



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2013

**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	C ✓✓	(10 x 2) (20)

1.2	1.2.1	Courtship ✓ behaviour	(1)	1.2.6	Metamorphosis ✓	(1)	
	1.2.2	Immigration ✓	(1)	1.2.7	Vitreous Humour ✓	(1)	
	1.2.3	Precocial ✓	(1)	1.2.8	Eustachian ✓ tube	(1)	
	1.2.4	Succession ✓	(1)	1.2.9	Sustainable ✓	(1)	
	1.2.5	Amniocentesis ✓	(1)	1.2.10	Geometric ✓/Log- / Logarithmic phase	(1)	(10)

1.3	1.3.1	None ✓✓	(2)	1.3.5	Both A and B ✓✓	(2)	
	1.3.2	A only ✓✓	(2)	1.3.6	None ✓✓	(2)	
	1.3.3	Both A and B ✓✓	(2)	1.3.7	B only ✓✓	(2)	(14)
	1.3.4	A only ✓✓	(2)				

1.4	1.4.1	A Epidermis ✓ C Erector / hair muscle✓	(2)
	1.4.2	Dilation ✓/ will become bigger / increased blood flow	(1)
	1.4.3	More blood flow to the surface ✓ More heat reaches the surface ✓ More heat is lost to the environment ✓ Causing the body to cool down ✓ (Any 3 x 1)	(3)

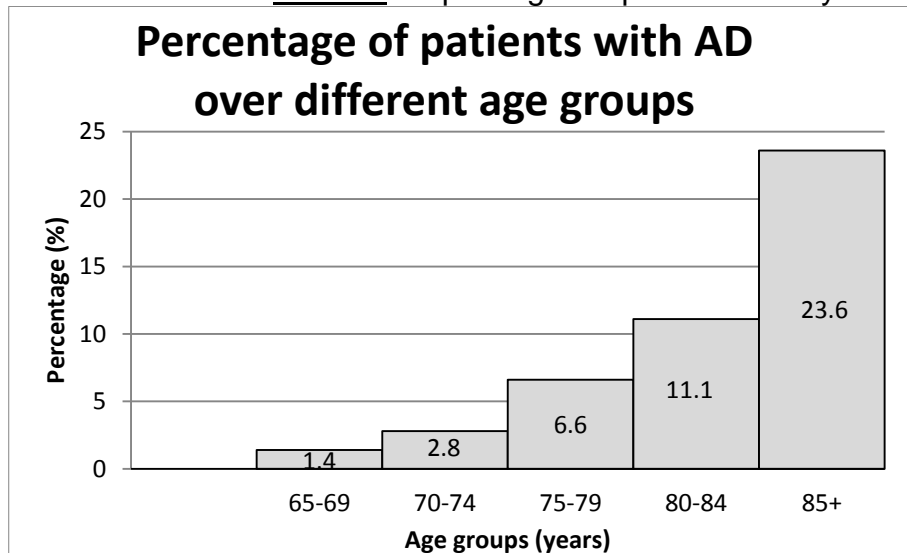
TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1	2.1.1	<u>Mrs Abrahams:</u> <ul style="list-style-type: none"> Feels the pinprick thus able to receive information from the receptor. ✓ Sensory neuron from the fingertip was working correctly. ✓ Motor neurons carrying instructions to the muscles were not working correctly. ✓ <u>Mr Abrahams:</u> <ul style="list-style-type: none"> Could not feel the pinprick thus unable to receive information from the receptor. ✓ Sensory neuron from fingertip was not working correctly. ✓ He could move his hand meaning that he could get instructions to the muscles. ✓ 	(6)
	2.1.2	<ul style="list-style-type: none"> They would have been unable ✓ to sense the pinprick ✓/ to move their hand No information could have travelled to or from the brain ✓ 	(3)
	2.1.3	<ul style="list-style-type: none"> Holds head and spinal cord in the correct position ✓ there might be damage to the spinal cord due to the impact of accident and a brace prevents a worsening of the situation. ✓ This might result in paralysis. ✓ 	(3)
2.2	2.2.1	12,5 ✓%	(1)
	2.2.2	Memory loss ✓	(1)
	2.2.3	<ul style="list-style-type: none"> had abnormal clumps ✓ and tangled bundles of nerve fibres ✓ 	(2)
	2.2.4	organ failure ✓/infections	(1)

2.2.5	Guideline for the assessing of the graph:	
	Correct type of graph and the drawing of bars.	1
	Title of graph	1
	Correct label X and Y-axes	1
	Correct scale X and Y-axes	1
	Plotting of points	1
	<u>1 mark</u> for plotting 1 to 3 points correctly	1
	<u>2 marks</u> for plotting all 5 points correctly	2
		(6)

**NOTE:**

If the wrong type of graph is drawn, 1 mark will be lost for:

- 'Correct type of graph and joining of points'

If labels of the axes are transpose then 2 marks will be lost for:

- 'Correct label and scale for X- and Y-axes'

2.3	2.3.1	A; Iris ✓ B: Pupil ✓ C: Sclera ✓	(3)
	2.3.2	A decrease in light intensity ✓ / dim light conditions	(1)
	2.3.3	<ul style="list-style-type: none"> • The circular muscles of the iris relax ✓ • The radial muscles of the iris contract ✓ • This causes the pupil to dilate ✓ 	(3)

[30]

QUESTION 3

3.1	3.1.1	Dispersal The movement ✓ of individuals, or the part responsible for reproduction, (such as seeds, spores, larvae) into or out ✓ of a population area. ✓		(3)
	3.1.2	<ul style="list-style-type: none"> • Emigration ✓ • Immigration ✓ • Migration ✓ 		(3)
3.2	3.2.1	(a)	Habitat: is the place ✓ where plants and animals ✓ live.	(2)
		(b)	Conservation: is the wise management of the earth's resources ✓ so that it yields the greatest sustainable benefit for current and future generations ✓ while maintaining its potential to meet the needs of future generations.	(2)
	3.2.2	The animals have a reputation for attacking livestock. ✓		(1)
	3.2.3	<ul style="list-style-type: none"> • road accidents ✓ • incidental snaring ✓/use of trapping devices • competition ✓ with other larger carnivores • predation ✓ with other larger carnivores 		(2)
	3.2.4	Education ✓		(1)
	3.2.5	"the killing of livestock by wild dogs rarely occurs in practice" ✓		(1)
3.3	3.3.1	7,3 ✓ billion ✓ (7,2 – 7,4)		(2)
	3.3.2	<ul style="list-style-type: none"> • Developing countries: Geometric ✓/J-shape • Developed countries: Logistic ✓/S-shape/Sigmoid 		(2)
	3.3.3	<ul style="list-style-type: none"> • Since 1950 ✓ there is • a dramatic increase ✓ in the population size of developing countries • showing an increase in fertility rate ✓ 		(3)
3.4	3.4.1	Secondary succession ✓ <ul style="list-style-type: none"> • In the first year the ground is colonised by species 1 ✓ • and by new species in year 2. ✓ • This is typical of secondary succession where soil already exists ✓ 		(3)
	3.4.2	Species 3 ✓ and 4 ✓		(2)
	3.4.3	Species 1 ✓		(1)
	3.4.4	Year 2 ✓		(1)
	3.4.5	<ul style="list-style-type: none"> • It is most probably a slow-growing tree. ✓ • Species 4 could not compete successfully with species 2 in year 2. • Species 4 needed more time to acclimatise (Any 1 x 1) 		(1)

[30]

TOTAL SECTION B: 60

SECTION C

QUESTION 4

4.1	4.1.1	Gametophyte ✓		(1)
	4.1.2	Yes ✓		(1)
	4.1.3	(a)	haploid ✓/n	(1)
		(b)	haploid ✓/n	(1)
		(c)	haploid ✓/n	(1)
		(d)	diploid ✓/2n	(1)
	4.1.4	sexually ✓		(1)
	4.1.5	water ✓		(1)
4.2	4.2.1	Predation ✓✓		(2)
	4.2.2	(a)	Rabbits ±135 ✓ (134 – 136)	(1)
		(b)	Lynx ±75 ✓ (74 – 76)	(1)
	4.2.3	lynx population increased ✓		(1)
	4.2.4	More food available ✓ for the young one to grow ✓ and less competition for food ✓ max.		(2)
	4.2.5	rabbit population decreased ✓		(1)
	4.2.6	An animal that hunts, catches and kills another animal for its food. ✓✓		(2)
	4.2.7	Secondary consumer ✓/ Carnivore		(1)
	4.2.8	1865 ✓		(1)

4.3	<ul style="list-style-type: none"> - Under the influence of Follicle Stimulating Hormone (FSH) ✓ - produced by the hypophysis/pituitary gland ✓ - the follicle of the ovary ✓ matures ✓ - to become a Graafian follicle ✓ - The Graafian follicle produces the hormone oestrogen ✓ - which starts the preparation of the uterus for attachment ✓ - of the fertilised egg by making the endometrium: ✓ : - Thicker/more vascular / more glandular ✓ - After the ovum is released ✓ by ovulation ✓ - the Lutenising hormone (LH) helps convert the ruptured follicle into the corpus luteum - The corpus luteum ✓ produces the hormone progesterone ✓ - which continues the preparation of the uterus ✓ - just in case fertilisation takes place ✓ - If fertilisation takes place the embryo is implanted in the uterus ✓ - The corpus luteum remains active and continue producing progesterone ✓ - Which maintains the endometrium during pregnancy ✓ - Later the placenta ✓ also produces progesterone to maintain the endometrium - The high levels of progesterone inhibit the secretion of FSH ✓ - And thus further egg production is stopped ✓ - If fertilisation does not take place then the corpus luteum disintegrates ✓ - and stop producing progesterone ✓ - FSH inhibition stops ✓ - Egg production begins once more ✓ - The endometrial lining of the uterus is removed through menstruation ✓ 	(Any 17 x 1) (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

Synthesis (3)

TOTAL SECTION C: 40
GRAND TOTAL: 150

