Basic Education

KwaZulu-Natal Department of Basic Education
REPUBLIC OF SOUTH AFRICA

LIFE SCIENCES P1

PREPARATORY EXAMINATION

SEPTEMBER 2015

NATIONAL SENIOR CERTIFICATE

GRADE 12

MARKS: 150

TIME: 2½ Hours

This question paper consists of 14 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in your ANSWER BOOK.
3. Start the answers to each question at the top of a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Present your answers according to the instructions of each question.
6. Do ALL drawings should be done in pencil and label them in blue or black ink.
7. Draw diagrams, tables or flow charts only when asked to do so.
8. The diagrams in this question paper are NOT necessarily drawn to scale.
9. Do NOT use graph paper.
10. You may use a non-programmable calculator, protractor and a compass where necessary.
11. Write neatly and legibly.

SECTION A

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.10) in your ANSWER BOOK, for example 1.1.11 D.

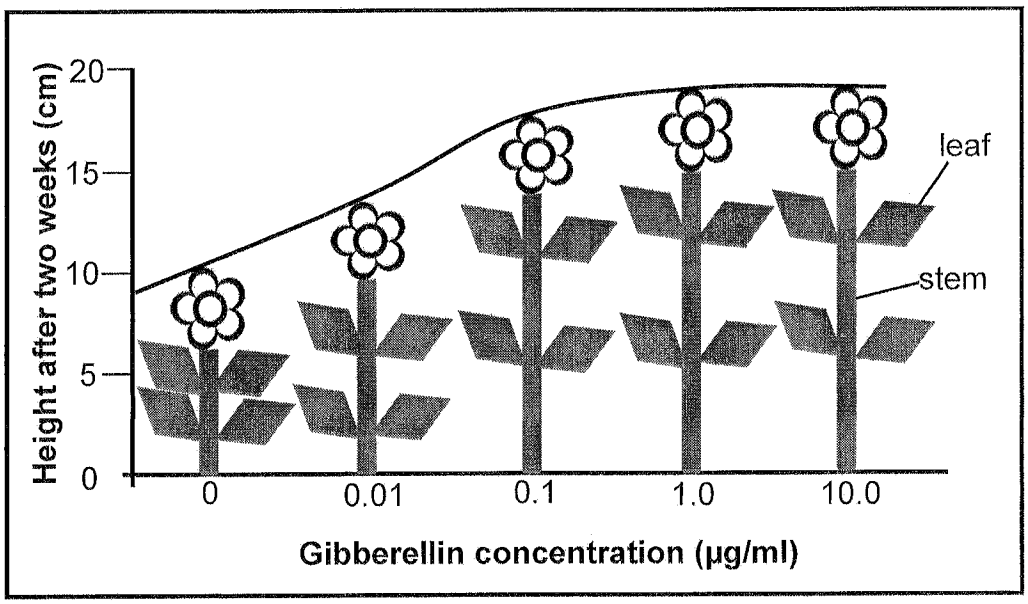
1.1.1 Events that occur during prophase I of meiosis include ...

A pairing of homologous chromosomes and crossing over.
B pairing of homologous chromosomes and DNA replication.
C the disappearance of the nuclear membrane and the splitting of the centromeres.
D DNA replication and crossing over.

1.1.2 During which phase of meiosis do homologous chromosomes line up at the equator in pairs?

A Prophase I
B Metaphase I
C Anaphase II
D Metaphase II

1.1.3 An investigation was carried out to determine the effect of gibberellin concentration on plant growth. The results of the investigation are shown in the diagram below.

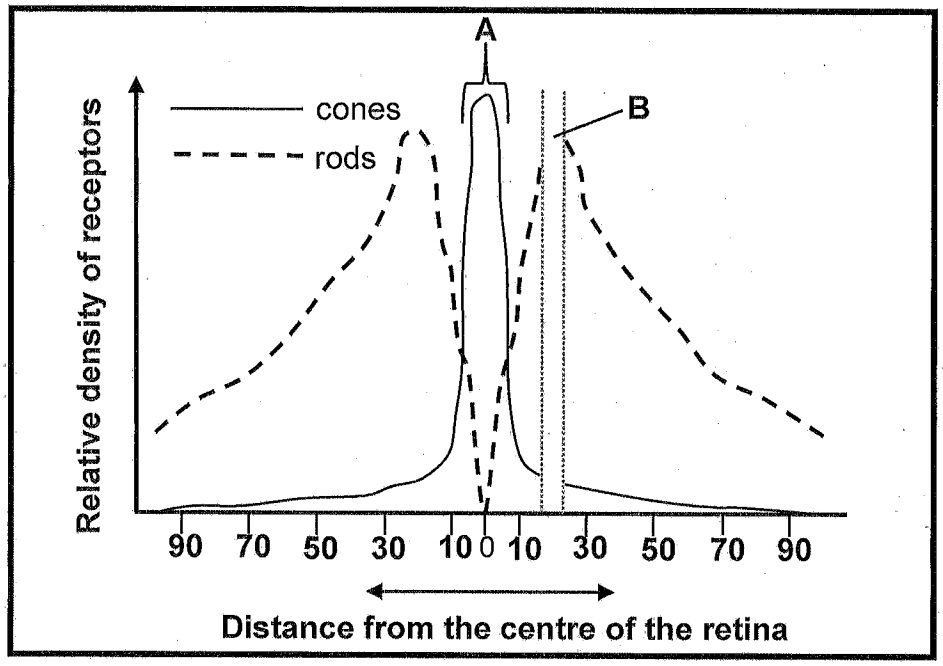


Adapted: http://www.easynotecards.com

A sugar cane farmer harvests the stem of the plant to extract sugar. What is the **minimum** gibberellin concentration that should be used to ensure the highest yield of sugar from the crop.

A 0.01 µg/ml
B 0.1µg/ml
C 1.0 µg/ml
D 10.0 µg/ml

1.1.4 The **graph below** shows the relative density of rods and cones across the retina of the eye. Zero (0) is the centre of the retina at the back of the eye. The numbers represent the distance to the left or right from the centre of the retina.

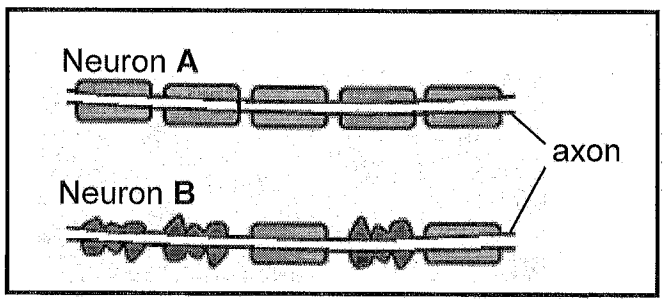


http://plantcellbiology.masters.grkraj.org

The parts labelled **A** and **B** on the graph are the ...

A blind spot and choroid.
B sclera and yellow spot.
C yellow spot and blind spot.
D retina and cornea.

1.1.5 The diagram shows part of a neuron from a person suffering from multiple sclerosis and from a normal person.



The neuron from the person with multiple sclerosis is ...

A **B**, because the myelin sheath is damaged.
B **B**, because the axon is damaged.
C **A**, because the myelin sheath is not damaged.
D **A**, because the axon is damaged.

1.1.6 The part of the brain that receives impulses from the utriculus and sacculus is the …

A hypothalamus.
B cerebellum.
C medulla oblongata.
D cerebrum.

1.1.7 The hormone involved when responding to an emergency is …

A adrenalin.
B prolactin.
C growth hormone.
D aldosterone.

1.1.8 Reproductive strategies used by ground nesting birds such as the ostrich include ...

A external fertilisation and ovipary.
B ovovipary and no parental care
C vivipary and internal fertilisation
D ovipary and internal fertilisation

1.1.9 Extra-embryonic membranes that are present in the amniotic egg are the ...

A albumin and allantois.
B chorion and amnion.
C endometrium and amnion.
D albumin and chorion.

1.1.10 Which of the following CORRECTLY represents the events involved in the secretion and action of ADH (antidiuretic hormone)?

	WATER LEVEL IN BLOOD RELATIVE TO NORMAL	AMOUNT OF ADH PRODUCED RELATIVE TO NORMAL	AMOUNT OF WATER REABSORBED BY KIDNEYS
A	Increase	Increase	Decrease
B	Increase	Decrease	Increase
C	Decrease	Increase	Increase
D	Decrease	Decrease	Decrease

(10 x 2) **(20)**

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.9) in your ANSWER BOOK.

1.2.1 A pair of chromosomes, one inherited from each parent, that have the same genes at the same locus

1.2.2 The point at which crossing over of chromosomes occurs during meiosis

1.2.3 The functional connection between the axon of one neuron and the dendrites of another neuron

1.2.4 Connects the two halves of the brain together

1.2.5 Increased content of nutrients in lakes and dams due to the inflow of fertilizers

1.2.6 The condition of a cell when it has a single set of chromosomes

1.2.7 The cutting down of trees and removing of vegetation from land leading to a decrease in the amount of CO_2 taken up by plants during photosynthesis

1.2.8 The hormone that controls salt levels in the body

1.2.9 The two strands of a chromosome joined by a centromere

(9 x 1) **(9)**

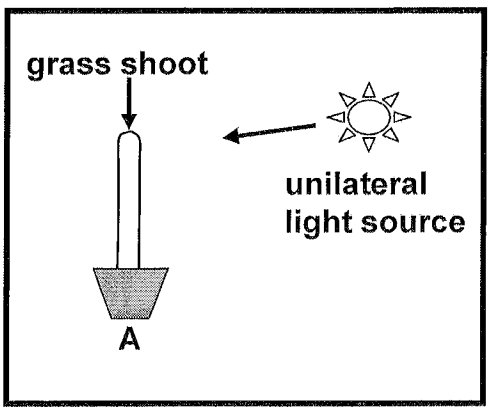
1.3 Indicate whether each of the statements in COLUMN I applies to **A ONLY**, **B ONLY**, **BOTH A AND B or NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B,** or **none** next to the question number (1.3.1 to 1.3.6) in the ANSWER BOOK.

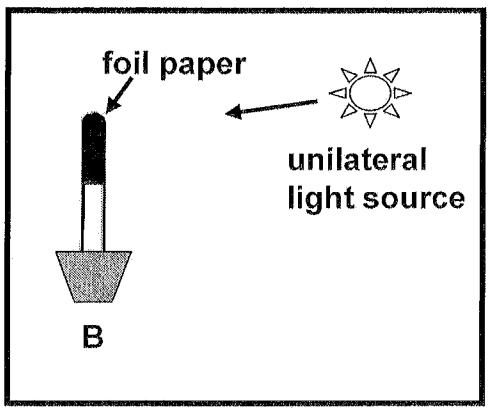
	COLUMN I	COLUMN II
1.3.1	The phase of cell division when the cytoplasm has divided	A: Anaphase B: Prophase
1.3.2	Controlled by negative feedback mechanisms	A: Carbon dioxide B: Salts
1.3.3	Equalizes the pressure between the middle ear and the atmosphere	A: Eustachian tube B: Semi-circular canals
1.3.4	Controlled by the autonomic nervous system	A: Breathing B: Heart rate
1.3.5	Maintenance of a constant internal environment by the body	A: Gametogenesis B: Homeostasis
1.3.6	Offspring are poorly developed and are helpless at birth	A: Precocial B: Altricial

(6 x 2) **(12)**

1.3 The apparatus was set up as show in Diagram **A** to determine the effect of unilateral light on the growth of grass shoots. An additional grass shoot was set up, covered with foil as shown in Diagram **B**.

The diagrams below show the grass shoots at the start of the investigation.





1.4.1 Name each of the following:

(a) A plant's growth response to light (1)
(b) The plant hormone involved in the response named in QUESTION 1.4.1 (a) (1)

1.4.2 What effect does light have on the hormone named in QUESTION 1.4.1 (b)? (1)

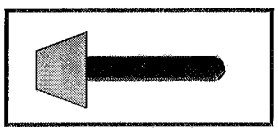
1.4.3 What is the purpose of the:

(a) Foil paper (1)
(b) Setup **B** (1)

1.4.4 State the results of the investigation in:

(a) **A** (1)
(b) **B** (1)

1.4.5 Grass shoot **C** was covered with foil and then placed in a horizontal position as shown below.



(a) After one week it had started to bend upwards. Name the stimulus that the shoot is responding to. (1)

(b) On which side of the shoot, upper or lower, would the Concentration of the hormone named in QUESTION 1.4.1(b) be in a lower concentration? (1)

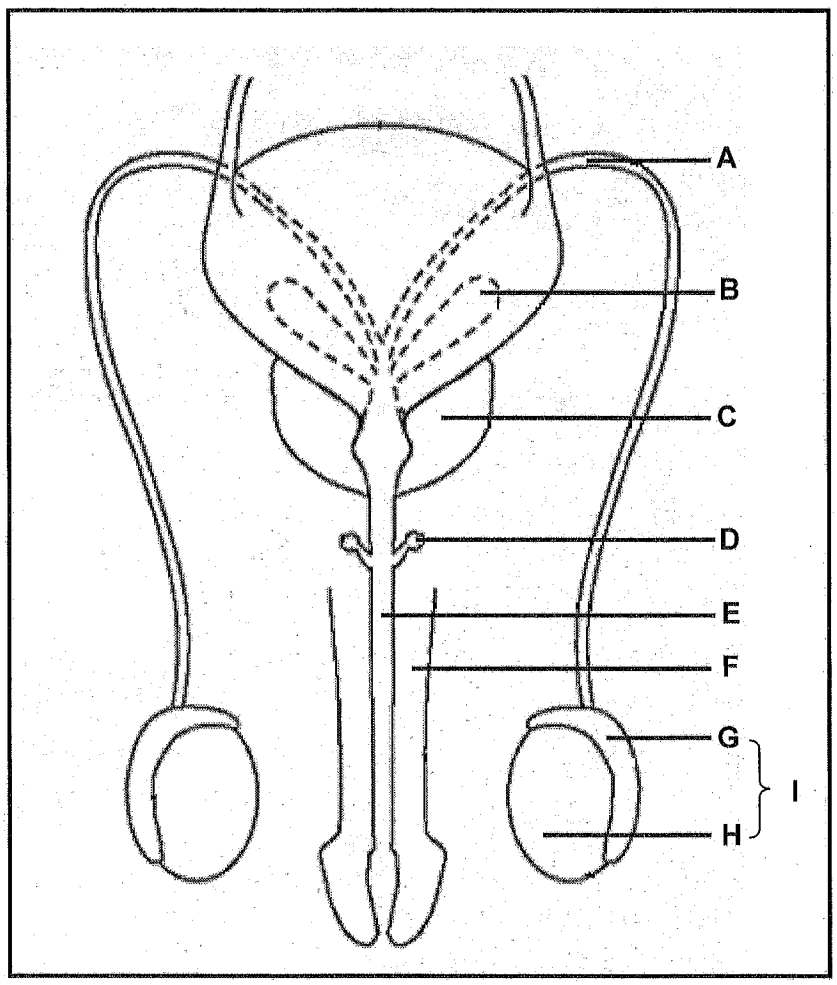
(9)

TOTAL QUESTION 1: [50]
TOTAL SECTION A: [50]

SECTION B

QUESTION 2

2.1 The diagram below represents the male reproductive system in a human.



2.1.1 Give ONE function of:

(a) **G** (1)

(b) **H** (1)

2.1.2 Explain the result in the male if:

(a) All the glands **B**, **C** and **D** are removed (2)

(b) Part **I** was inside the body (2)

2.1.3 Explain how the function of part **E** differs in males and females. (2)

2.1.4 During a vasectomy, part **A** is cut as a means of contraception. Explain how this would help in preventing pregnancy. (2)
(10)

2.2 Insulin is the hormone that regulates blood glucose levels. Some patients have a condition where they are unable to produce insulin and must therefore have regular injections of insulin. Two types of insulin are used, NPH insulin and LANTUS insulin.

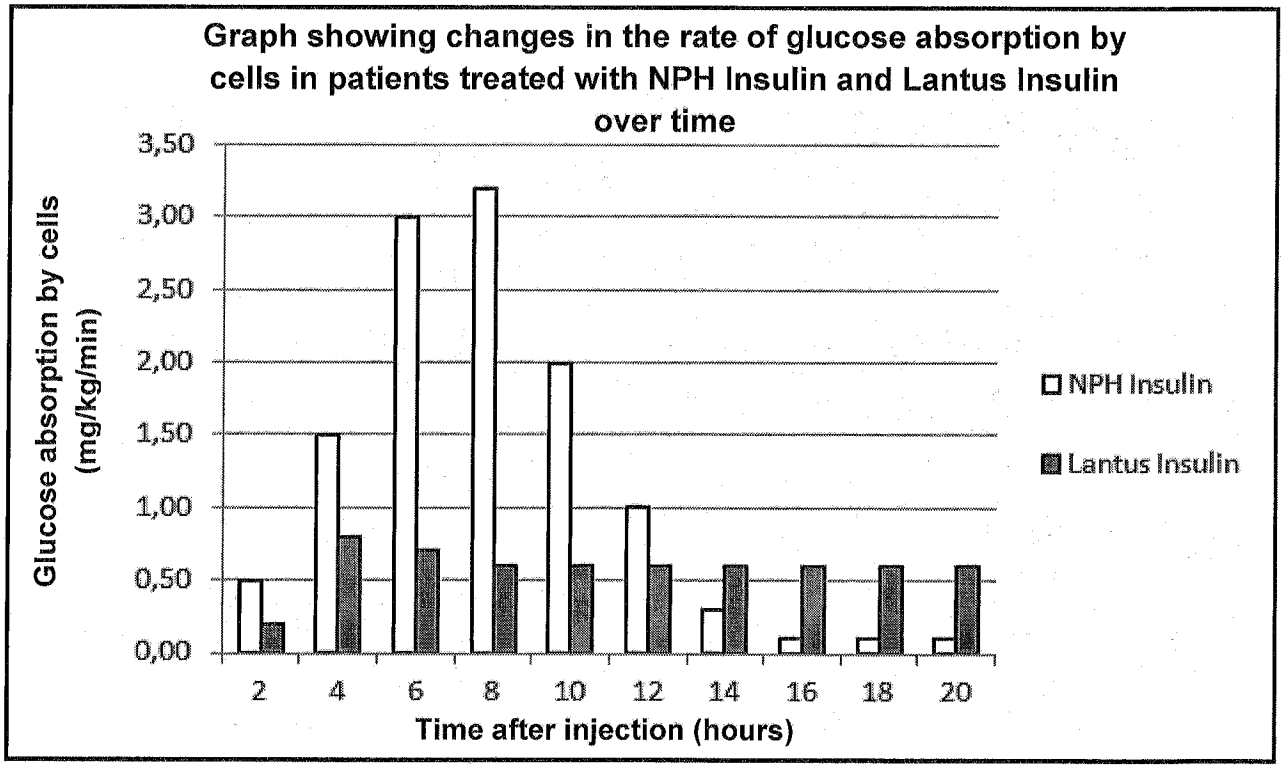
Scientists wanted to establish which of these types of insulin controls blood glucose levels for longer periods in insulin-dependent patients.

They used the following procedure during this investigation:

- They divided 20 patients into two groups of 10 patients each.
- The one group was injected with NPH insulin and the other group was injected with LANTUS insulin.
- All the patients received the same amount and concentration of insulin.
- The glucose absorption by cells was then measured every 2 hours, over a period of 20 hours and the average calculated.

The insulin is regarded as effective when the glucose absorption by the cells is above 0,4mg/kg/min.

The graph below shows the results obtained from this investigation.



Adapted from: www.lantus.com

2.2.1 Provide a suitable hypothesis for this investigation. (2)

2.2.2 Name the condition that results when the body is unable to produce insulin. (1)

2.2.3 According to the graph, how long after being injected did LANTUS become effective? (1)

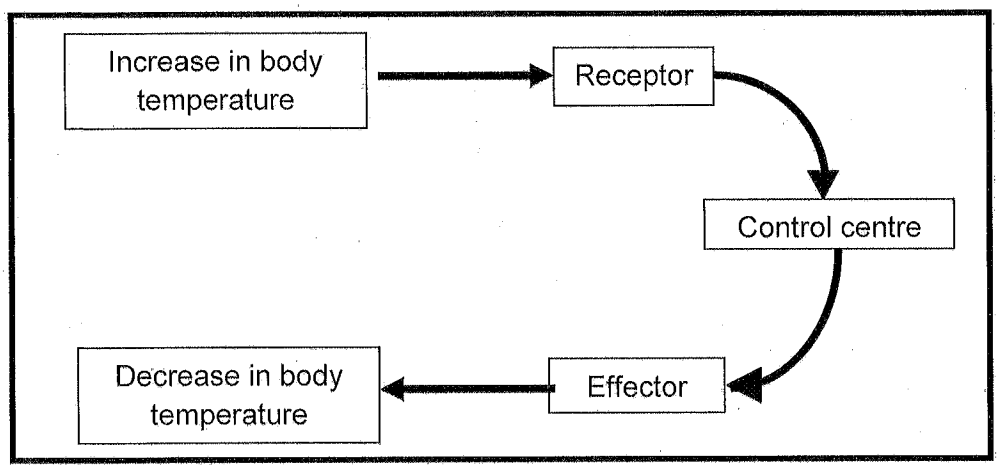
2.2.4 Which type of insulin caused the highest glucose absorption by cells? (1)

2.2.5 Which type of insulin should be recommended for patients? (1)

2.2.6 Give a reason for your answer to QUESTION 2.2.5. (1)

2.2.7 Explain how insulin works to reduce blood glucose levels. (3)
(10)

2.3 The flow diagram below represents the body's response to an increase in the environmental temperature.



2.3.1 Name the organ sensitive to temperature which could be the receptor in the diagram. (1)

2.3.2 Name the part of the brain that is the control centre in the diagram. (1)

2.3.3 Describe how each of the following parts of the skin, which act as effectors, help to decrease the body temperature on a hot day.

(a) Sweat glands (3)

(b) Blood vessels (4)
(9)

2.4 Scientists conducted an investigation into the effects of different types of activities on the reaction times of people.

Three people (**A, B** and **C**) of the same age and gender were chosen to participate in the investigation. Each person was asked to perform two tests in which their reactions times were determined by asking them to press a buzzer as soon as they felt a tap on their knee. A tap on the knee results in a knee jerk reaction which is a reflex action.

The two tests were done as follows:

TEST 1

Each person performed the test with no other activity and their time taken to react was recorded.

TEST 2

Each person (**A, B** and **C**) performed the test again with each having a different activity to perform as indicated below. The time taken to react was recorded again.

The percentage increase in the time taken to react in the first and second tests was calculated.

The results of the tests are provided in the table below.

PERSON	TYPE OF ACTIVITY PERFORMED	INCREASE IN TIME TAKEN TO REACT (%)
A	Using a hands-free phone	27
B	Using a hand-held phone	37
C	Sending a text message	46

Adapted from: http://www.dailymail.co.uk

2.4.1 Explain the importance of the reflex actions in humans. (2)

2.4.2 State the independent variable in this investigation. (1)

2.4.3 List TWO ways in which the scientists ensured the validity of this investigation. (2)

2.4.4 State ONE way in which this investigation could be made more reliable. (1)

2.4.5 Which person (**A, B** or **C**) had a reaction time in **Test 2** that was closest to his/her reaction time for **Test 1**? (2)

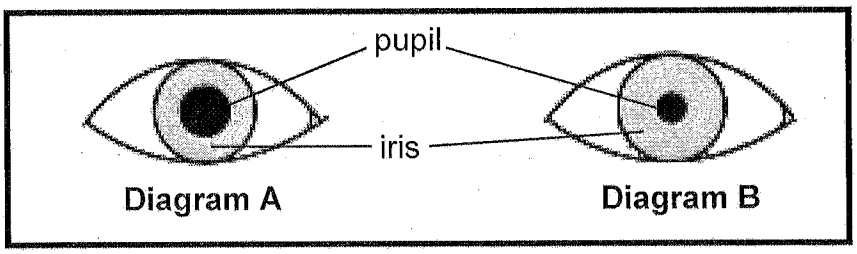
2.4.6 Use the results of the investigation to explain whether the following hypothesis should be accepted or rejected.

'Sending text messages while driving can cause more car accidents than using a hands-free or a hand-held phone while driving'. (3)
(11)

TOTAL QUESTION 2: [40]

QUESTION 3

3.1 The diagram below represents a process that takes place in the human eye. Diagram **A** shows the eye in dim light conditions and diagram **B** shows the same eye with light shining into it.



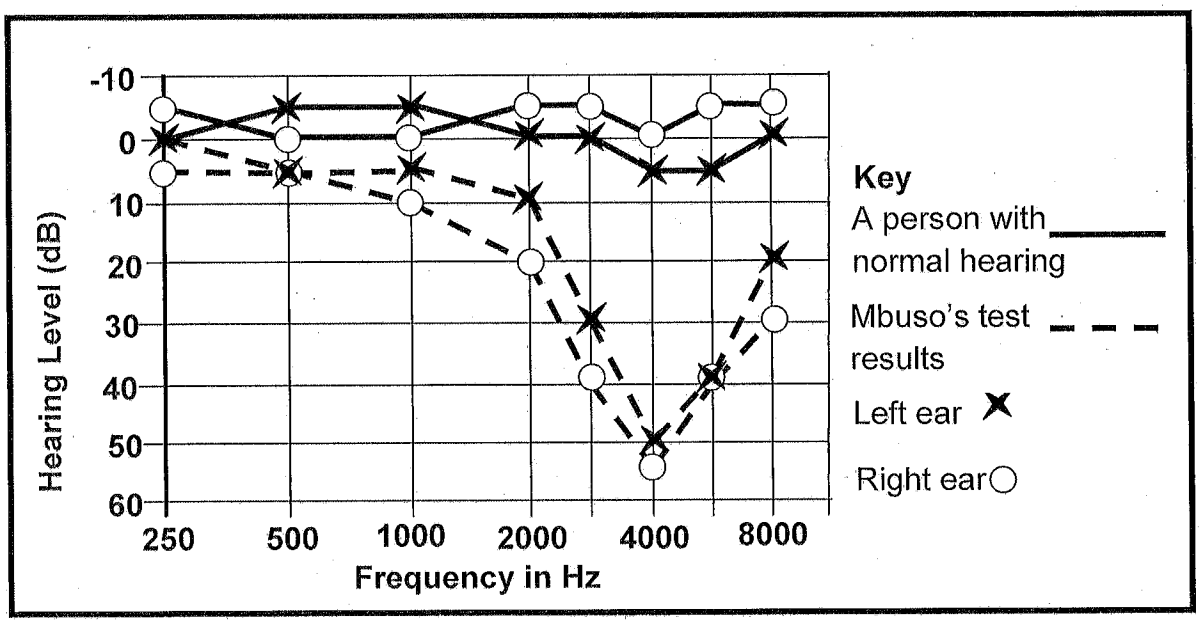
3.1.1 Name the mechanism that is represented in the diagram. (1)

3.1.2 Describe how the response shown in diagram **B** is brought about. (3)

3.1.3 Describe how the eye would adjust to ensure that an object moving closer to it remains in focus. (4)
(8)

3.2 Mbuso had found lately that he has difficulty hearing. He went to a doctor who tested his ability to hear sounds of different frequencies in each ear.

The results of his hearing test are shown in the diagram below.



Adapted: http://auditoryneuroscience.com

3.2.1 In which ear/s (right, left or both) has Mbuso suffered hearing loss? (1)

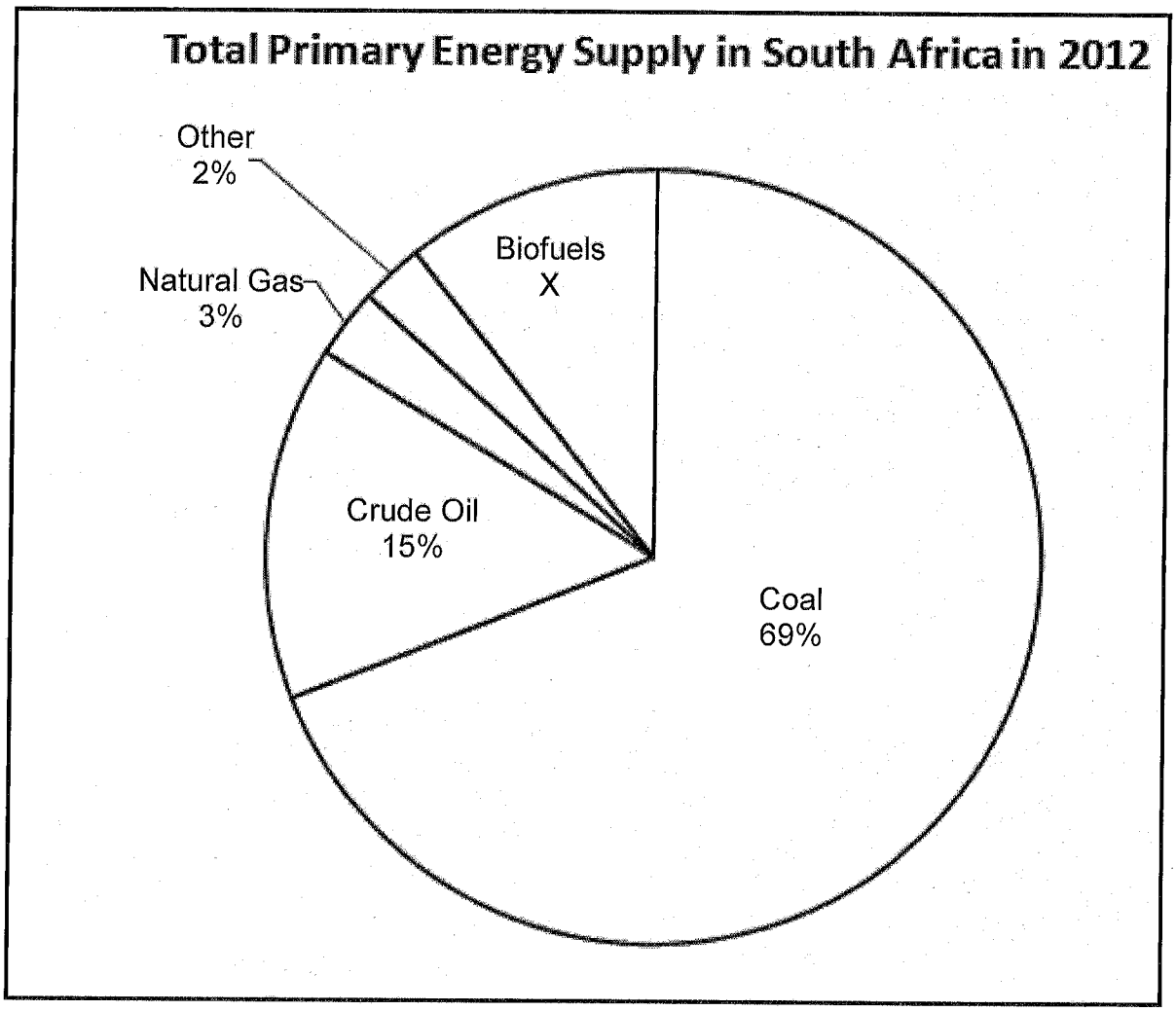
3.2.2 Which frequency of sound does he have the most difficulty hearing. (2)

3.2.3 Explain how excess wax in the ear may cause hearing difficulties. (3)

3.2.4 Describe the role of the round window in hearing. (2)

(8)

3.3 The various sources of energy in South Africa and their contribution to the total primary energy supply is represented in the chart below.



Adapted from: https://en.m.wikipedia.org/wiki/Energy_in_South_Africa

3.3.1 Determine the value of **X**. Show ALL calculations. (2)

3.3.2 Name the natural gas produced in landfill sites that is flammable. (1)

3.3.3 Give ONE way in which the gas named in QUESTION 3.3.2 is useful to humans. (1)

3.3.4 Most of the electricity in South Africa is produced from coal. Describe the impact of using this energy source on climate change. (4)

3.3.5 Name TWO alternative energy sources used in South Africa that makes up the 2% of **'other'** sources. (2)

3.3.6 Describe how the mining of coal impacts on biodiversity in South Africa. (2)
(12)

3.4 The extract below describes some of the problems caused by alien plants in Southern Africa.

> Invasive alien vegetation poses a serious threat to South Africa's water supply, as well as the country's agricultural potential and biodiversity.
>
> If the alien invasive vegetation across the country could be condensed into a single area, it would form a dense, impenetrable thicket about twice the size of the Kruger National Park.
>
> Asked how long it would take to clear the country of alien vegetation, and what this would cost, Marais said that a "conservative" estimate was R34 billion over the next 25 years.
>
> Left untouched, the alien vegetation would spread at an average rate of one percent a year, threatening water and food security.

Adapted from:http://www.iol.co.za

3.4.1 What is meant by 'alien vegetation'? (1)

3.4.2 Give TWO possible reasons for the high cost of removing alien vegetation. (2)

3.4.3 Describe how alien vegetation can affect the biodiversity of living organisms in a dam. (5)

3.4.4 Explain TWO ways in which alien plants impact on food security. (4)

(12)

TOTAL QUESTION 3: [40]
TOTAL SECTION B: [80]

SECTION C

QUESTION 4

Describe the interaction of FSH and progesterone in controlling the production of ova, and the development of a fertilised ovum until it embeds itself onto the uterus wall.

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

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

TOTAL SECTION C: [40]
GRAND TOTAL: [150]

GREENBURY

Basic Education

KwaZulu-Natal Department of Basic Education
REPUBLIC OF SOUTH AFRICA

LIFE SCIENCES P1

PREPARATORY EXAMINATION

SEPTEMBER 2015

MEMORANDUM

NATIONAL SENIOR CERTIFICATE

GRADE 12

MARKS: 150

TIME: 2½ Hours

This question paper consists of 10 pages.

PRINCIPLES RELATED TO MARKING LIFE SCIENCES 2015

1. **If more information than marks allocated is given**
   Stop marking when maximum marks is reached and put a wavy line and 'max' in the right-hand margin.

2. **If, for example, three reasons are required and five are given**
   Mark the first three irrespective of whether all or some are correct/incorrect.

3. **If whole process is given when only part of it is required**
   Read all and credit relevant part.

4. **If comparisons are asked for and descriptions are given**
   Accept if differences / similarities are clear.

5. **If tabulation is required but paragraphs are given**
   Candidates will lose marks for not tabulating.

6. **If diagrams are given with annotations when descriptions are required**
   Candidates will lose marks

7. **If flow charts are given instead of descriptions**
   Candidates will lose marks.

8. **If sequence is muddled and links do not make sense**
   Where sequence and links are correct, credit. Where sequence and links is incorrect, do not credit. If sequence and links becomes correct again, resume credit.

9. **Non-recognised abbreviations**
   Accept if first defined in answer. If not defined, do not credit the unrecognized abbreviation but credit the rest of answer if correct.

10. **Wrong numbering**
    If answer fits into the correct sequence of questions but the wrong number is given, it is acceptable.

11. **If language used changes the intended meaning**
    Do not accept.

12. **Spelling errors**
    If recognizable accept provided it does not mean something else in Life Sciences or if it is out of context.

13. **If common names given in terminology**
    Accept provided it was accepted at the National memo discussion meeting.

14. **If only letter is asked for and only name is given (and vice versa)**
No credit

15. **If units are not given in measurements**
Candidates will lose marks. Memorandum will allocate marks for units separately

16. Be sensitive to the **sense of an answer, which may be stated in a different way**.

17. **Caption**
All illustrations (diagrams, graphs, tables, etc.) must have a caption

18. **Code-switching of official languages (terms and concepts)**
A single word or two that appears in any official language other than the learners' assessment language used to the greatest extent in his/her answers should be credited, if it is correct. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.

SECTION A

QUESTION 1

1.1
1.1.1 A✓✓
1.1.2 B✓✓
1.1.3 C✓✓
1.1.4 C✓✓
1.1.5 A✓✓
1.1.6 B✓✓
1.1.7 A✓✓
1.1.8 D✓✓
1.1.9 B✓✓
1.1.10 C✓✓ (10 x 2) **(20)**

1.2
1.2.1 Homologous✓
1.2.2 Chiasma✓
1.2.3 Synapse✓
1.2.4 Corpus callosum✓
1.2.5 Eutrophication✓
1.2.6 Haploid✓
1.2.7 Deforestation ✓
1.2.8 Aldosterone✓
1.2.9 Chromatids✓ (9 x 1) **(9)**

1.3
1.3.1 None✓✓
1.3.2 Both A and B✓✓
1.3.3 A only✓✓
1.3.4 Both A and B✓✓
1.3.5 B only✓✓
1.3.6 B only✓✓ (6 x 2) **(12)**

1.4
1.4.1 (a) Phototropism ✓ (1)
(b) Auxins✓ (1)

1.4.2 The hormone/ auxins move away from light✓/are destroyed (1)

1.4.3 (a) Prevents light from reaching the shoot✓ (1)
(b) Acts as a control✓/ to use as a comparison/ to verify the results (1)

1.4.4 (a) The shoot grows/bends towards the light✓ (1)
(b) The shoot grows straight up✓ (1)

1.4.5 (a) Gravity✓ (1)
(b) Upper ✓ (1)
(9)

TOTAL QUESTION 1: [50]
TOTAL SECTION A: [50]

SECTION B
QUESTION 2

2.1

2.1.1 (a) Stores sperm temporarily✓ / allows sperm to mature (1)
(Mark first ONE only)

(b) Produces sperm✓ / testosterone (1)
(Mark first ONE only)

2.1.2 (a)
- The motility of the sperm will decrease✓
- as the sperm would not receive enough nutrients✓

OR

- The motility of the sperm will decrease✓
- as there would not be enough fluid for the sperm to swim in✓ (2)

(b)
- The testes will be the same temperature as normal body temperature ✓/ 36,5 ^{0}C/ will not be $\pm$ 3 ^{0}C lower than normal body temperature
- hence sperm produced will not be healthy ✓/will be affected (2)

2.1.3
- In males the urethra is a common opening for urine and semen✓
- In females the urethra only carries urine✓ (2)

2.1.4
- Sperm cannot pass to the urethra into the woman's body✓
- and hence fertilisation will not take place ✓ (2)

(10)

2.2 2.2.1 NPH insulin controls blood glucose levels for a longer/shorter period of time than LANTUS✓✓

OR

LANTUS insulin controls blood glucose levels for a longer/shorter period of time than NPH insulin✓✓

OR

LANTUS insulin and NPH insulin control blood glucose levels for the same period of time✓✓ (Any 1 x 2) (2)

2.2.2 Diabetes✓ mellitus (1)
2.2.3 4 hours✓ (1)
2.2.4 NPH insulin✓ (1)
2.2.5 LANTUS insulin✓ (1)
2.2.6 It is effective for longer✓ (1)
2.2.7 Insulin:
- Stimulates the cells to absorb glucose✓ from the blood/increases respiration
- Stimulates the liver✓/muscles
- to convert glucose into glycogen✓ (3)

(10)

2.3

2.3.1 Skin✓ (1)

2.3.2 Hypothalamus✓ (1)

2.3.3 (a)
- Sweat glands are stimulated to secrete more sweat✓
- The sweat evaporates from the surface of the skin✓
- this has a cooling effect✓ (3)

(b)
- Blood vessels in the skin dilate✓
- More blood✓
- flows to the surface of the skin✓
- More heat is lost✓ by radiation (4)

(9)

2.4

2.4.1 Reflexes allow the rapid✓/ involuntary responses to an external stimulus thus preventing /reducing damage✓ to the body (2)

2.4.2 The type of activity✓performed (1)

2.4.3 The people were of the:
- Same age✓
- Same gender✓
- The reaction time was tested using the same method✓ (Any 2) (2)

(Mark first TWO only)

2.4.4
- Repeat the investigation✓
- Increase the sample size✓ (Any 1) (1)

(Mark first ONE only)

2.4.5 Person A✓✓ (2)

2.4.6 The hypothesis should be accepted✓
- The results show that sending text messages increases the time taken to react the most✓
- therefore if a person does this when driving they will react much more slowly✓ which could lead to an accident. (3)

(11)

TOTAL QUESTION 2: [40]

QUESTION 3

3.1

3.1.1 Pupillary ✓mechanism (1)

3.1.2 - The circular muscles contract✓
- The radial muscles relax✓
- The pupil constricts✓/gets smaller (3)

3.1.3 - The ciliary muscles contract✓
- The sclera is pulled towards the lens✓
- Tension on the suspensory ligaments decreases✓
- The lens becomes more convex✓/ rounded
- A clear image is formed on the retina✓ Any 4 (4)

(8)

3.2

3.2.1 Both✓ (1)

3.2.2 4000✓ Hz✓ (2)

3.2.3 - Earwax builds up in the auditory canal✓
- and presses against the tympanic membrane✓
- preventing it from vibrating freely✓/preventing the transmission of sound waves (3)

3.2.4 - The round window absorbs✓ sound waves from the inner ear
- to prevent interference with subsequent waves✓/reduce pressure in cochlea (2)

(8)

3.3

3.3.1 100 – (69+15+3+2)✓
= 11%✓ (2)

3.3.2 Methane✓ (1)

3.3.3 It is burnt to:
- Provide heat✓/cook food
- Generate electricity✓ (Any 1) (1)

3.3.4 - Burning coal releases CO_2 into the atmosphere✓
- CO_2 traps more heat in the atmosphere✓
- causing the 'enhanced greenhouse effect'✓
- which causes average global temperatures to rise✓
- This is known as 'global warming'✓ (Any 4) (4)

3.3.5 Nuclear power✓
Hydroelectric power✓
Solar power✓
Wind power✓ (Any 2) (2)

3.3.6 - Biodiversity is decreased✓
- as mines destroy habitats✓
- and the animals that live there die✓/move away

OR

- Biodiversity decreases✓
- as mines release chemicals✓/pollutants into the environment
- which poisons animals and plants✓ (Any 2) (2)

(12)

3.4

3.4.1 Species of plants that have been introduced✓ into an area/did not originally occur in that area (1)

3.4.2 - Employing people to remove the vegetation✓
- Buying chemicals to kill the plants✓
- Providing equipment to cut down the plants✓
- Researching biological control species✓
- Alien vegetation may be widespread✓
- Alien vegetation may be growing in inaccessible areas✓
- A large amount of alien vegetation needs to be removed✓

(Mark first TWO only) (Any 2) (2)

3.4.3 - The biodiversity in the dam decreases✓
- Alien plants cover the surface of the water✓
- and block out the sunlight✓
- Less photosynthesis occurs✓
- and less oxygen is released into the water✓
- Other organisms die✓/suffocate due to a lack of oxygen (Any 5) (5)

3.4.4 - They deplete the topsoil of water✓/nutrients
- so that food crops do not grow well✓

- They invade land✓
- decreasing the space available to grow crops✓ (4)

(12)

TOTAL QUESTION 3: [40]

TOTAL SECTION B: [80]

SECTION C

QUESTION 4

Possible answer

The interaction of FSH and progesterone that controls the production of ova

- FSH produced by the pituitary✓
- stimulates the development of a follicle✓ in the ovary.
- The follicle grows into a Graafian follice✓
- and the ovum is released when ovulation occurs✓
- The remains of the Graafian follicle develops into the corpus luteum✓
- which secretes progesterone✓
- The progesterone inhibits the production of FSH✓
- so that no new follicles develop✓
- while a pregnancy is possible✓
- If a pregnancy does not occur the corpus luteum disintegrates✓
- and progesterone levels decrease✓
- which allows FSH to increase✓ to produce another follicle (Max 9)

The development of the fertilised ovum

- As soon as fertilization has occurred a zygote✓ is formed
- The zygote undergoes mitosis✓
- until a ball of cells is formed✓
- called a morula✓
- The morula continues to divide to form a mass of cells with a hollow cavity✓
- called a blastocyst✓
- and finally into an embryo ✓
- It moves down the Fallopian tube✓
- and into the uterus✓
- The embryo embeds itself onto the endometrium / inner wall of the uterus✓
- Process called implantation ✓ (Max 8)

Content (17)
Synthesis (3)

(20)

ASSESSING THE PRESENTATION OF THE ESSAY

Marks for synthesis			
Criterion	**Relevance (R)**	**Logical sequence (L)**	**Comprehensive (C)**
Generally	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
In this essay	Only information relevant to interaction of FSH and progesterone in the production of ova and the development of the fertilised ovum is included. (There is no irrelevant information)	The interaction of FSH and progesterone involved in the production of ova and the development of the fertilised ovum is included in the correct sequence	Minimum of **5/9** marks for the interaction of FSH and progesterone involved in the production of ova and **4/8** for the development of the fertilised ovum
Mark	1	1	1

Content (17)
Synthesis (3)
(20)

TOTAL SECTION C: [40]
GRAND TOTAL: [150]