

**Western Cape  
Government**

Education

**FOR YOU**

**METRO NORTH EDUCATION DISTRICT**

**LIFE SCIENCES P1**

**GRADE 12**

**COMMON TRIAL EXAMINATION**  
**SEPTEMBER 2024**

**MARKS: 150**

**TIME: 2 1/2 hours**

**This exam paper consists of 16 pages.**

**INSTRUCTIONS AND INFORMATION**

Read the following instructions carefully before answering the questions.

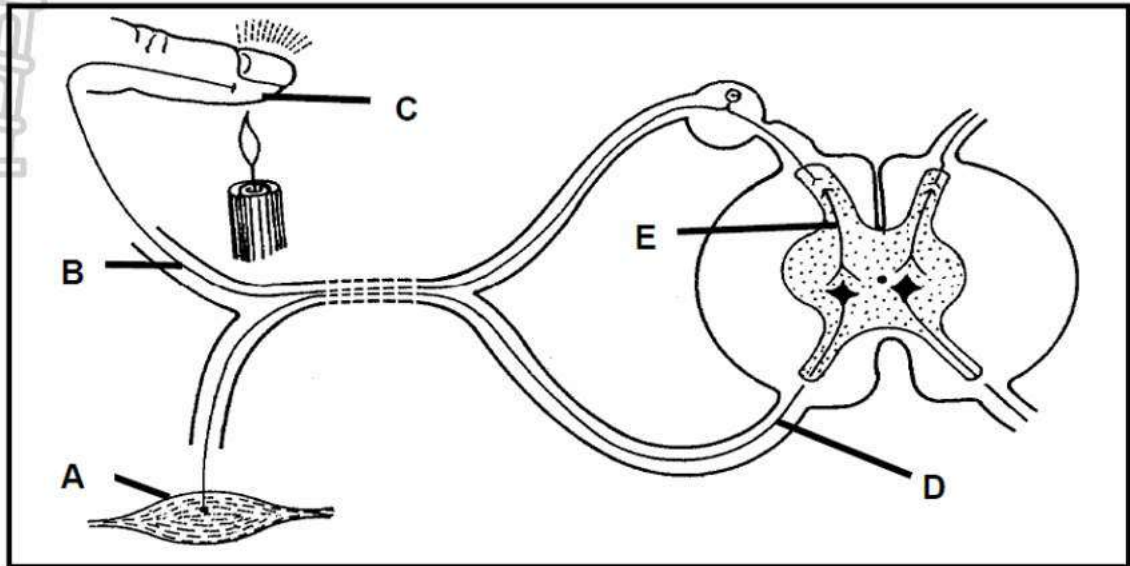
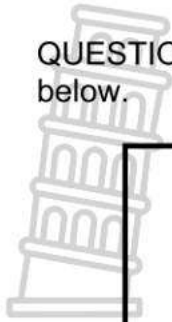
1. Answer ALL the questions.
2. Write ALL the answers in the ANSWER BOOK.
3. Start the answers to EACH question at the top of a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Present your answers according to the instructions of each question.
6. Do ALL drawings 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 1.1.10) in the ANSWER BOOK, e.g. 1.1.11 D.

- 1.1.1 Which ONE of the following is a function of gibberellins
- A Apical growth
  - B Stimulation of seed germination
  - C Inhibition of side branches
  - D Dropping of leaves in winter
- 1.1.2 A light stimulus is converted into a nerve impulse in the ...
- A Iris
  - B Retina
  - C Optic nerve
  - D Sclera
- 1.1.3 The level of aldosterone will most likely increase after ...
- A consuming food with a high salt content
  - B sweating excessively
  - C consuming food with a high glucose content
  - D the constriction of blood vessels to the skin
- 1.1.4 The part of the brain that is stimulated when a learner is exposed to a change in environmental temperature:
- A Cerebellum
  - B Cerebrum
  - C Hypothalamus
  - D Corpus callosum

QUESTION 1.1.5 and QUESTION 1.1.6 are based on the diagram of a reflex arc shown below.



1.1.5 Part **B** indicates the ...

- A dendrite of the motor neuron
- B axon of the motor neuron
- C dendrite of the sensory neuron
- D axon of the sensory neuron

1.1.6 The correct sequence in which impulses move from the receptor to the effector in the reflex arc above, is ...

- A A → B → C → D → E
- B C → A → B → E → D
- C C → B → E → D → A
- D A → D → E → B → C

1.1.7 An extract from a gland of an adult monkey was injected into the bloodstream of a young monkey. It caused the young monkey to grow abnormally tall. From which gland was the extract obtained?

- A Hypothalamus
- B Adrenal gland
- C Pancreas
- D Pituitary gland



1.1.8

A person experiences the following symptoms:

- Loses weight easily
- Is always hungry
- Never feels cold

The most likely explanation for this combination of symptoms is that the person ...

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

1.1.9 A patient suffers from an under-secretion of ADH. This will lead to ...

- A a low concentration of sodium in the urine
- B the presence of glucose in the urine
- C increased thirst
- D the formation of lower volumes of urine

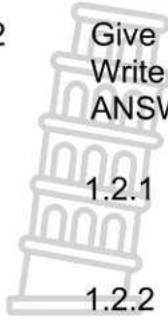
1.1.10 A learner conducted an investigation to determine the percentage of people that are long-sighted.

The factor that is LEAST likely to affect such an investigation is the ...

- A height of the people
- B age of the people in the sample
- C light intensity of the room in which the test was conducted
- D distance between the tool used to test the sight and the person being tested.

(10X2) **(20)**

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 1.2.10) in the ANSWER BOOK.



- 1.2.1 The type of egg produced by reptiles that has extra-embryonic membranes
- 1.2.2 The tube in the male reproductive system that transports sperm to the urethra
- 1.2.3 A layer inside the eye that absorbs light, thus reducing reflection
- 1.2.4 A hormone produced by the hypophysis that stimulates milk production in human females
- 1.2.5 The process of maintaining a constant internal environment in the human body
- 1.2.6 The system in the body that regulates processes by secreting hormones directly into the blood
- 1.2.7 The structure that the Graafian follicle develops into after ovulation
- 1.2.8 The branch of the autonomic nervous system that restores an increased heart rate back to normal
- 1.2.9 The homeostatic process whereby temperature is controlled in the body
- 1.2.10 Sharp structures found in plants for protection from herbivores

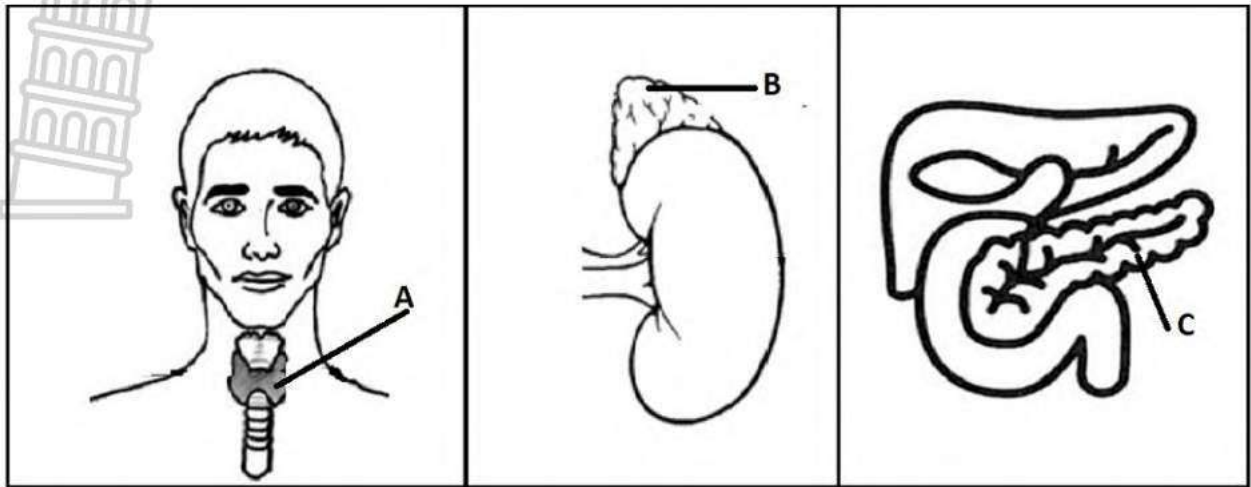
(10 x 1) **(10)**

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	Forms the placenta.	A: Amnion B: Chorion
1.3.2	A reproductive strategy in vertebrates where internal fertilization occurs	A: Altricial development B: Precocial development
1.3.3	A disorder caused by the degeneration of the myelin sheath of the motor neurons	A: Multiple sclerosis B: Alzheimer's disease

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

1.4 Study the following diagrams, representing endocrine glands in the human body.



1.4.1 Identify the endocrine glands in the diagram labelled:

- (a) **A** (1)
- (b) **B** (1)
- (c) **C** (1)

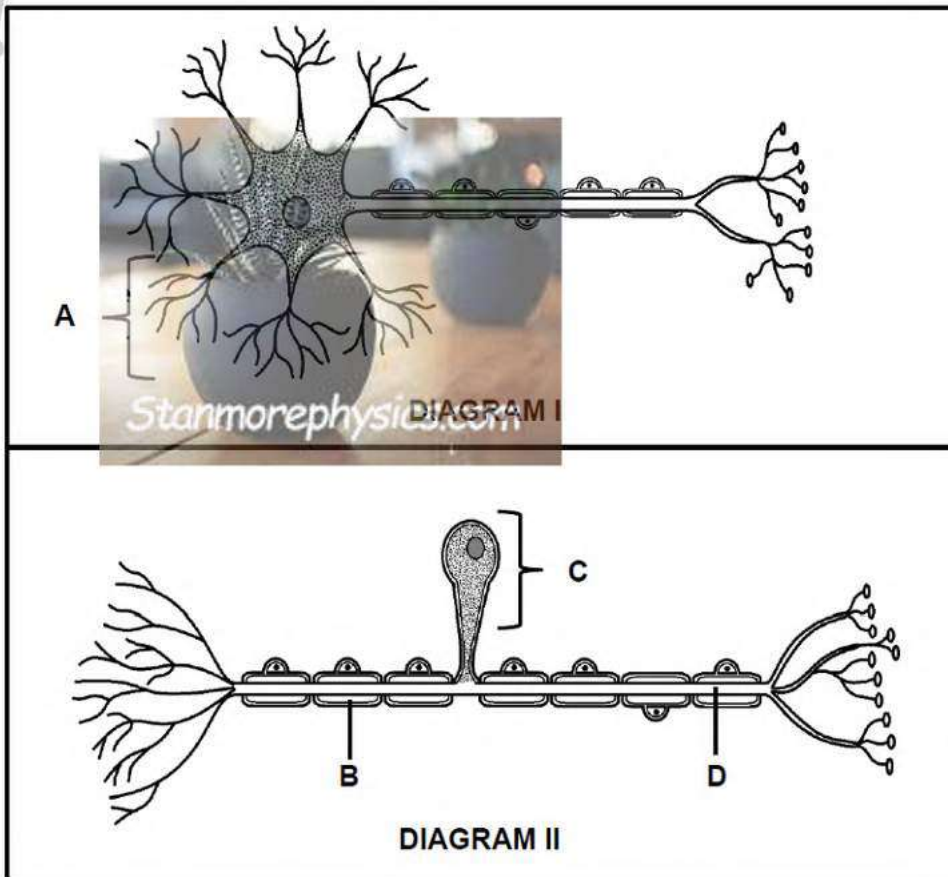
1.4.2 The functioning of the gland in diagram **A** is controlled by another hormone.

- (a) Provide the name of this hormone. (1)
- (b) Name the gland responsible for the secretion of the hormone identified in QUESTION 1.4.2 (a). (1)
- (c) Name the type of interaction between the gland in diagram **A** and the gland mentioned in QUESTION 1.4.2 (b). (1)

1.4.3 Name the hormone secreted by the gland **B**, that is responsible for the 'flight or fight' reaction. (1)

1.4.4 Name the hormone secreted by the endocrine gland **C**, when the blood glucose levels are low. (1)  
(8)

1.5 The diagrams below represent two types of neurons.



1.5.1 Identify the neuron in:

(a) DIAGRAM I (1)

(b) DIAGRAM II (1)

1.5.2 Identify part C. (1)

1.5.3 Give the LETTER of the part that:

(a) Speeds up the transmission of impulses (1)

(b) Receives incoming impulses (1)

1.5.4 Which neuron (I or II) transmits impulses to the central nervous system. (1)

(6)

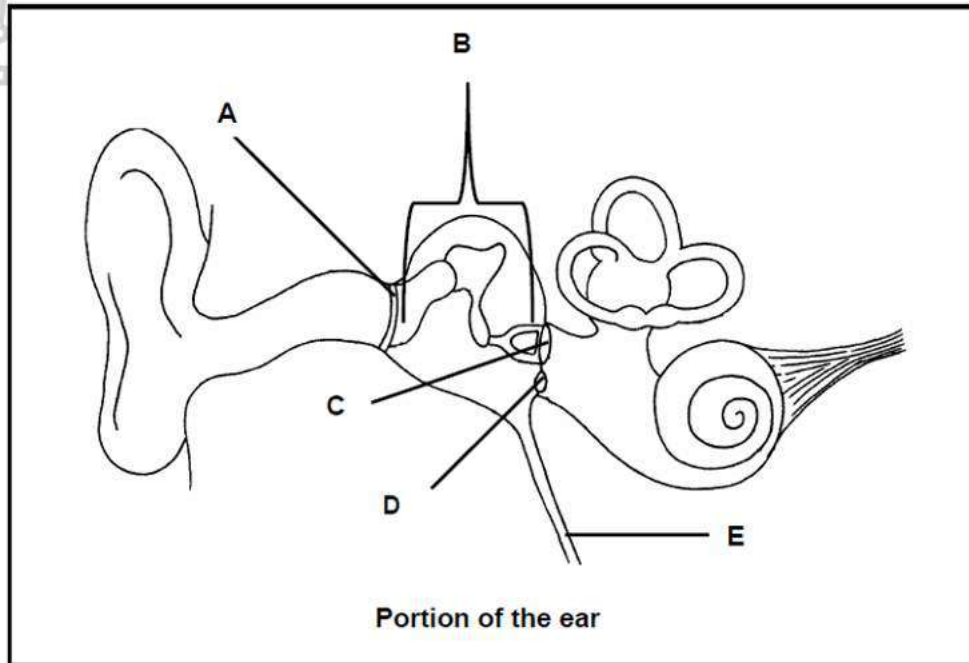
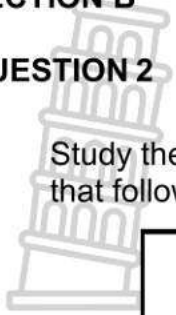
TOTAL SECTION A: 50



**SECTION B**

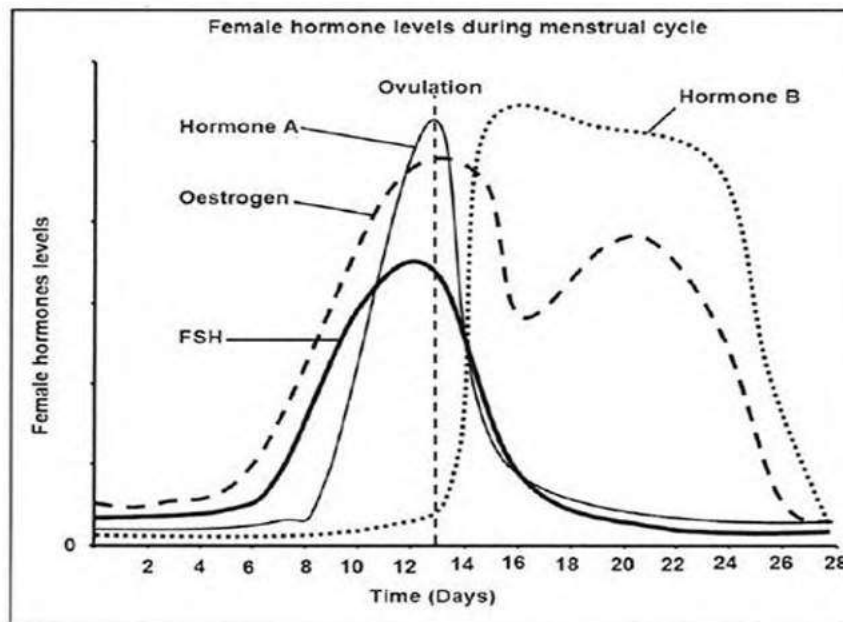
**QUESTION 2**

2.1 Study the diagram below showing a portion of the human ear and answer the questions that follow.



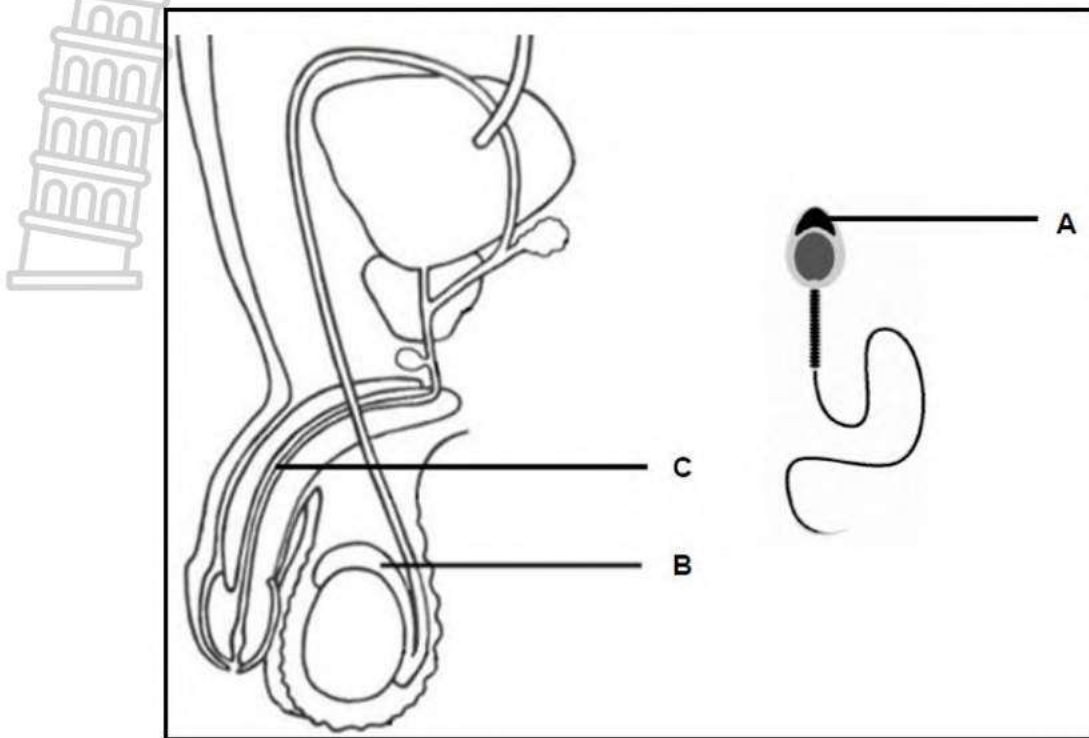
- 2.1.1 Provide labels for parts **B** and **C**, respectively. (2)
  - 2.1.2 Give the LETTER and NAME of the part where grommets are inserted. (2)
  - 2.1.3 State ONE function of part **D**. (1)
  - 2.1.4 Explain the consequence for hearing if part **E** is blocked with mucus (3)
  - 2.1.5 Describe the process of hearing from the time the sound waves reach part **A**. (6)
- (14)**

2.2 The graph below shows the female hormone levels during the menstrual cycle.



- 2.2.1 State TWO functions of hormone **A**. (2)
- 2.2.2 Describe the effect of oestrogen on the endometrium from day 7 to 13 of the cycle. (2)
- 2.2.3 Suggest a possible reason for the maintenance of a high level of hormone **B** beyond the 28-days of the cycle. (2)
- 2.2.4 Explain why the secretion of FSH is inhibited by the high levels of hormone **B**. (3)
- (9)**

2.3 Study the diagram below.



2.3.1 Identify parts:

- (a) **B** (1)
- (b) **C** (1)

2.3.2 Explain the role of part **A** during fertilization. (2)

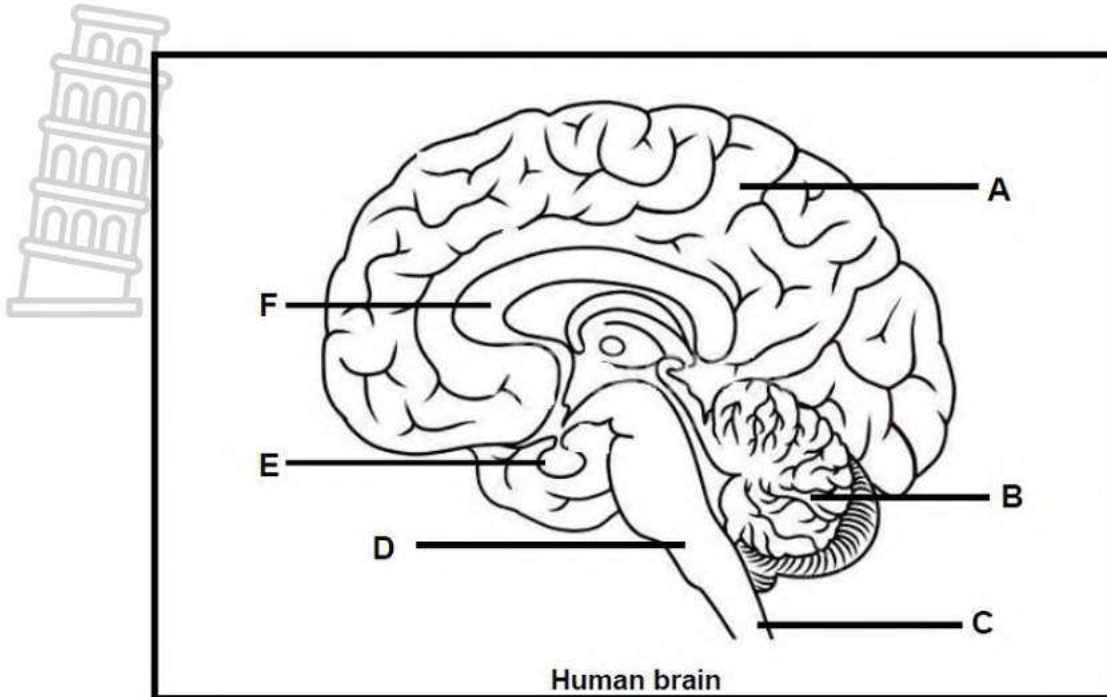
2.3.3 Explain ONE function of the fluid secreted by the prostate gland during reproduction. (2)

2.3.4 Sperm cells and ova are produced by gametogenesis. This happens when diploid cells undergo meiosis to produce haploid cells.

Tabulate TWO differences between gametogenesis in males and females, not mentioned in the text above.

(5)  
(11)

2.4 The diagram below shows a human brain.



2.4.1 Write down the LETTER and NAME of the part that:

- (a) joins the two hemispheres of part **A**. (2)
- (b) co-ordinates voluntary actions (2)
- (c) is an endocrine gland (2)

2.4.2 State TWO ways in which the brain is protected. (2)

2.4.3 A concussion is a type of traumatic brain injury where the head and brain move rapidly back and forth. It can cause blurry vision, confusion and slurry speech.

- (a) NAME the part of the brain that will be affected by a concussion. (1)
  - (b) Explain why a concussion does not affect heartrate. (2)
- (11)**

2.5 Describe the development of the zygote until implantation. (5)

**[50]**

**QUESTION 3**

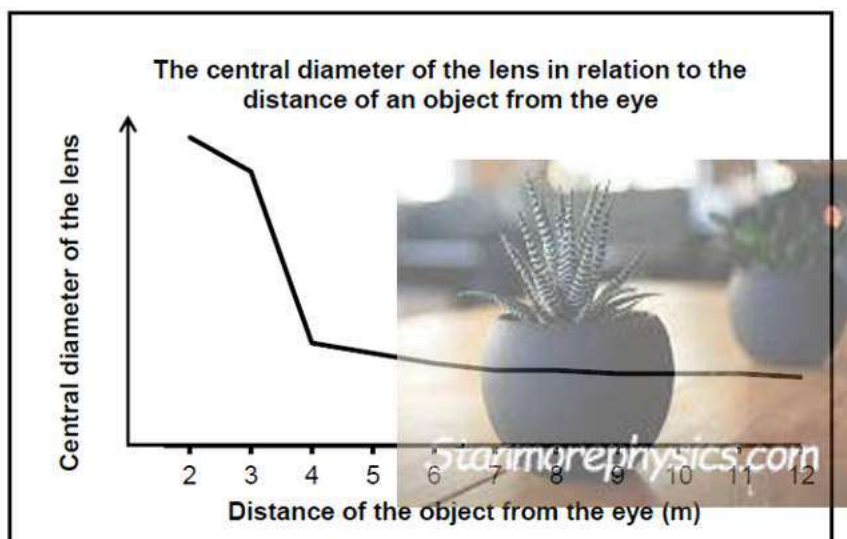
3.1 Read the extract below.

**REPRODUCTION IN GUPPY FISH**

Guppy fish have a very interesting method of breeding. During mating the male deposits packets of sperm inside the female's reproductive opening using an organ called the 'gonopodium'. This process takes place several times and the female stores some of the extra sperm.

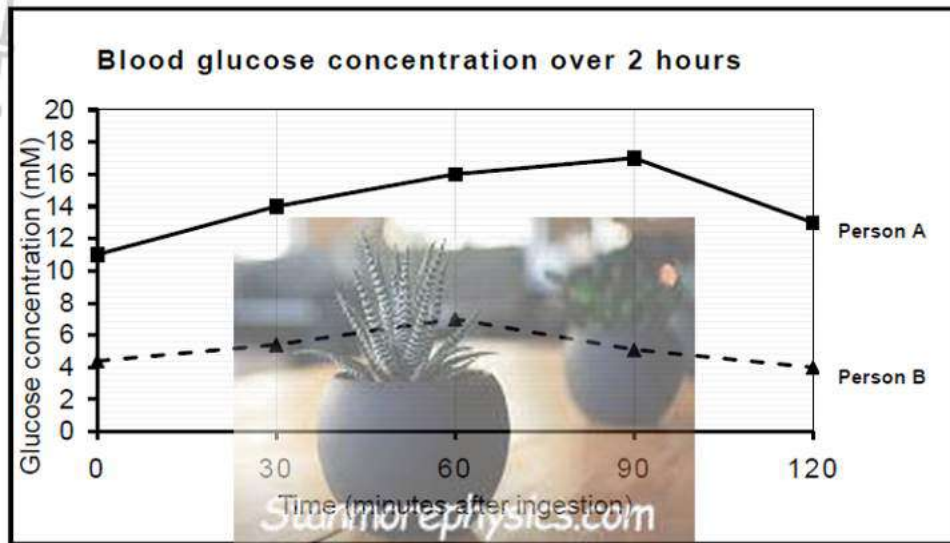
The fertilised eggs remain in the female's body until they hatch and the young are born live. The gestation period is usually between 22 and 28 days.

- 3.1.1 Name the type of fertilization in guppies. (1)
  - 3.1.2 Explain ONE way in which this type of fertilization named in QUESTION 3.1.1 increases reproductive success. (2)
  - 3.1.3 State why guppies are regarded as ovoviviparous? (2)
- (5)**
- 3.2 The following graph shows the change in the central diameter of the lens of the human eye while looking at an object at different distances from the eye.



- 3.2.1 Name the physical process that is illustrated by the graph. (1)
  - 3.2.2 Explain TWO ways in which the lens is structurally suited to perform its function. (4)
  - 3.2.3 Describe the relationship between the distance of the object from the eye and the diameter of the lens. (2)
  - 3.2.4 Explain how the shape of the lens enables a person to read a book. (3)
- (10)**

3.3 The graph below shows the blood glucose concentration of two people (**A** and **B**) over a period of 2 hours after they consumed 100g of a glucose drink.



3.3.1 Person **A** is not able to regulate his blood glucose level effectively.

(a) Name the disease that person **A** has. (1)

(b) Explain ONE possible reason why the blood glucose concentration remains high in person **A**. (2)

3.3.2 Calculate the difference between the blood glucose concentration(mM) of person **A** and person **B** at 120 minutes. Show your calculations. (2)

3.3.3 Name TWO hormones that will have the opposite effect on the blood glucose concentration to that of insulin. (2)  
(7)

- 3.4 An investigation was conducted to determine the effect of creatine supplementation on the levels of testosterone in the blood of weightlifting males.

The procedure was as follows:

100 healthy weightlifting males of the same age were asked to participate in the investigation for 8 weeks.

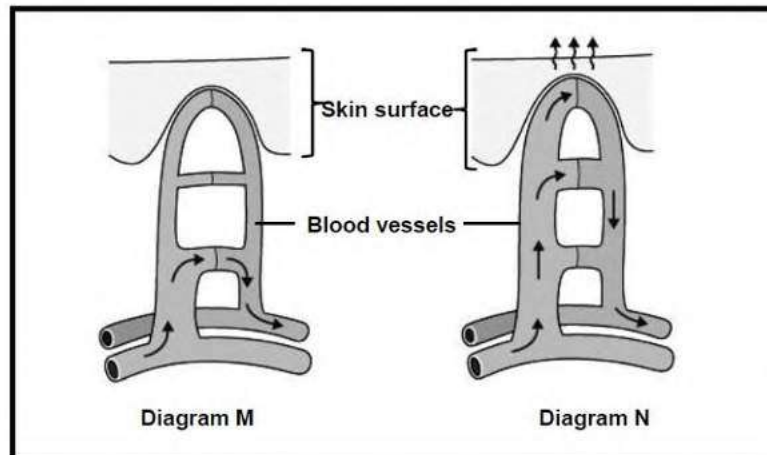
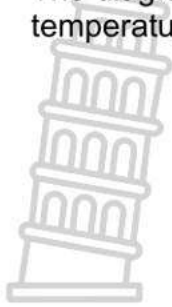
- They were given the same diet and training routine for 8 weeks
- Their testosterone levels in the blood were measured every day for the 8-week period
- They were given a creatine supplement with their diet every day for 8 weeks
- The testosterone levels in the blood were measured again every day
- The average levels of testosterone in the blood were calculated before and after the creatine supplement

The average free testosterone per group before and after the investigation is given below:

	<b>Average testosterone in blood (uIU/mL)</b>
Before administering the creatine supplement	20,5
After administering the creatine supplement	20,5

- 3.4.1 Formulate an investigative question for this investigation. (2)
- 3.4.2 State TWO factors that was considered about the weightlifters to ensure the validity of this investigation. (2)
- 3.4.3 State TWO ways in which the reliability of the results was ensured for this investigation. (2)
- 3.4.4 Describe the control that was done for this investigation. (2)
- 3.4.5 State a general conclusion that can be drawn from the results obtained. (2)
- 3.4.6 Name TWO functions of testosterone in male reproduction. (2)
- (12)**

3.5 The diagram below shows the blood vessels of the skin at different environmental temperatures. The arrows in the blood vessels indicate the direction of blood flow.

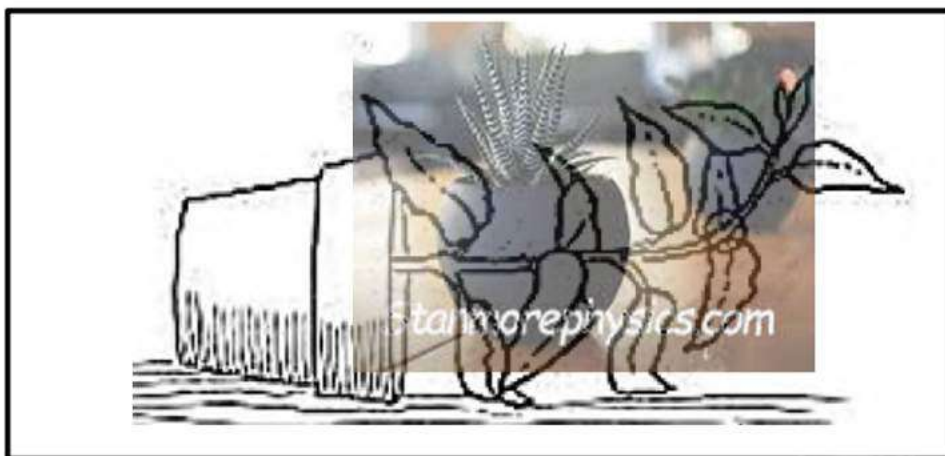


3.5.1 Which diagram (**M** or **N**) represents the blood vessel at low environmental temperature? (1)

3.5.2 Explain your answer to QUESTION 3.5.1 using evidence from the diagram. (3)

3.5.3 Describe the role of the sweat glands on a hot day. (3)  
(7)

3.6 A pot plant was placed onto its side in a dark box. After 2 weeks, the stem started to grow upwards.



3.6.1 Name the growth response which is indicated by the stem's upward growth. (1)

3.6.2 Name the plant hormone which is responsible for the stem's upward growth. (1)

3.6.3 Explain the growth response observed in the stem. (5)

3.6.4 Explain ONE way in which the stems upward growth benefits the plant. (2)  
(9)

**TOTAL SECTION B: 100**  
**GRAND TOTAL: 150**





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**LIFE SCIENCES P1**

**GRADE 12**

**MARKING GUIDELINE**

**COMMON TRIAL EXAMINATION  
SEPTEMBER 2024**

**MARKS: 150**

**TIME: 2 1/2 hours**



**This exam paper consists of 10 pages.**



## PRINCIPLES RELATED TO MARKING LIFE SCIENCES

- 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.

SECTION A

QUESTION 1

DO NOT MARK IF 2 ANSWERS GIVEN

- |     |        |           |             |
|-----|--------|-----------|-------------|
| 1.1 | 1.1.1  | B✓✓ B/A x |             |
|     | 1.1.2  | B✓✓       |             |
|     | 1.1.3  | B✓✓       |             |
|     | 1.1.4  | C✓✓       |             |
|     | 1.1.5  | C✓✓       |             |
|     | 1.1.6  | C✓✓       |             |
|     | 1.1.7  | D✓✓       |             |
|     | 1.1.8  | A✓✓       |             |
|     | 1.1.9  | C✓✓       |             |
|     | 1.1.10 | A✓✓       | (10x2) (20) |

- |     |        |  |             |
|-----|--------|--|-------------|
| 1.2 | 1.2.1  | Amniotic✓ egg  |             |
|     | 1.2.2  | Vas deferens ✓ / sperm duct                          |             |
|     | 1.2.3  | Choroid ✓  |             |
|     | 1.2.4  | Prolactin ✓  |             |
|     | 1.2.5  | Homeostasis ✓  |             |
|     | 1.2.6  | Endocrine ✓ system                                   |             |
|     | 1.2.7  | Corpus luteum ✓                                      |             |
|     | 1.2.8  | Parasympathetic✓ system                              |             |
|     | 1.2.9  | Thermoregulation ✓ <b>NOT TEMPERATURE REGULATION</b> |             |
|     | 1.2.10 | Thorns ✓ / <b>Spines</b>                             | (10x1) (10) |

- |     |       |   |           |
|-----|-------|---|-----------|
| 1.3 | 1.3.1 | B only ✓✓ / <b>B</b> ✓✓                         |           |
|     | 1.3.2 | Both A and B ✓✓ / AB/ A,B/ both/ <b>NOT A/B</b> |           |
|     | 1.3.3 | A only ✓✓ / <b>A</b> ✓✓                         | (3x2) (6) |

- |     |       |                                     |            |
|-----|-------|-------------------------------------|------------|
| 1.4 | 1.4.1 |                                     |            |
|     | (a)   | Thyroid ✓ gland                     | (1)        |
|     | (b)   | Adrenal ✓ gland                     | (1)        |
|     | (c)   | Pancreas ✓ gland                    | (1)        |
|     | 1.4.2 |                                     |            |
|     | (a)   | TSH ✓ / Thyroid stimulating hormone | (1)        |
|     | (b)   | Pituitary ✓ gland/ Hypophysis       | (1)        |
|     | (c)   | (Negative feedback mechanism) ✓     | (1)        |
|     | 1.4.3 | Adrenalin ✓                         | (1)        |
|     | 1.4.4 | Glucagon ✓                          | (1)        |
|     |       |                                     | <b>(8)</b> |



1.5	1.5.1		
	(a)	Motor ✓ neuron	(1)
	(b)	Sensory ✓ neuron	(1)
	1.5.2	Cell body ✓	(1)
	1.5.3		
	(a)	B ✓	(1)
	(b)	A ✓	(1)
	1.5.4	II ✓	(1)
			<b>(6)</b>

**TOTAL SECTION A: 50**

SECTION B

QUESTION 2

2.1 2.1.1 B - ossicles ✓  
C – Oval window ✓ (2)



2.1.2 A ✓ Tympanic membrane ✓ / **Tympanum/Eardrum** (2)

2.1.3 Absorbs excess (pressure waves) ✓ from the inner ear/ prevents echo (1)

2.1.4 - The person will suffer from hearing loss ✓ \* / be deaf because  
- pressure will not be equalised on either side of the tympanic membrane ✓  
- no/less vibrations in the middle ear ✓ / ossicles  
Compulsory mark ✓\* + Any 2 (3)

2.1.5 - tympanic membrane/Part A vibrates and transmits the vibrations to the ossicles ✓ in the middle ear  
- the ossicles amplify the vibrations to the oval window ✓  
- pressure waves will form in the cochlea/inner ear ✓  
- receptors in the Organ of Corti/hair cells are stimulated ✓  
- Impulses are transmitted via the auditory nerve ✓  
- to the cerebrum ✓  
- to be interpreted ✓

Any 6 (6)  
**(14)**

2.2 2.2.1 - Stimulates ovulation ✓ (**description of ovulation**)  
- Stimulates the formation of the Corpus luteum ✓ (2)

2.2.2 - The increase in oestrogen ✓  
- caused an increase in the thickness ✓ of the endometrium (2)

2.2.3 increase in hormone B/ progesterone:  
- is to maintain the lining of the endometrium ✓  
- for implantation ✓ / pregnancy (2)

2.2.4 high levels of hormone B  
- inhibits the pituitary gland ✓ from secreting FSH  
- so that no new follicle is formed ✓  
- preventing ovulation ✓ (3)  
**(9)**

2.3 2.3.1 (a) Epididymis ✓ (1)

(b) Urethra ✓ (1)

- 2.3.2 - Part A/ acrosome **contains enzymes** ✓  
 - that digest the outer membrane of the ovum ✓ (2)



- 2.3.3 - it is alkaline ✓  
 to neutralize the acidic conditions of the vagina ✓  
 - it contains mucus ✓ / provides medium  
 to facilitate the movement of the sperm ✓  
 it contains nutrients ✓  
 - to supply the sperm with energy ✓

**(Mark first ONE only)** Any (1 X 2) (2)

+ ✓

2.3.4

<b>Gametogenesis in males</b>	<b>Gametogenesis in females</b>
Called spermatogenesis ✓	Called oogenesis ✓
Stimulated by testosterone ✓	Stimulated by FSH ✓
Takes place in the testes ✓ / seminiferous tubules	Takes place in the ovaries ✓ / follicles
Results in 4 sperm cells being produced ✓	Results in 1 ovum being produced ✓
Process starts at puberty ✓	The process starts before puberty ✓ / at birth

**(Mark first TWO only)** Any (2X2) + 1 table (5)

Stanmorephysics.com

(11)

- 2.4 2.4.1 (a) F ✓ Corpus callosum ✓ (2)  
 (b) B ✓ Cerebellum ✓ (2)  
 (c) E ✓ Pituitary gland ✓ / Hypophysis (2)

- 2.4.2 - Cranium ✓ Meninges ✓ [cerebrospinal fluid] (2)

- 2.4.3 (a) Cerebrum ✓ (1)

- (b) – The medulla oblongata that controls heartrate ✓  
 - that is not affected ✓ by the concussion (2)

(11)

- 2.5 - The zygote divides by mitosis ✓  
 - To form a ball of cells ✓ called the morula  
 - The morula divides mitotically ✓  
 - To form a hollow ball of cells ✓  
 - Known as a blastocyst/blastula ✓ [NOT blastocyte]  
 - The blastocyst is implanted in the endometrium ✓ Any (5)

[50]

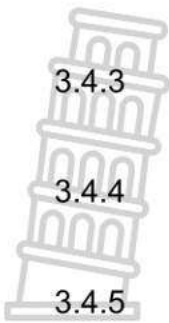
QUESTION 3



- 3.1 3.1.1 Internal ✓fertilization (1)
- 3.1.2 - Sperm are deposited inside the female body✓  
thereby increasing the chances of fertilisation✓  
- Gametes/zygotes are inside the body✓  
therefore protected from the predators✓/ environmental dangers  
(Mark first ONE only) Any (1 X 2) (2)
- 3.1.3 - The eggs hatch inside the female's body✓  
- and the young are born live✓ (2)
- (5)
- 3.2 3.2.1 - (Eye) accommodation✓ (1)
- 3.2.2 - lens is transparent✓  
To allow light to pass through✓  
- lens is biconvex✓  
For refraction of light✓  
- The lens is elastic✓and  
can change shape/convexity✓  
(Mark first TWO only) Any (2X2) (4)
- 3.2.3 The (central) diameter of the lens decreases as the distance of  
the object from the eye increases.✓✓ (2)
- 3.2.4 - It is more convex✓  
- so that light rays are refracted/bent more✓  
- to form a clear image on the retina✓/ to focus on the retina (3)
- (10)
- 3.3 3.3.1 (a) Diabetes ✓ mellitus (1)
- (b) – The pancreas of this person produces low  
levels of insulin ✓/cells are insulin resistant  
- blood glucose is not converted to glycogen✓/glucose  
is not absorbed into the cells (2)
- 3.3.2  $13 - 4$  ✓  
 $= 9$  ✓ (2)
- 3.3.3 - Glucagon✓  
- Adrenalin✓ (2)
- (7)
- 3.4 3.4.1 - Will creatine supplementation have an effect on the levels of  
testosterone in the blood of weightlifting males?✓✓ (2)
- 3.4.2 Weightlifters were:  
- healthy✓  
- same age✓

- same diet ✓
  - same training routine ✓
- (Mark first TWO only)**

Any 2 (2)



3.4.3 - 100 ✓ men were used  
- investigation was done for 8 weeks ✓ (2)

3.4.4 - Testosterone levels in the blood were measured ✓  
- before the administering of the creatine supplement ✓ (2)

3.4.5 The creatine supplement had no effect on the levels of testosterone in the blood of weightlifting males. ✓✓ (2)

3.4.6 - stimulates puberty ✓ (2)  
- stimulates formation of sperm cells ✓ (12)

3.5 3.5.1 Diagram M ✓ (1)

3.5.2 - Blood vessels are constricted ✓ / vasoconstriction occurred  
- Less blood flows to the skin surface ✓  
- Heat is retained / less or no heat is lost ✓ (3)

3.5.3 - Sweat gland becomes more active ✓  
- More sweat is produced ✓  
- and transported to the surface of the skin ✓ (3)  
(7)

3.6 3.6.1 Geotropism ✓ (1)

3.6.2 Auxins ✓ (1)

- 3.6.3
- Due to gravity✓
  - there is a higher concentration of auxins on the lower side✓ of the stem
  - which stimulates growth✓
  - therefore, growth will occur mainly on the lower side✓
  - causing the stem to grow/bend upwards✓
- (5)



- 3.6.4
- The leaves of the stem will receive more sunlight✓/face the sunlight
  - for more photosynthesis✓
- OR**
- Exposes the flowers more favourably✓
  - for pollination✓/seed dispersal
- (Mark first ONE only)

Any (1X2) (2)  
(9)

**TOTAL SECTION 100**

**B:**

**TOTAL:**

**150**