Western Cape Government
Education
FOR YOU

METRO NORTH EDUCATION DISTRICT

LIFE SCIENCES P1

GRADE 12

MARKING GUIDELINE

COMMON EXAMINATION

SEPTEMBER 2024

MARKS: 150

TIME: 2 $^{1}/_{2}$ hours

This exam paper consists of 10 pages.

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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 ✓ **NOT TEMPERATURE REGULATION**		
	1.2.10	Thorns ✓/ Spines	(10x1)	**(10)**

1.3	1.3.1	B only ✓✓ / B ✓✓		
	1.3.2	Both A and B ✓✓ / AB/ A,B/ both/ NOT A/B		
	1.3.3	A only ✓✓ / A ✓✓	(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)	
			(8)	

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)
			(6)

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 Oran of the Corti/hair cells are stimulated

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 <u>increase in the thickness</u>✓ of the endometrium (2)

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

2.2.4 <u>high levels of hormone B</u>
- 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

Gametogenesis in males	**Gametogenesis in females**
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) (5)
(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 fertiliztion	(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 predators / evironmental dangers **(Mark first ONE only)**	(2)
	3.1.3	- The eggs hatched 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	<u>Weightlifters were:</u> - 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✓
- stimulates formation of sperm cells✓ (2)
(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:

150

TOTAL: