Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2011

LIFE SCIENCES P2 MEMORANDUM

MARKS: 150

This memorandum consists of 8 pages.

SECTION A

QUESTION 1

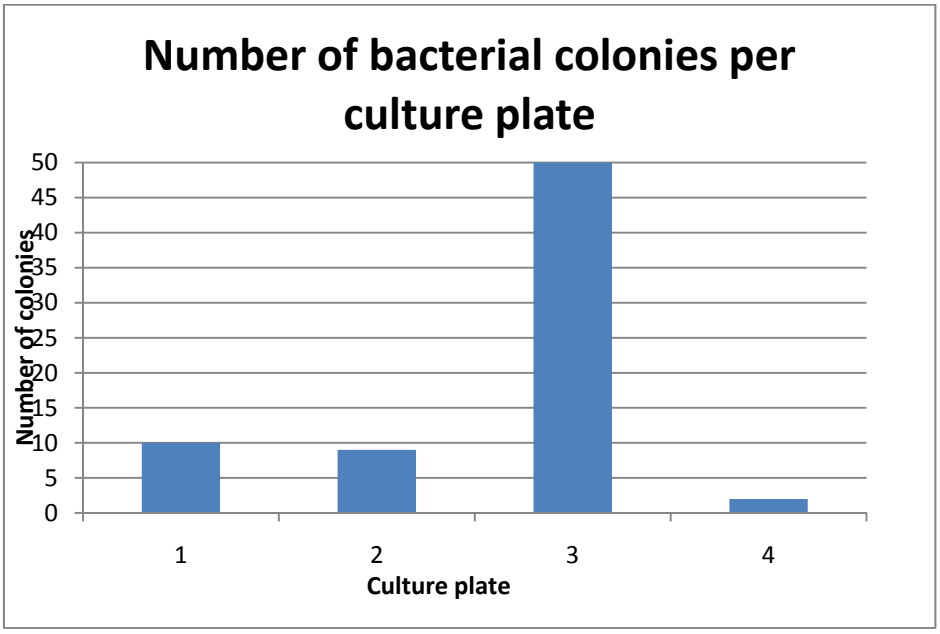
1.1	1.1.1	D ✓✓	dark, moist, warm	(2)
	1.1.2	C ✓✓	fungi.	(2)
	1.1.3	C ✓✓	Botanical gardens and nature reserves	(2)
	1.1.4	B ✓✓	The number of fertile offspring it produces	(2)
	1.1.5	A ✓✓	honeybee	(2)
1.2	1.2.1	Saprophyte ✓		(1)
	1.2.2	Immunity ✓		(1)
	1.2.3	Eukaryote ✓		(1)
	1.2.4	Thallus ✓		(1)
	1.2.5	Sessile/sedentary ✓		(1)
1.3	1.3.1	Both/A and B ✓✓		
	1.3.2	None ✓✓		
	1.3.3	Both/A and B ✓✓		
	1.3.4	A only ✓✓		
	1.3.5	B only✓✓	(5x2)	(10)
1.4	1.4.1	(a)	A ✓	
		(b)	D ✓	
		(c)	B ✓	
		(d)	C ✓ (4x1)	(4)
	1.4.2	(a)	acellular/non-cellular/having a central core or capsid ✓	
		(b)	colonies/basille shape with flagella ✓	
		(c)	true nucleus ✓	
		(d)	presence of sporangia/saprophyte ✓ (4x1)	(4)
	1.4.3	1	Tail fibre ✓	(1)
		2	Flagellum ✓	(1)
		3	Contractile vacuole ✓	(1)
		4	Cytoplasm ✓	(1)
		5	Nucleus ✓	(1)
		6	Cell wall ✓	(1)
		7	Sporangium ✓	(1)
		8	Rhizoid ✓	(1)
1.5	1.5.1	Asymmetrical ✓		(1)
	1.5.2	No coelom ✓		(1)
	1.5.3	Radial symmetry ✓		(1)
	1.5.4	Platyhelminthes ✓		(1)
	1.5.5	Triploblastic ✓		(1)
	1.5.6	Coelomate ✓		(1)
	1.5.7	Arthropoda ✓		(1)
	1.5.8	Bilateral ✓		(1)
	1.5.9	A through-gut ✓		(1)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1



Caption of graph	1
Correct scale for X-axis	1
Correct label for X-axis	1
Correct scale for Y-axis	1
Correct label for Y-axis	1
Plotting of points	1: 1 – 2 points correct 2: 3 – 4 points correct

(7)

2.1.2 (a) Plate 3✓ (1)

(b) Plate 3 contains all three nutrients ✓ (1)

2.1.3 Nutrient B ✓ (1)

2.1.4 Bacteria need all three nutrients ✓ in the culture medium for optimal growth. ✓ (2)

2.1.5 Temperature of the culture plates ✓
The light conditions ✓
The amount of oxygen available ✓ (Any 2x1) (2)

2.2 2.2.1 November/December ✓. At this time, there are more mosquitoes ✓ around as there is higher rainfall. (2)

2.2.2 June/July/August ✓ (1)

2.2.3 From July 1999 to August 2003 ✓ (1)

2.2.4 (a) 2 250 ✓ (1)

(b) $\frac{2250}{10000} x100$ ✓
= 22,5 ✓**%**✓ (3)

2.3 2.3.1 Penicillin was named ✓ after the fungus *Penicillium notatum* ✓ from which it is obtained (2)

2.3.2 Antibiotics ✓ (1)

2.3.3 Observation ✓ and Hypothesis ✓ (2x1) (2)

2.3.4 Many people and soldiers were being wounded✓
Some died of their wounds ✓since they became infected with bacteria ✓ (3)
[30]

QUESTION 3

3.1 3.1.1 A - Bryophytes✓
B - Pterophytes✓ (2)

3.1.2 Both do not produce seeds. ✓ (1)

3.1.3 Pterophytes have true conducting tissue ✓ which Bryophytes don't have.
Pterophytes are differentiated into true roots, stems and leaves, ✓ but Bryophytes are not.
In Pterophytes the dominant generation is the sporophyte and in Bryophytes the gametophyte. ✓ (3)

3.2 3.2.1 Insects ✓
They are adapted to a wide range of habitats/They are found in all types of habitats.✓ (2)

3.2.2 Saltwater covers a larger ✓ surface area than fresh water ✓/
OR
Human activities ✓ have had a lesser impact on saltwater ✓ (2)

3.2.3 Emigration/plant succession/disease/climate change/habitat destruction by humans/pollution/natural disasters/alien species invasion/over-exploitation✓ (Any 5x1) (5)

3.3

Monocotyledonous	Dicotyledonous
Embryo with one cotyledon ✓	Embryo with two cotyledon✓
Flower whorls are in threes or groups of three ✓ i.e. perianth, androecium and gynaecium	Flower whorls are in four or five ✓ i.e. calyx, corolla, androecium and gynaecium
Simple leaves with parallel venation ✓	Simple or compound leaves with net or palmate venation✓
Vascular bundles are scattered in the stem ✓	Vascular bundles are arranged in a circle. ✓
Adventitious root system ✓	Taproot system ✓
Herbaceous stems ✓	Woody stems ✓
Secondary growth absent ✓	Secondary growth present ✓
Pollen with single groove ✓	Pollen with three grooves ✓

(Any 3x2)
1 x table (7)

3.4 3.4.1 Loss of the big yellowwood tree. ✓
Loss of Fynbos diversity ✓
Loss of tourists ✓
No rehabilitation of the vegetation after the highway✓was constructe
Floods ✓
Veld-fires ✓
Pollution due to traffic ✓ (Any 4x1) (4)

3.4.2 Plant/Animal that occurs naturally in an area or country ✓ (1)

3.4.3 Tsitsikamma ✓ National Park (1)

3.4.4 Yellowwood tree ✓ (1)

3.4.5 Bungee jump ✓ (1)
[30]

TOTAL SECTION B: 60

SECTION C

QUESTION 4

4.1 4.1.1 Number ✓and distribution of rhino species have dropped ✓ critically (2x1) (2)

4.1.2 The gangs in the Cape Flats are poaching perlemoen ✓ to pay the drug syndicates for drugs ✓ (2)

4.1.3 There is a large demand locally and internationally ✓ for rhino horn and perlemoen ✓ and as a result the poaching is no longer to sustain the local communities ✓ but to make large amounts of money from the poaching ✓ (4)

4.1.4 The rhino takes more than three days to digest a meal ✓ and as a result the seeds are transported over large distances ✓ before they are deposited in the dropping. (2)

4.2 4.2.1
A - New Zealand ✓
B - Australia ✓
C - Australia/New Guinea ✓
D - Africa ✓
E - South America ✓ (5)

4.2.2
- The scientific evidence suggests that both the rheas and ostrich have evolved from one common ancestor✓
- that lived during the times when African and South America were part of one continent✓ called
- Gondwanaland✓
- The flightless birds are descended from flying birds✓
- When species of the ancient birds found habitats that lacked predators✓
- there was no longer a need for flight✓
- These species developed the ability to run fast✓ and
- defend themselves by kicking✓ with their clawed feet
- The flightless birds no longer have the opposable✓ fourth toe
- that was needed to grip on branches. ✓ (Any 5x1) (5)

4.3
- All species show structural ✓ and
- functional variation ✓ that affect
- the organism's chances of survival. ✓
- Each species has the ability to reproduce. ✓
- If the population of the species is not controlled they will run out of food ✓
- and living space. ✓
- Individuals in the species that have advantageous ✓ variations
- will survive the battle for food, mates and living space. ✓
- Darwin studied the finches on the Galapagos Islands and noted that their appearance was different to the ones on the mainland. ✓
- The ancestral form had a heavy ✓ seed-eating beak. ✓
- On the islands, mutations ✓ developed,
- affecting the shape ✓ and
- size ✓ of the beak.
- The thin beak ✓ for eating
- nectar✓ gave the bird an advantage,
- enabling these birds to become more successful ✓ than the normal birds on the island.
- Darwin concluded that the Galapagos Islands finch species were related to the finches on the mainland ✓ but
- that the variation between the finch species was due to lifestyle and behaviour ✓/adaptations to their environment which lead to genetic variation (variation in beak size and shape of the different species).
- Constant selection of the better-adapted and stronger individuals ✓
- and the elimination of weaker ones ✓ results
- in the evolutionary changes ✓ that occur.
- The stronger individuals pass their genes on ✓ to the next generation.
- The process of change was called natural selection. ✓
- The long-term changes in a species are called evolution. ✓

(Any 17x1) (17)

ASSESSING THE PRESENTATION OF THE ESSAY

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/no correct information

Synthesis (3)

TOTAL SECTION C: 40

GRAND TOTAL: 150