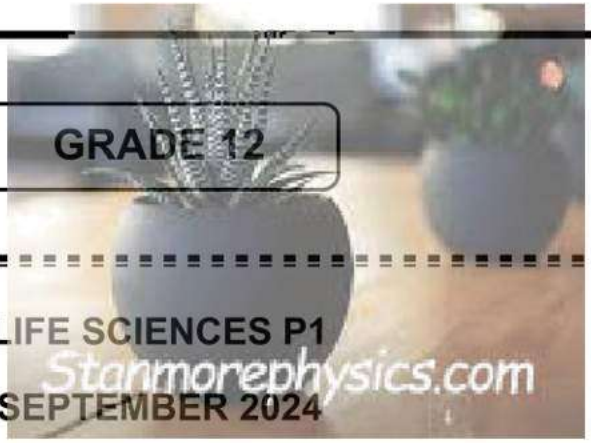
education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12



LIFE SCIENCES P1

SEPTEMBER 2024

MARKS: 150

TIME: 2½ hours

This paper consists of 15 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 answer 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 for each question.
6. Do ALL drawings 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 must use a non-programmable calculator, protractor and a compass where necessary.
11. Write neatly and legibly.

SECTION A

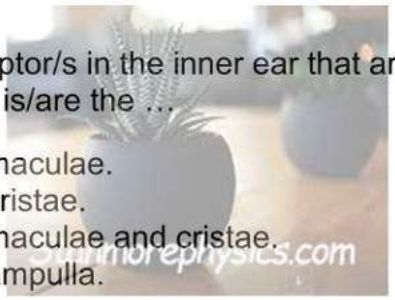
QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.1.1 to 1.1.9.) in the ANSWER BOOK, e.g. 1.1.10 D.

1.1.1 The photoreceptor/s stimulated by dim light is/are …

A rods and lenses.
B rods and cones.
C rods only.
D cones only.

1.1.2 The receptor/s in the inner ear that are sensitive to the position of the body is/are the …



A maculae.
B cristae.
C maculae and cristae.
D ampulla.

1.1.3 The nerves that link receptor and effector organs with the brain and spinal cord are …

A spinal nerves.
B cranial nerves.
C peripheral nerves.
D olfactory nerves.

1.1.4 A treatment for a middle ear infection is …

A cochlear implants
B hearing aids
C tympanic transplant
D grommets

1.1.5 An under-secretion of ADH in a patient leads to …

A a high concentration of sodium in the urine.
B the formation of a large volume of urine.
C the presence of glucose in the urine.
D decreased thirst.

1.1.6 Which ONE of the following is a response of the human body when adrenalin is released?

A Increased conversion of glycogen to glucose.
B Decreased oxygen intake.
C Increased blood flow to the intestine.
D Decreased blood flow to the muscle and heart.

1.1.7 A person experiences the following symptoms:

- Loss of weight
- Is always hungry
- Never feels cold

The explanation for this combination of symptoms is that the person …

A secretes too much growth hormone.
B is diabetic and just had an insulin injection.
C has an underactive hypothalamus.
D has an overactive thyroid gland.

1.1.8 ONE of the functions of the hormone progesterone is to …

A speed up the development of the follicles.
B maintain the uterine wall for implantation of the embryo.
C bring about the formation of the corpus luteum.
D stimulate the secretion of sweat.

1.1.9 The pituitary gland is located …

A below the hypothalamus.
B above the cerebellum.
C behind the cerebrum.
D in front of the thyroid. (9 x 2) **(18)**

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK.

1.2.1 The ability of the lens of the eye to alter its shape for sharp vision

1.2.2 A disease caused by damage to the myelin sheath of the neurons, characterised by physical and mental disabilities

1.2.3 The maintenance of a constant internal environment in the human body

1.2.4 The glands that pour their secretions directly into the bloodstream

1.2.5 Control of the level of water in the body

1.2.6 The hormone responsible for stimulating milk production

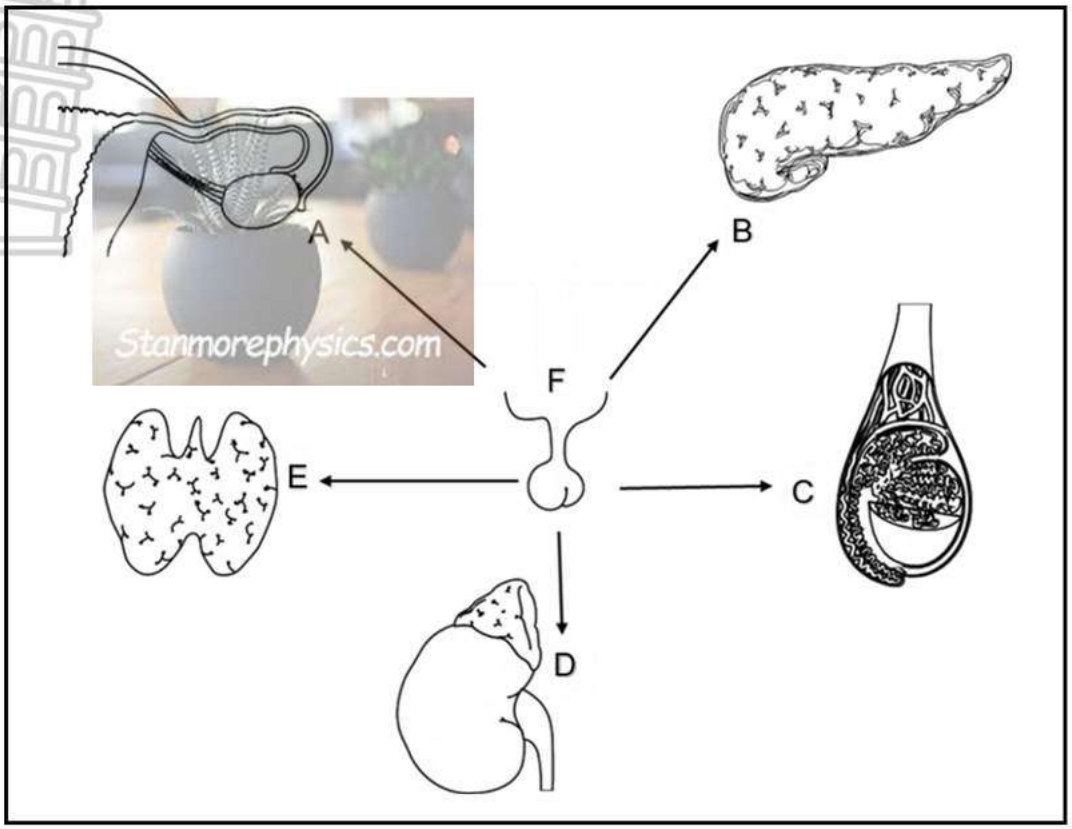
1.2.7 A decrease in the internal diameter of blood vessels which decreases blood flow (7 x 1) **(7)**

1.3 Indicate whether each of the descriptions in COLUMN I apply 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 numbers (1.3.1 to 1.3.3) in the ANSWER BOOK.

	COLUMN I	COLUMN II
1.3.1	The ability to see objects close by, but not objects far away	A: Long-sightedness B: Short-sightedness
1.3.2	The area in the retina that contains the highest number of cones and no rods	A: Blind spot B: Yellow spot
1.3.3	A neuron that links one neuron with the next inside the central nervous system	A: Sensory neuron B: Motor neuron

(3 x 2) **(6)**

1.4 The diagram below shows organs involved in the endocrine systems.



Give the LETTER and NAME of the gland/hormone that:

1.4.1 Influence height, building bones and muscles (2)

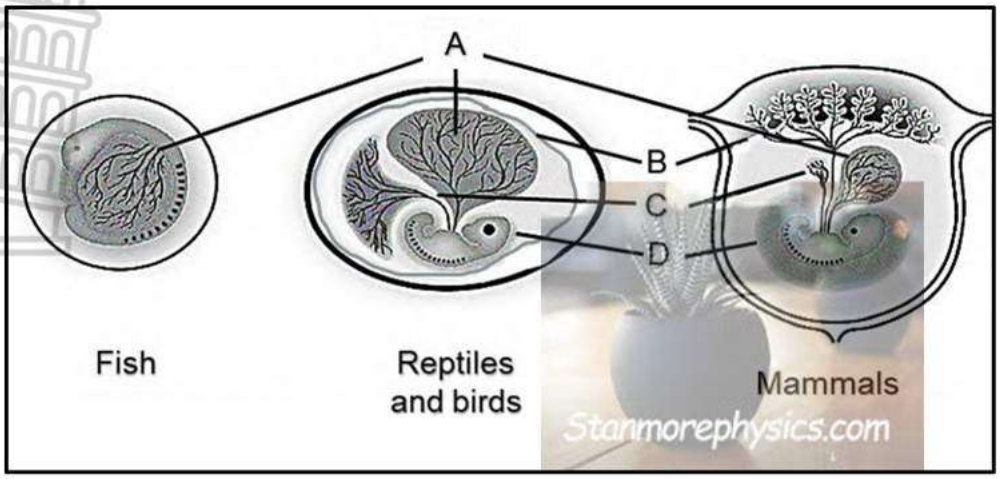
1.4.2 Serves as both endocrine and exocrine gland (2)

1.4.3 Secrete hormones responsible for pregnancy (2)

1.4.4 Secrete a hormone that when imbalanced causes a goitre (2)

1.4.5 Controls secondary sexual characteristics in males (2)
(10)

1.5 The diagram below shows an amniotic egg of different organisms.



1.5.1 What is precocial development? (1)

1.5.2 Give the function of the part labelled **B**. (1)

1.5.3 Name the organism without allantois. (1)

1.5.4 Give the LETTER and NAME of the part that provides nutrients to the embryo. (2)

1.5.5 Name the part that provides mechanical support for the embryo. (1)

1.5.6 Identify ONE organism that:

(a) Undergo external fertilization (1)

(b) Have parental care (1)

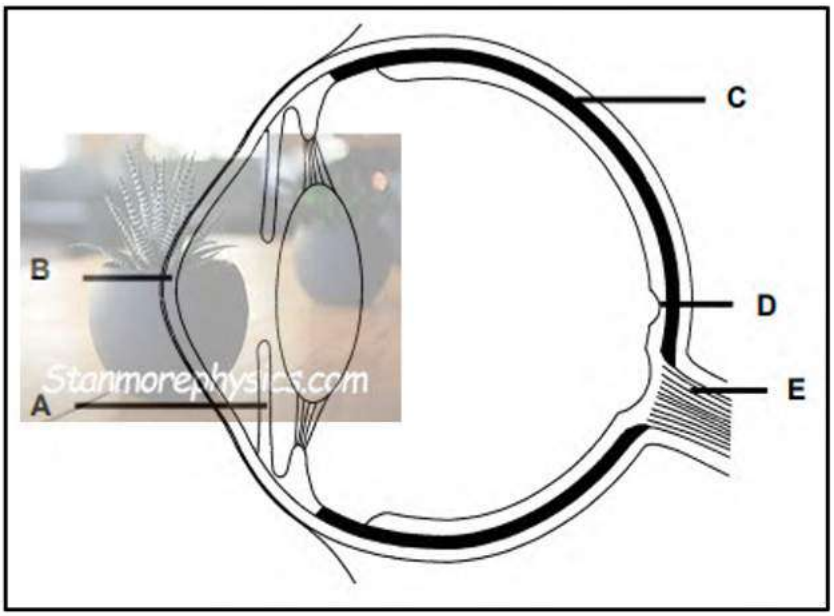
(c) Are viviparous (1)
(9)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 The diagram below represents the internal structure of the human eye.



2.1.1 Identify and give ONE function for each of the following structures:

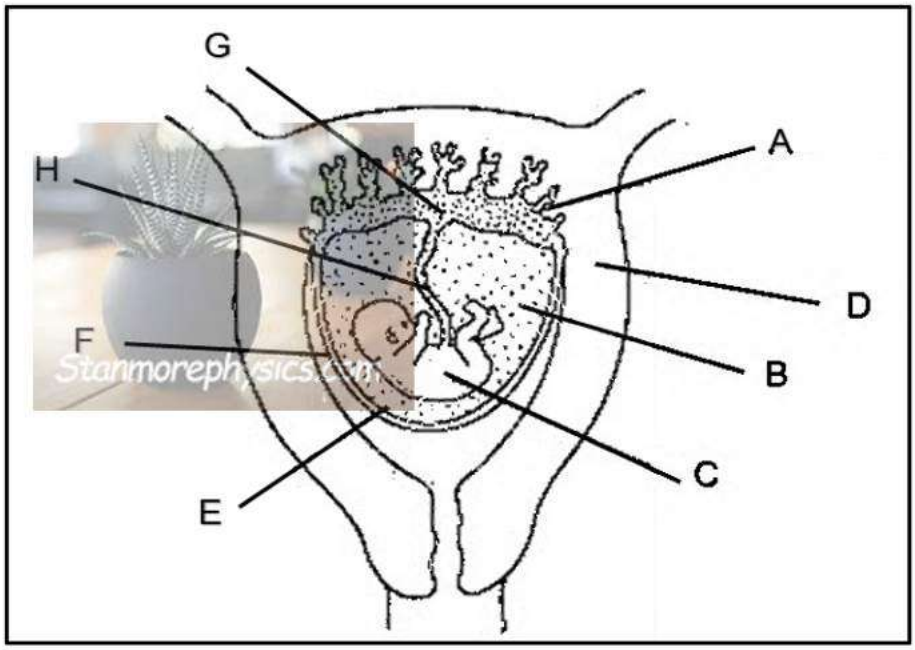
(a) **A** (2)

(b) **E** (2)

2.1.2 What treatment is prescribed if part **B** has an uneven surface? (1)

2.1.3 Describe the pupillary mechanism when eyes are exposed to bright light. (4)
(9)

2.2 The diagram below illustrates the human foetus in the uterus.



2.2.1 Name:

(a) The process by which the blastocyst is attached to the uterine wall (1)

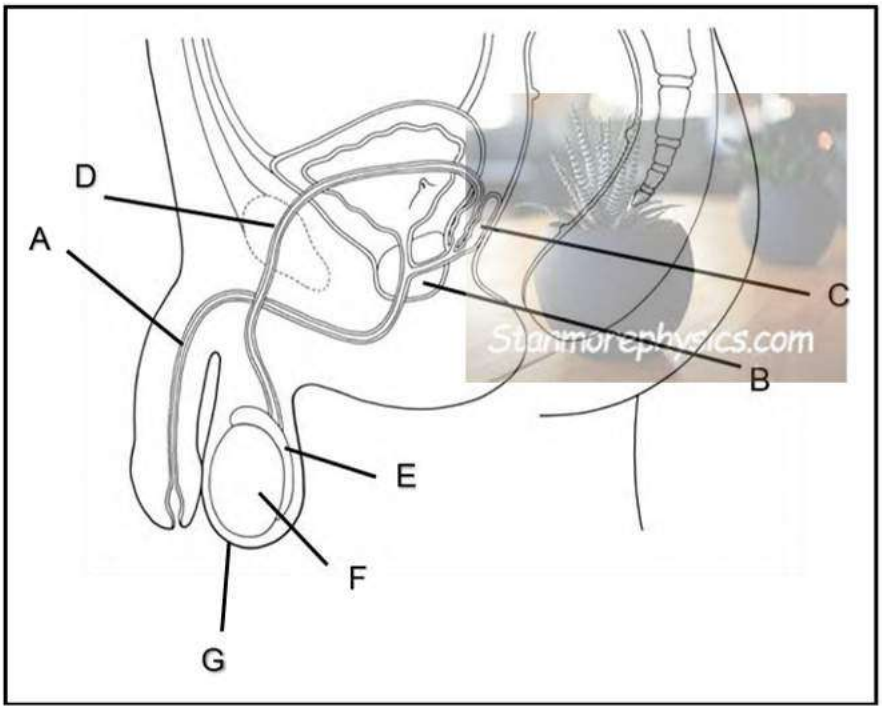
(b) The period during which the foetus develops in the uterus (1)

2.2.2 Describe the stages of development of a zygote after fertilization. (3)

2.2.3 Describe the effect on the foetus if the liquid in part **B** is NOT enough during the developmental stages. (4)

2.2.4 Explain TWO functions of the blood vessels in the umbilical cord during the developmental stages. (4)
(13)

2.3 The diagram below represents a male reproductive system.



2.3.1 Identify part **A.** (1)

2.3.2 Give the NAME of the part responsible for the following:

(a) Produces sperms (1)

(b) Temporary storage of sperms (1)

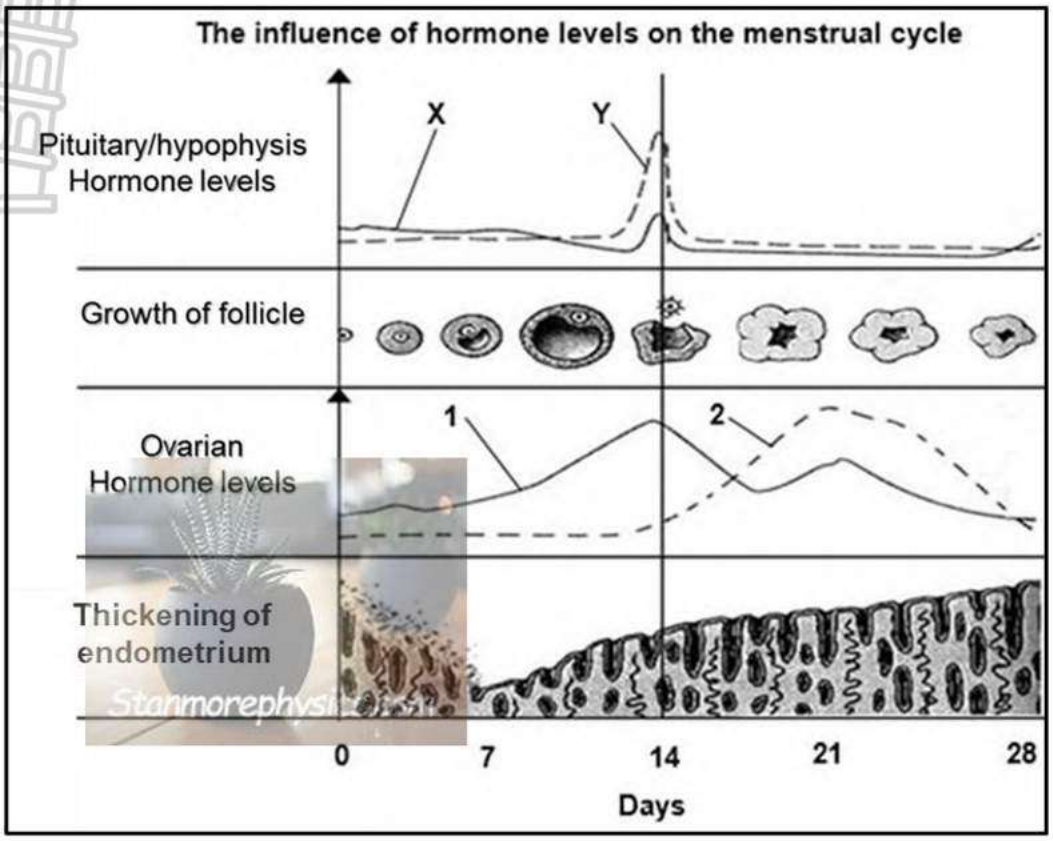
(c) Transport of semen to the ejaculatory duct (1)

2.3.3 Explain the consequences on fertility if part **G** is exposed to high temperatures daily. (4)

2.3.4 Tabulate TWO differences between spermatogenesis and oogenesis in humans. (5)

2.3.5 Draw a labelled diagram to represent the structure that fuses with the sperm cell to form a zygote. (4)
(17)

2.4 The graph below shows the menstrual cycle and the influence of different hormones on the blood of a mature woman over a 28-day cycle.



2.4.1 From the graph, state:

(a) On which day ovulation takes place (1)

(b) Between which days menstruation take place (1)

2.4.2 Give ONE visible reason from the graph for your answer to QUESTION 2.4.1(b). (2)

2.4.3 Explain why the progesterone levels must increase as shown on the graph during the cycle. (2)

2.4.4 Describe the relationship of oestrogen and the endometrium in the uterus during days 7 to 14 of the cycle. (2)

2.4.5 (a) Did fertilisation take place during the 28-day cycle as illustrated in the graph? (1)

(b) Explain your answer to QUESTION 2.4.5(a). (2)

(11)
[50]

QUESTION 3

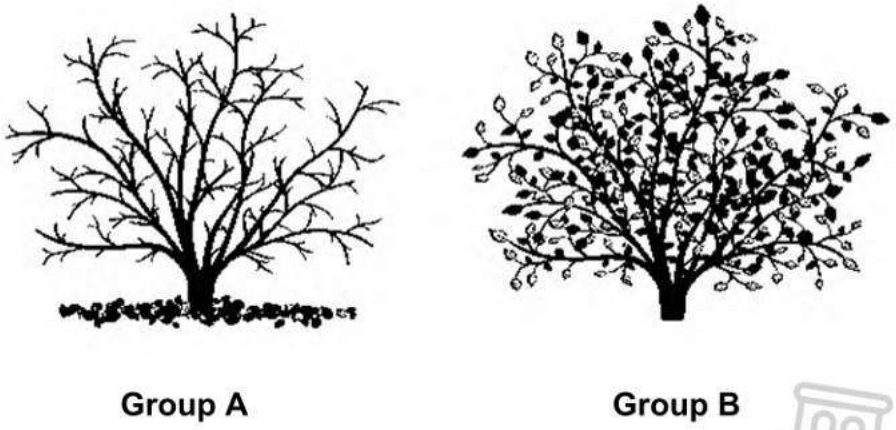
3.1 The Grade 12 learners investigated the effect of abscisic acid on plant dormancy.

The procedure was as follows:

- A greenhouse was set up with a constant temperature of 28 °C and a 30% humidity level.
- 16 pear trees of similar age and size were placed in the greenhouse.
- The trees were divided into group **A** and group **B** with 8 trees in each group.
- In group **A**, the 8 trees were treated with abscisic acid for 5 days.
- In group **B**, the 8 trees were treated with water only for 5 days.
- The shedding of leaves by the plants was observed.
- The learners recorded their observations for seven days.

The diagram below shows the observation made at the end of the seven days.

The diagram does NOT represent all the trees that were investigated nor the actual size of the trees.



3.1.1 State the aim of the investigation. (1)

3.1.2 Identify the following:

(a) Independent variable (1)

(b) Dependent variable (1)

(c) ONE controlled variable (1)

3.1.3 What is meant by abscission? (1)

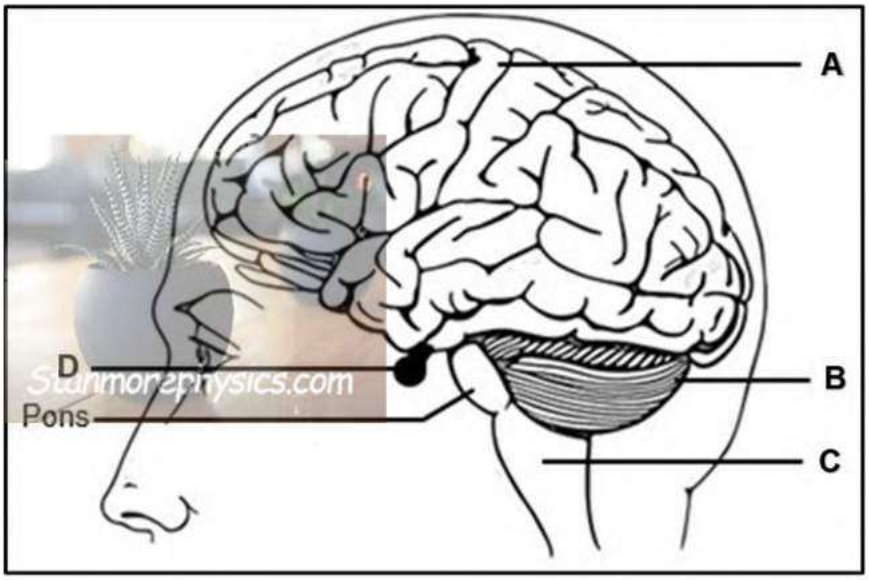
3.1.4 State TWO other functions of abscisic acid in plants. (2)

3.1.5 State TWO ways in which the learners could have made their results more reliable. (2)

3.1.6 As a follow up the learners changed the temperature of the greenhouse to 40 °C.

Explain the effect of the change in temperature on the results of the investigation. (2)
(11)

3.2 The diagram below represents the human brain.



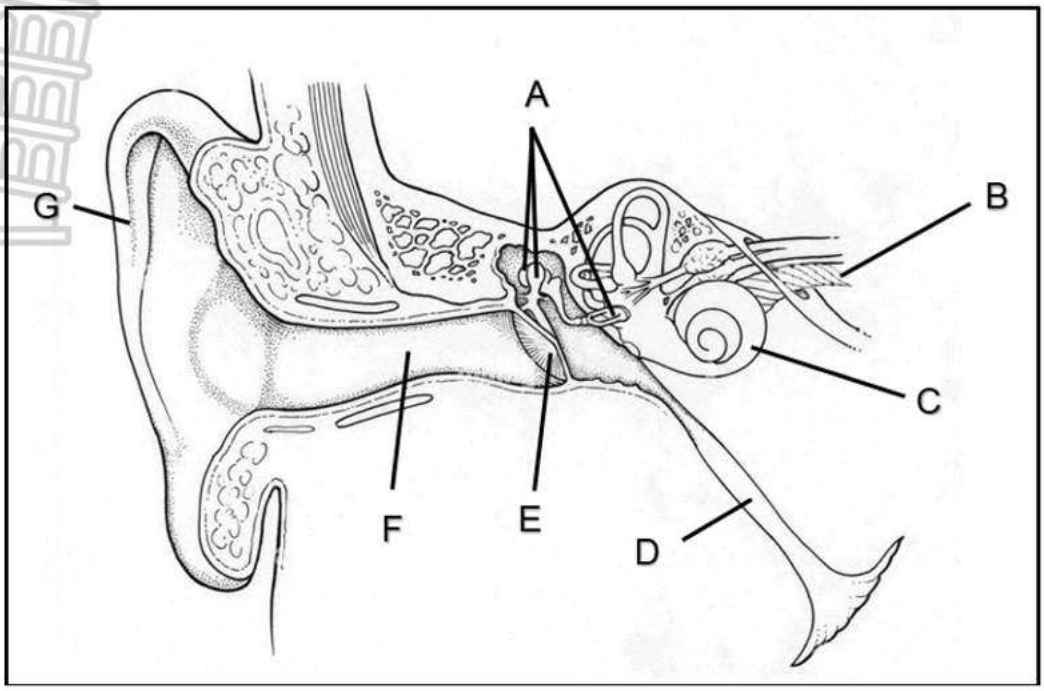
3.2.1 Identify the part labelled **B** and give its function. (2)

3.2.2 Identify the part of the brain that receives impulses from the optic nerve. (1)

3.2.3 Name part **C**. (1)

3.2.4 Describe how balance and equilibrium are maintained by the ear when a person changes their speed and direction of movement. (6)
(10)

3.3 The diagram below shows the cross-section of the human ear.



3.3.1 Identify parts **A** and **F**. (2)

3.3.2 Identify passage **D** and state its function. (2)

3.3.3 Give the pathway (in LETTERS) of hearing in the human ear. (2)

3.3.4 Explain the function of part **E** in the process of hearing. (2)

3.3.5 Explain what would happen to the ability to hear if part **C** is damaged. (4)
(12)

3.4 3.4.1 Explain how the process of vasodilation in the skin contributes to thermoregulation. (4)

3.4.2 Describe the role of vasodilation and sweating in thermoregulation. (3)
(7)

3.5 Read the extract below on the effect of alcohol on the brain's communication pathways.

> Alcohol consumption can interfere with brain communication pathways and affect its appearance and function. It can make it more difficult for the brain to control balance, memory, speech and judgement. This leads to a higher likelihood of injuries and other negative outcomes.
>
> Neurons can shrink because of long-term heavy drinking. Alcohol blocks chemical signals between brain cells, leading to immediate intoxication symptoms, including impulsive behaviour, slurred speech, poor memory and slowed reflexes. Heavy drinking over a long time can make the brain respond more dramatically to certain brain chemicals. This can lead to painful and potentially dangerous withdrawal symptoms that damage brain cells.
>
> Excessive alcohol use can cause chemical and molecular modifications in the brain, causing a decrease in overall brain volume, specifically within the frontal lobe/prefrontal cortex, cerebellum and hippocampus (a complex brain structure embedded deep in the temporal lobe). Alcohol destroys brain cells, contracts brain tissue and also damages the liver and pancreas.

3.5.1 What is the hippocampus? (1)

3.5.2 Identify the part of the brain that:

(a) Controls memory, speech and judgement (1)

(b) Controls the concentration of carbon dioxide in the body (1)

3.5.3 Give ONE effect of long-term heavy drinking. (1)

3.5.4 Explain the consequences of the answer to QUESTION 3.5.3. (2)

3.5.5 State the disease that is caused by the damage of the nerve tissues within the brain. (1)

3.5.6 Explain the effect of alcohol on the functioning of the pancreas in controlling the blood glucose level. (3)

(10)

[50]

TOTAL SECTION B: 100

GRAND TOTAL: 150

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NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES P1

SEPTEMBER 2024

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 10 pages.

PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
   Stop marking when maximum marks are 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 a part of it is required** Read all and credit the relevant part.

4. **If comparisons are asked for but descriptions are given** Accept if the 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 are incorrect, do not credit. If sequence and links become 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 the 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 the answer, provided it does not mean something else in Life Sciences or if it is out of context.

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

14. **If only the letter is asked for but only the name is given (and vice versa)** Do not credit.

15. **If units are not given in measurements**
Candidates will lose marks. Marking guideline 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, drawings, graphs, tables, etc.) must have a caption.

18. **Code-switching of official languages (terms and concepts)**
A single word or two that appear(s) 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.

19. **Changes to the marking guideline**
No changes must be made to the marking guideline without consulting the Provincial Internal Moderator.

20. **Official marking guideline**
Only the official marking guidelines must be used.

SECTION A

QUESTION 1

1.1	1.1.1	C✓✓		
	1.1.2	A✓✓		
	1.1.3	C✓✓		
	1.1.4	D✓✓		
	1.1.5	B✓✓		
	1.1.6	A✓✓		
	1.1.7	D✓✓		
	1.1.8	B✓✓		
	1.1.9	A✓✓	(9 x 2)	**(18)**
1.2	1.2.1	Accommodation✓		
	1.2.2	Multiple sclerosis✓		
	1.2.3	Homeostasis✓		
	1.2.4	Endocrine✓ gland		
	1.2.5	Osmoregulation✓		
	1.2.6	Prolactin✓		
	1.2.7	Vasoconstriction✓		**(7)**
1.3	1.3.1	B only✓✓		
	1.3.2	B only✓✓		
	1.3.3	None✓✓	(3 x 2)	**(6)**
1.4	1.4.1	F✓ - Growth hormone✓(GH)/somatotropin		(2)
	1.4.2	B✓ - Pancreas✓		(2)
	1.4.3	A✓ - Ovary✓		(2)
	1.4.4	E✓ - Thyroid gland✓		(2)
	1.4.5	C✓ - Testosterone✓		(2)
				(10)
1.5	1.5.1	The type of development where the young can move/walk/run/swim/eyes open/developed down/feather cover and feed/find food directly after hatching✓/ are born fully developed and are not dependent on parents.		(1)
	1.5.2	Plays a role in gaseous exchange/provides oxygen and nutrients and removes carbon di oxide and waste from the baby's blood/protection of the foetus. ✓ (1)		
	1.5.3	Fish✓/mammals	Any 1	(1)
	1.5.4	A✓ - yolk ✓ (sac)		(2)
	1.5.5	Amnion✓/amniotic fluid		(1)
	1.5.6	(a) Fish✓		(1)
		(b) Birds✓/Reptiles/Mammals	Any 1	(1)
		(c) Mammals✓		(1)
				(9)

TOTAL SECTION A: 50 SECTION B

QUESTION 2

2.1

2.1.1 (a) A - Iris✓
Controls the size of the pupil✓/amount of light entering the eye (2)
DO NOT ACCEPT: gives the eye colour.

(b) E - Optic nerve✓
Carries impulses to the cerebrum✓ (2)

2.1.2 **Prescription** lenses✓(glasses or contact lenses)/laser Surgery (treatment) /cornea transplant (1)

2.1.3 FLOWS DIAGRAM SHOULD NOT BE CREDITED.
- The circular muscles (of the iris) contract✓
- The radial muscles relax✓
- The pupil constricts✓
- The amount of light entering the eye is decreased✓/less light enters the eye (4)

(9)

2.2

2.2.1 (a) Implantation✓ (1)

(b) Gestation ✓ (1)

2.2.2 ONLY CREDIT WHEN THE SEQUENCE IS CORRECT, WHERE IT GETS MUDDLED UP, DO NOT CREDIT. PRINCIPLE 8.

- The zygote undergoes mitosis✓
- to form ball of cells✓/morula
- which develops into a hollow ball of cells✓/blastocyst/blastula (3)

2.2.3 **The embryo/foetus:**

- will not be protected from shock and (mechanical injuries)✓/can get injured easily.
- will not be hydrated✓/can dehydrate.
- will not be kept within a small temperature range/No thermoregulation✓/ can overheat/ get too cold.
- will not move freely for growth and development✓/can under-develop muscles. (4)

2.2.4 STRUCTURE ✓SHOULD BE LINKED TO A FUNCTION✓

- **Gaseous exchange**✓: the umbilical vein✓ carries oxygen✓ to the foetus✓

OR

- **Gaseous exchange**✓: the umbilical artery✓ carries carbon dioxide✓ away from the foetus✓

OR

- **Nutrition**✓: the umbilical vein✓ carries nutrients✓ to the foetus.

OR

- **Waste removal**✓: the umbilical artery✓ carries nitrogenous waste✓ away from the foetus✓

Any (2 x 2) (4)

(13)

2.3

2.3.1 Urethra ✓ (1)

2.3.2 (a) Testes/seminiferous tubules. ✓ (1)

(b) Epididymis ✓ (1)

(c) Vas deferens/Sperm duct✓ (1)

2.3.3 **If the scrotum/part G is exposed to high temperature:**

- It will reduce the production of sperms/fewer sperm cells will be produced✓ /spermatogenesis
- in the testes✓
- causing them to be unhealthy✓/denatured/ poor quality/weak
- making the person infertile/sterile✓ (4)

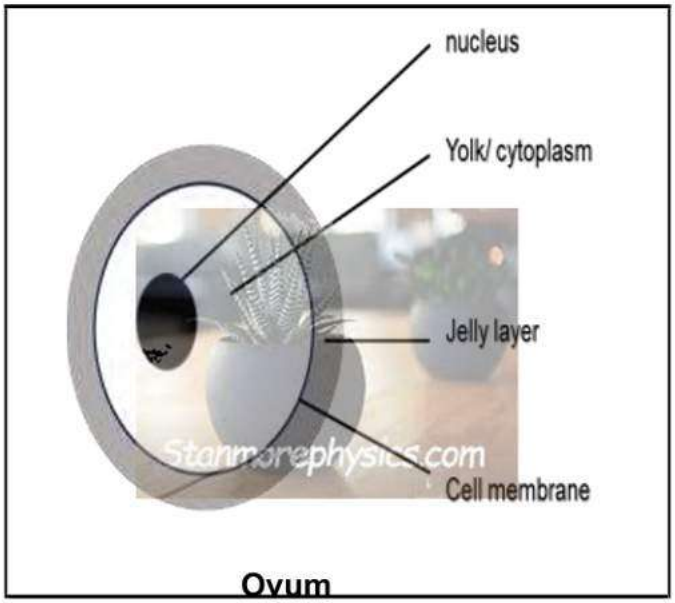
2.3.4 T✓

Oogenesis	Spermatogenesis
Takes place in the ovary✓	Takes place in the testes/seminiferous tubules✓
Begins before birth✓/during foetal development	Begins at puberty✓
One functional ovum✓ (and 3 polar bodies)/1 haploid ovum	Four functional sperm cells/4 haploid sperm cells✓ (numbers must be there)
No continuous production after a certain age✓	Continuous production throughout reproductive life✓
Occurs under the influence of testosterone✓	Occurs under the influence of FSH

(Mark first TWO only) Any (2 x 2) + 1 for table (5)

Do not accept

Only sperm cells are formed, and an ovum is formed.



Ovum

2.3.5

Criteria for marking:

Criteria	Mark allocation
Caption (C)	1
Correct diagram drawn (D)	1
Any 2 labels (L)	2

Do not credit C and D if a learner has drawn a sperm fusing with an egg.

(4)
(17)

2.4

2.4.1 (a) Day 14✓/day 15 (1)

(b) Days 0-6✓/0-7 (1)

2.4.2 The endometrium✓, breakdown/sheds off✓

2.4.3 To maintain the thickness of the endometrium(cause)✓/keep it vascular and glandular for implantation (not pregnancy) (effect)✓ (2)

2.4.4 **As** the level of oestrogen increases✓, the thickness of the endometrium increases✓ **(**2)

NB: relationship should be stated in the correct order and if the function is provided it should not be credited.

2.4.5 (a) No✓ (1)

(b) - corpus luteum started to degenerate✓causing a decrease in progesterone levels✓

OR

- progesterone levels have decreased✓causing the endometrium to break down✓/leading to menstruation

OR

- progesterone levels have decreased✓stimulating the secretion of FSH✓/FSH starts to increase

OR

- FSH levels starts to increase✓stimulating the development of a new follicle✓/ Graafian follicle starts to form

Any (1 x 2) (2)

(11)
[50]

QUESTION 3

3.1 3.1.1 To determine the effect of abscisic acid on plant dormancy✓ (1)

3.1.2 (a) Abscisic acid✓(do not credit "the effect of") (1)

(b) Plant dormancy✓ (1)

(c)
- Constant temperature of 28 °C✓, not temperature only
- Constant humidity of 30 %✓, not humidity only
- Pear trees of the same age/size✓/species of pear tree
- 8 pear trees in each group✓
- Treatment period of five days✓ not treatment period only
- Observation period of seven days✓ not observation period only

Any 1 (1)

3.1.3 Falling of leaves/fruits from the tree✓ (1)

3.1.4
- brings about/promotes dormancy of seeds✓/plants
- helps in the closing of stomata during drought✓/water shortage
- promotes the ageing of leaves✓
- induces flowering in some plants✓

Any 2 (2)
(Mark first TWO only)

3.1.5 **Learners could have: PLEASE CHECK THE TENSE**

- used more than eight trees✓ (Do not credit "more trees/increased sample size)
- recorded results for more than seven days✓
- repeated the investigation✓

Any 2 (2)
(Mark first TWO only)

3.1.6 Enzymes will denature✓ causing **early** shedding✓/death of leaves (2)
(11)

3.2 3.2.1 B - Cerebellum✓ (1)
Coordination of voluntary movements✓/control of muscle tone to maintain balance/body posture (1)

3.2.2 Cerebrum✓/Part A (1)

3.2.3 Medulla oblongata ✓ (1)

3.2.4 **Changes in the direction and speed of movement:**

- causes the endolymph in the semi-circular canals to move✓
- the cristae (found in the ampulla) are stimulated✓
- and converts the stimulus into an impulse✓
- which is transmitted via the auditory nerve✓/vestibular nerve
- to the cerebellum✓
- from which impulses are transmitted via motor neurons✓
- to the effector✓/voluntary muscles/ skeletal muscles
- to maintain/restore balance (do no credit, this is in the question).

Any 6 (6)
(10)

3.3 3.3.1 A - ossicles✓ (1)
F - auditory canal✓ (1)

3.3.2 D - Eustachian tube✓ (1)
Equalizes pressure on either side of the tympanic membrane✓/ eardrum (1)

3.3.3 G ⇨ F ⇨ E ⇨ A ⇨ C ⇨ B✓✓(2 marks or nothing). (2)

3.3.4
- Sound waves strike the tympanic membrane✓/eardrum
- causing it to vibrate✓
- transferring vibrations to ossicles✓ Any 2 (2)

3.3.5
- Pressure waves will not be generated✓in the cochlea
- The organ of Corti will not be stimulated✓

•
- Pressure waves will not be generated✓in the cochlea
- No stimulus will be converted to an impulse✓
- Impulse will not be interpreted in the cerebrum✓
- and the sound will be distorted✓* /will be unclear (COMPULSORY MARK)
- causing less✓/no hearing Any 3 + 1 compulsory* (4)

(12)

3.4 3.4.1 **Vasodilation involves:**

- The relaxation of (smooth) muscles in blood vessels✓
- leading to an increase in their diameter (becomes wider)✓
- this facilitates increased blood flow to the skin/more blood flows to the surface of the skin✓
- promoting heat loss✓/radiation (4)

3.4.2 Sweating - excess heat is absorbed by water/sweat/fluid✓,causing to evaporation✓

Vasodilation - excess heat leaves the skin surface✓through radiation✓ causing cooling ✓ Any 3 (3)
(7)

3.5 3.5.1 A complex brain structure embedded deep into the temporal lobe✓ (1)

3.5.2 (a) Cerebrum✓ (1)

(b) Medulla oblongata✓ (1)

3.5.3
- blocks signals between brain cells✓/makes chemical and molecular modifications to the brain
- decrease the brain volume /Makes neurons to shrink (cerebrum/frontal lobe)✓
- decrease the brain volume /Makes neurons to shrink (cerebellum)✓
- damages the liver/pancreas✓

Any 1 (1)

Note: Answers to Q 3.5.4 must link to Q 3.5.3.
e.g. Bullet 1 in Q 3.5.4 links to bullet 1 in Q 3.5.3

3.5.4 - Slow reflexes✓leading to injuries✓/danger

OR

- Loss of higher order functions✓causing memory loss✓

OR

- Loss of muscle coordination✓leading to loss of balance✓

OR

- Loss of detoxification✓leading to accumulation of toxins✓/Loss of homeostasis of glucose✓leading to diabetes✓/Loss of ability to digest food✓leading to weight loss✓ Any (1 x 2) (2)

3.5.5 Alzheimer's✓ disease (1)

3.5.6 **Damage to the pancreas:**
- it will not secrete enough insulin/glucagon✓
- blood glucose level will not be controlled✓/(decreased/increased)
- causing the person to suffer from diabetes✓(mellitus)/the presence of glucose in urine (3)

(10)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150