in tar ✓
Trapped in amber ✓ (Any 2) (2)

3.2.4 Radiometric dating ✓ (1)

3.3 3.3.1 They were thought to be extinct ✓
Yet have existed unchanged ✓
for millions of years ✓ (Any 2) (2)

3.3.2 Off the coast of East London ✓ (1)

3.3.3 Transition fossils ✓ (2)

3.3.4 Archeopteryx ✓
Thrinaxodon ✓
Lystrosaurus ✓ (Any 1) (1)

3.4 3.4.1 No ✓ (1)

3.4.2 Yes ✓
Genetic evidence shows that missing links may not be missing links at all ✓
These organisms are continually evolving ✓
Which suggests that they are part of their own group ✓
(Answer + Any 2)

OR

No. ✓
The features of these organisms ✓
still suggest links between different groups of organisms ✓
Just because the coelacanth is not a missing link does not mean that others aren't too ✓
(Answer + Any 2) (3)

3.5 3.5.1 Mass extinctions ✓ (1)

3.5.2 Event 3 ✓ (3)

3.5.3 A volcanic eruption released particles into the air ✓
which blocked out the sun ✓
For long periods of time ✓
Lowering temperatures on Earth ✓
causing many organisms to go extinct as they could not adapt ✓
(Any 3) (3)

3.5.4 Asteroid impact ✓
Continental drift ✓ (2)

3.6 3.6.1 Mrs Ples ✓ (1)

3.6.2 Fossil tourism ✓ (1)

3.6.3 West Coast Fossil Park ✓
Kitching Fossil Exploration Centre ✓
Museums ✓ **Mark first TWO only** (Any 2) (2)

3.6.4 Tourists visiting the area ✓
Create a need for jobs ✓ / employment
Such as tour operators ✓ / ticket sales / restaurant owners.
Tourists may also buy curios ✓
Stay in B&B's ✓ / hotels
All of which generate income ✓ for the local community.
The government may also upgrade facilities ✓ in their area
Which improves their living conditions ✓ (Any 4) (4)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150