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DEPARTMENT OF EDUCATION
DEPARTEMENT VAN ONDERWYS
LEFAPHA LA THUTO
ISEBE LEZEMFUNDO

PROVINCIAL PREPARATORY EXAMINATION

GRADE 12

LIFE SCIENCES P1

SEPTEMBER 2024

MEMO

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 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, 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 unrecognised 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 recognisable, 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 provincial memo discussion meeting.
14. **If only 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. 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, 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 learner's 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 guidelines**
No changes must be made to the marking guidelines without consent of the examiner and internal moderator.

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SECTION A**QUESTION 1**

- | | | | |
|-----|--------|---|---------------|
| 1.1 | 1.1.1 | B✓✓ | |
| | 1.1.2 | C✓✓ | |
| | 1.1.3 | D✓✓ | |
| | 1.1.4 | A✓✓ | |
| | 1.1.5 | B✓✓ | |
| | 1.1.6 | B✓✓ | |
| | 1.1.7 | C✓✓ | |
| | 1.1.8 | A✓✓ | |
| | 1.1.9 | B✓✓ | |
| | 1.1.10 | A✓✓ | (10 x 2) (20) |
| 1.2 | 1.2.1 | Choroid✓ | |
| | 1.2.2 | Umbilical artery✓ | |
| | 1.2.3 | Grommet✓ | |
| | 1.2.4 | Peripheral✓ nervous system | |
| | 1.2.5 | Gestation✓ | |
| | 1.2.6 | Abscisic acid✓ | |
| | 1.2.7 | Phototropism✓ | |
| | 1.2.8 | Astigmatism✓ | (8 x 1) (8) |
| 1.3 | 1.3.1 | A only✓✓ | |
| | 1.3.2 | Both A and B✓✓ | |
| | 1.3.3 | Both A and B✓✓ | (3 x 2) (6) |
| 1.4 | 1.4.1 | (a) Prostate gland✓ | (1) |
| | | (b) Vas deferens✓/Sperm duct | (1) |
| | 1.4.2 | (a) A✓ - Seminal vesicle✓ | (2) |
| | | (b) D✓ - Scrotum✓ | (2) |
| | | (c) E✓ - Testis✓ | (2) |
| | | | (8) |
| 1.5 | 1.5.1 | Auditory nerve✓ | (1) |
| | 1.5.2 | Organ of Corti✓ | (1) |
| | 1.5.3 | (a) E✓ - Oval window✓/Fenestra ovalis | (2) |
| | | (b) D✓ - Round window✓/Fenestra rotunda | (2) |
| | | (c) A✓ - Semicircular canals✓ | (2) |
| | | | (8) |



SECTION B**QUESTION 2**

- 2.1 2.1.1 External✓ fertilization (1)
- 2.1.2
- A large amount of sperm are released✓
 - A large amount of eggs are released✓
 - The male and female swim close to each other✓/the sperm is released close to the eggs Any (2)
- 2.1.3 Ovipary✓ (1)
- 2.1.4
- No danger of drying out✓
 - as water provides support✓/keep it moist (2)
- (6)**
- 2.2 2.2.1 (a) Middle piece✓/Neck (1)
- (b) Nucleus✓ (1)
- 2.2.2
- It contains mitochondria✓ that supply energy✓ for locomotion of the sperm cell
 - It has a long tail✓which enables movement✓/for swimming/locomotion (of the sperm cell)
 - It is torpedo shaped✓ to reduce friction✓ Any (2 x 2) (4)
- (Mark first TWO only)**
- 2.2.3
- No enzymes✓ will be present
 - (Sperm) will be unable to penetrate the ovum✓/outer membrane of ovum cannot be dissolved
 - therefore no fertilisation✓ will occur (3)
- 2.2.4
- (The prostate gland) secretes an alkaline/basic fluid✓
 - to neutralise the acidic conditions✓ of the urethra (2)
- (11)**
- 2.3 2.3.1 (a) FSH✓/Follicle stimulating hormone (1)
- (b) LH✓/Luteinising hormone (1)
- 2.3.2 23✓ (1)

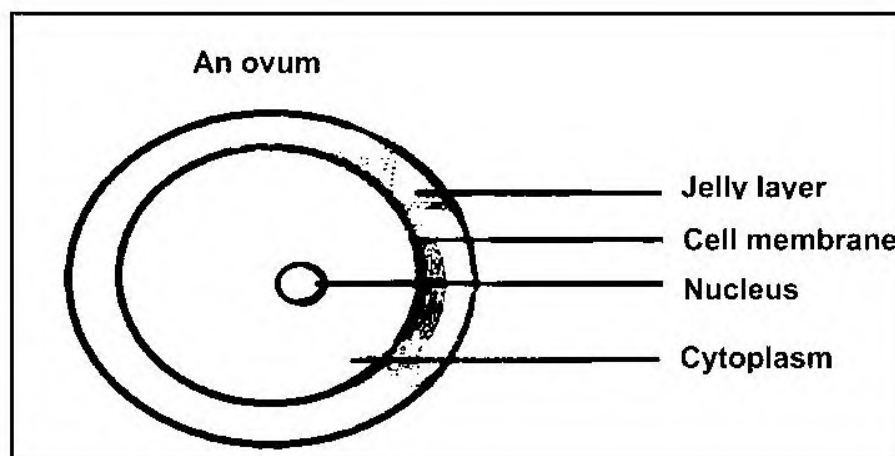


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- 2.3.3
- The levels of progesterone drop✓
 - therefore FSH secretion is no longer inhibited✓
 - and a new follicle starts to develop✓
- (3)

- 2.3.4
- No follicle will develop✓
 - No oestrogen is produced✓
 - and no progesterone is produced✓
 - Therefore, the endometrium will not develop✓/thicken to be shed during menstruation
- (4)

2.3.5

**Criteria for marking the diagram**

Criteria	Marks
Caption (C)	1
Correct diagram (D)	1
Any TWO correct labels (L)	2

(4)
(14)

- 2.4
- 2.4.1
- (a) Corpus callosum✓
 - (b) Medulla oblongata✓
- 2.4.2
- D✓
- 2.4.3
- Meninges✓
- 2.4.4
- Coordinates all voluntary movements✓
 - (Controls muscle tension) to maintain balance✓
- (1)
(1)
(1)
(1)
(2)



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2.4.5	- No/less ADH will be secreted✓ - resulting in renal tubules to be less permeable✓ - no/less water will be reabsorbed✓ - more water is lost✓/diluted urine will be excreted	Any (3) (9)
2.5	2.5.1 (a) Yellow spot✓/Fovea centralis (b) Blind spot✓	(1) (1)
2.5.2	Short-sightedness✓/Myopia	(1)
2.5.3	(B)concave✓ lens	(1)
2.5.4	- P/Ciliary muscles contract✓ - and ciliary body moves closer to the lens✓ - Q/Suspensory ligaments slacken✓ - and the tension on the lens decreases✓ - R/Lens becomes more convex✓ - for more refraction✓ of the incoming light rays	(6) (10) [50]



QUESTION 3

- 3.1 3.1.1 Ossicles✓ (1)
- 3.1.2 (a) Otitis media✓ (1)
 (b) - Virus✓
 - Bacteria✓ Any (1)
(Mark first ONE only)
- (c) - Regulate air pressure in the ear✓
 - Prevent fluid from accumulating in the middle ear✓ (2)
(Mark first TWO only)
- 3.1.3 - The Eustachian tubes are shorter✓/more horizontal so bacteria and viruses find their way into the middle ear more easily✓
 - The tubes are narrower✓ so more likely to get blocked✓ Any (1 x 2) (2)
(Mark first ONE only)
- 3.1.4 - Mucus in the middle ear✓
 - causes the Eustachian tube to be blocked✓
 - which will not be able to equalize the pressure✓ in the middle ear
 - The tympanic membrane/ossicles may not vibrate freely✓
 - resulting in pressure on the tympanic membrane✓
 - that may cause the tympanic membrane to burst✓
 that will lead to hearing loss Any (4)
(11)
- 3.2 3.2.1 (a) (Effect of) caffeine✓ (1)
 (b) Body temperature✓ (1)
- 3.2.2 - 200 men✓ participated (1)
 - Average bodytemperature was calculated✓
- 3.2.3 **Same:**
 - Amount of energy drink✓
 - Gender✓/men only
 - Amount of caffeine in energy drink✓/type of drink
 - Level of activity of participants✓/all were seated
 - Length of time when measurements were taken✓/every 15 minutes
(Mark first TWO only) Any (2)
- 3.2.4 (Body temperature) increases✓ (1)

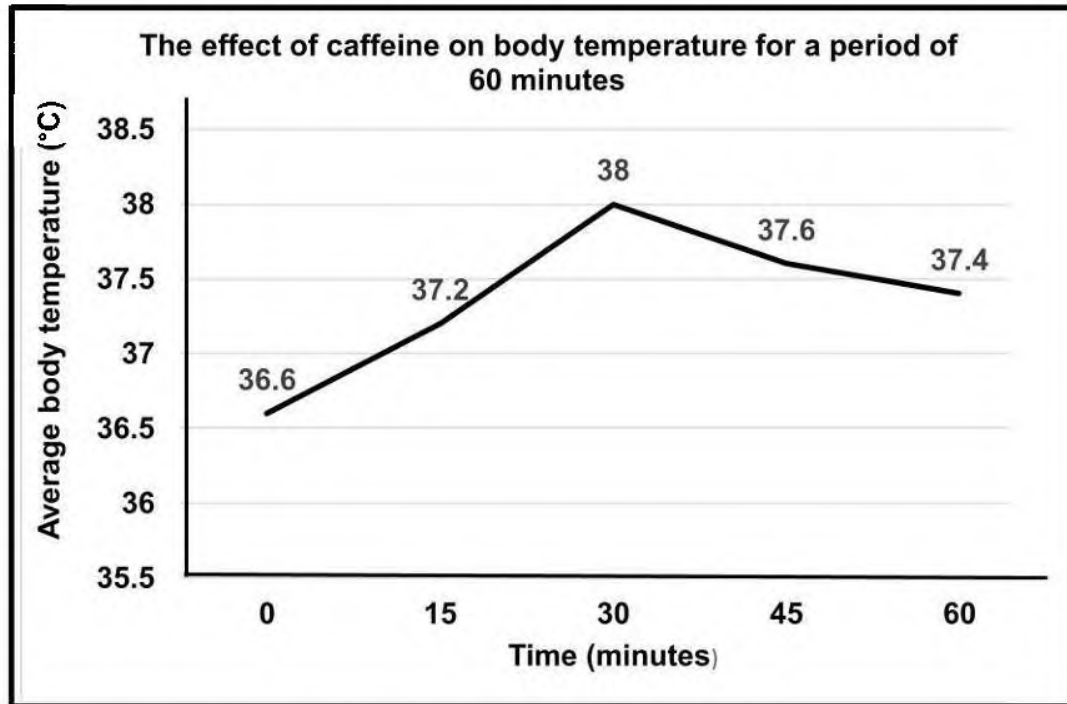


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3.2.5 30 minutes✓ (1)

3.2.6 - It results in an increase in respiration✓
 - which generates more heat✓ (2)

3.2.7

**Criteria for marking of the graph:**

Criteria	Symbol	Mark allocation
Line graph is drawn	T	1
Caption of graph includes both variables	C	1
Correct labels on the X - axis and Y - axis with correct units on both axes	L	1
Correct scale for X - axis and Y- axis	S	1
Plotting:	P	
1 - 4 co-ordinates plotted correctly		1
All 5 co-ordinates plotted correctly		2

(6)
(15)

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- 3.3 3.3.1 (a) E✓ - Pituitary gland✓/Hypophysis (2)
 (b) D✓ - Adrenal gland✓ (2)
 (c) B✓ - Pancreas✓ (2)

- 3.3.2 - Metabolism will be higher✓ than normal/increase in cellular respiration
 - The energy from food eaten will be used✓
 - leaving nothing for storage✓
 - therefore a person could be under-weight✓ Any (3)
(9)

- 3.4 3.4.1 Adrenalin:
 - Accelerates/strengthens the heart rate✓
 - Increases the blood pressure✓
 - Accelerates the conversion of glycogen to glucose✓
 - Increases the rate/depth of breathing✓
 - Increases the muscle tone of skeletal muscles✓ (5)
(Mark first FIVE only)

- 3.4.2 - Less blood flows to the sweat glands✓
 - Sweat glands become less active✓/less sweat is secreted
 - so that less heat is released✓ which controls the body temperature (3)
(8)

- 3.5 3.5.1 Geotropism✓ (1)

- 3.5.2 - Auxins accumulated at the lower side of the stem✓
 - due to the gravitational force✓
 - A high concentration of auxins on the lower side of the stem stimulate growth✓/cell elongation/cell division
 - Thus, unequal distribution of auxins caused unequal growth of the stem✓/The stem grew more on the lower side
 - causing the stem to bend/grow upwards✓* (1* compulsory + 4) (5)

- 3.5.3 To eliminate the effect of light✓ on the growth movement of the stems/To prevent phototropism from influencing the results (1)
(7)
[50]

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