Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2012

LIFE SCIENCES P2 MEMORANDUM

MARKS: **150**

This memorandum consists of 7 pages.

SECTION A

QUESTION 1

1.1	1.1.1	A ✓✓		
	1.1.2	A ✓✓		
	1.1.3	B ✓✓		
	1.1.4	C ✓✓		
	1.1.5	A ✓✓		
	1.1.6	A ✓✓		
	1.1.7	C ✓✓		
	1.1.8	D ✓✓		
	1.1.9	D ✓✓		
	1.1.10	B ✓✓	(10x2)	(20)
1.2	1.2.1	Immunity ✓		
	1.2.2	Thallus ✓		
	1.2.3	Eukaryotes ✓		
	1.2.4	Mycelium ✓		
	1.2.5	Bacteria ✓		
	1.2.6	Biodiversity ✓		
	1.2.7	Vector ✓		
	1.2.8	Plasmodium ✓		
	1.2.9	Virus ✓	(9x1)	(9)
1.3	1.3.1	None ✓✓		
	1.3.2	A only ✓✓		
	1.3.3	Both A and B ✓✓		
	1.3.4	None ✓✓		
	1.3.5	B only ✓✓		
	1.3.6	B only ✓✓		
	1.3.7	None ✓✓		
	1.3.8	A only ✓✓	(8x2)	(16)
1.4	1.4.1	2003 ✓		(1)
	1.4.2	88 559 ✓		(1)
	1.4.3	The number of TB cases increased from 1997 to 2003 ✓ and decrease slightly in 2004. ✓		(2)
	1.4.4	Probably due to an increase in the population. ✓/More people living in poor conditions ✓	(Any 1)	(1)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1
A Sporangium ✓
B Sporangiophore ✓
C Rhizoid ✓ (3)

2.1.2 Sexually ✓ and Asexually ✓ (2)

2.1.3
- They plays a role as decomposers ✓
- Serves as food for humans. ✓
- Have medical value ✓/used to produce antibiotics
- Use in the baking and brewing industries. ✓

(Mark first THREE answers only) (3)

2.1.4
- rust/blight ✓
- ergot ✓
- black rot ✓
- scab ✓ (Any 2) (2)

2.2 2.2.1 130 ✓✓ (120 - 140) mg/unit dry mass (2)

2.2.2
- Some of these nitrogen-fixing bacteria may live inside the roots of soya beans ✓
- They would absorb free-nitrogen ✓ from the air in the soil and convert it into nitrates ✓
- The soya bean plant would then use these nitrates to make other nitrogen compounds ✓
- Thus increasing the level of nitrogen inside the plant. ✓

(Any 3) (3)

2.2.3 <u>Mutualism</u> ✓
Not commensalism since both organism ✓ benefit whereas in commensalism only one ✓benefits./Plant benefits by getting nitrates from bacteria ✓ whilst bacteria get carbohydrates from the plant ✓ 1+(Any 2) (3)

2.2.4
- When soya bean plants die ✓
- nitrifying bacteria will convert the nitrogen compounds in them to nitrates ✓
- Nitrates will be converted to free nitrogen ✓
- by denitrifying bacteria✓ in the soil. (Any 3) (3)

2.3 2.3.1 It is a chemical substance ✓ that reduces the growth ✓ of bacteria by killing them/preventing them from reproducing (2)

2.3.2 They provide the bacteria with nutrients for growth. ✓ (1)

2.3.3
- To make sure that the agar plates are set up in sterile✓ conditions.
- To make sure that the agar plates are not contaminated ✓with other bacteria and fungi. (Any 1) (1)

2.3.4
- Kept all plates at the same temperature. ✓
- Ensured that the plates had the same amount of nutrients ✓ in the same concentration ✓ (Any 2x1) (2)

2.3.5
- Antibiotic 3 was the most effective in destroying the bacteria. ✓
- Antibiotic 2 was ineffective against the bacteria. ✓
- Antibiotic 1 was fairly effective ✓ (3)

[30]

QUESTION 3

3.1 3.1.1
A Bryophytes ✓
B Pteridophytes ✓
C Gymnosperms ✓
D Angiosperms ✓ (4)

3.1.2 (a) Bryophytes ✓/moss/A and Pteridophytes ✓/ferns/B (2)
(b) Gymnosperms✓/C and Angiosperms ✓/D (2)

3.1.3
- No true root, stem or leaves ✓
- No conducting tissue ✓
- No stomata ✓
- Have rhizoids ✓
- No cuticle ✓ (Any 3x1) (3)

3.2 3.2.1 Protista ✓ (1)

3.2.2 9 ✓ (1)

3.2.3 (a) Porifera ✓ (1)
(b) Cnidaria ✓ (1)

3.2.4 (a) Porifera ✓ (1)
(b) Platyhelminthes ✓ (1)

3.2.5
- Annelida ✓
- Arthropoda ✓
- Chordata ✓ (3)

3.3 3.3.1
- The issuing of a licence is one way of controlling the number ✓
- of fishermen that will be catching fish ✓
- in obtaining a licence the fishermen are acknowledging that they are aware of the conditions ✓
- relating to size restrictions and catch limits. ✓
- This increases the chances of fishermen abiding by the regulations ✓ (Any 2x1) (2)

3.3.2 Not more than four per day ✓ (1)

3.3.3
- To ensure that the shad population is not eliminated ✓ ensures that a fair number of shad remain ✓
- To reproduce ✓ and increase the population once again.
- This would allow for more sustainable use ✓ of the shad as a food source. (Any 3x1) (3)

3.3.4
- Confiscation of catch ✓
- Payment of a sum of money for each shad over the limit ✓
- Cancelling their licence ✓
- Imprisonment ✓ (Any 1x1) (1)

3.3.5
- Catching small fish would prevent them from reaching a reproductive age ✓
- at which they would be able to contribute to a population increase. ✓
- Restricting the capture of smaller fish is therefore in the best interests of a sustainable use of this resource. ✓ (3)

[30]

TOTAL SECTION B: 60

SECTION C

QUESTION 4

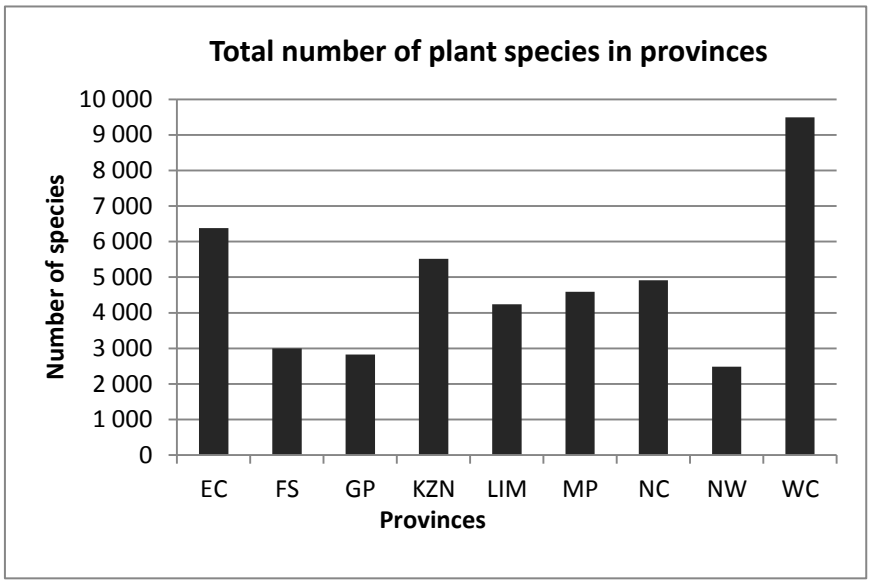
4.1 4.1.1 Limpopo ✓ (1)

4.1.2 North West ✓ (1)

4.1.3
- South Africa is rich in species diversity ✓
- Higher species diversity in plants than in animals ✓
- The highest species diversity of plants is in the Western Cape✓
- The lowest species diversity of plants is in the North West ✓
- Bird species are the highest amongst the animal species. ✓

(Any 3x1) (3)

4.1.4



Guideline for the assessing of the graph	
Correct type of graph	1
Title of graph	1
Correct label of x-axes	1
Correct scale of x-axes, same width of bars	1
Correct label of y-axes	1
Correct scale of y-axes	1
Plotting of points	1 : 1 to 3 points plotted correctly 2 : 4 to 6 points plotted correctly 3 : 7 to 9 points plotted correctly

NOTE:
If the wrong type of graph is drawn, 4 marks will be lost for:
- Correct type of graph
- Plotting of points'

If labels of the axes are transposed then 4 marks will be lost for:
- Correct label and scale for X and Y axes (9)

4.2 4.2.1
- Cycads have tall stems, ✓
- palm like leaves, ✓
- cones and ✓
- separate male and female plants ✓ (Any 2x1) (2)

4.2.2 Police ✓ who enforce conservation laws✓.

OR

Police who identify stolen cycads ✓ and trace the owners of these cycads ✓ (2)

4.2.3
- Microchips are implanted into the trunk of the cycads ✓
- DNA technology is also used ✓ (2)

4.3 <u>The Bat</u>
- The forelimbs have become wings ✓
- for flying. ✓
- The first digit is hook-like to hang from trees ✓,
- while the last four digits have become elongated to make up the wing ✓ max 3

<u>The monkey</u>
- The forelimbs are very long ✓
- to allow it to grasp trees while it is climbing ✓
- and swinging ✓ max 2

<u>The mole</u>
- Has a pair of short, spade-like forelimbs ✓
- that are modified for digging ✓ max 2

<u>The seal</u>
- The forelimbs have become flippers ✓
- for steering ✓ and
- maintaining equilibrium during swimming. ✓ max 3

<u>The horse</u>
- The forelimbs are adapted for support ✓ and
- running ✓
- with the third digit being very elongated ending in a hoof ✓ max 3

<u>Charles Darwin's explanation:</u>
- Forelimbs of mammals arose from a common ancestor ✓ in which the forelimb had the same pattern. ✓
- The forelimbs of the five mammals show variations ✓ because of having been modified ✓ to perform different functions ✓ max 4 (17)

Marks	Descriptions
3	Well structured – demonstrates insight and understanding of question
2	Minor gaps in the answer
1	Attempted but with significant gaps in the answer
0	Not attempted/nothing written other than question number

Synthesis (3)

TOTAL SECTION C: 40

GRAND TOTAL: 150