



education

Department of
Education
FREE STATE PROVINCE

GRADE 12

LIFE SCIENCES P1

June 2022

MARKS: 150

MARKING GUIDELINES

This marking guideline 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 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 unrecognised 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 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 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. 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 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 memorandum**
No changes must be made to the memoranda. The provincial internal moderator must be consulted.

SECTION A

QUESTION 1

1.1	1.1.1	B✓✓		
	1.1.2	B✓✓		
	1.1.3	D✓✓		
	1.1.4	D✓✓		
	1.1.5	C✓✓		
	1.1.6	B✓✓		
	1.1.7	A✓✓		
	1.1.8	B✓✓		
	1.1.9	B✓✓		
	1.1.10	B✓✓	(10 x 2)	(20)
1.2	1.2.1	Menstrual cycle✓		
	1.2.2	Epididymis✓		
	1.2.3	Endometrium✓		
	1.2.4	Tympanic membrane ✓		
	1.2.5	Insulin ✓		
	1.2.6	Peripheral ✓		
	1.2.7	Myelin sheath ✓		
	1.2.8	Synapse ✓		
	1.2.9	Binocular vision ✓		
	1.2.10	Ossicles ✓	(10 x 1)	(10)
1.3	1.3.1	B only✓✓		
	1.3.2	None✓✓		
	1.3.3	Both A and B✓✓		
	1.3.4	Both A and B✓✓	(4 x 2)	(8)
1.4	1.4.1	Amniotic egg✓		(1)
	1.4.2	(a) B✓ – Yolk sac✓		(2)
		(b) A✓ - Shell✓		(2)
				(5)
1.5.	1.5.1	(a) Oval window✓		(1)
		(b) Absorbs pressure waves✓/releases pressure from the inner ear		(1)
		(c) Cristae✓ and maculae✓		(2)
		(d) D✓		(1)
		(e) Endolymph ✓		(1)
	1.5.2	Inner ✓ ear		(1)
				(7)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

- 2.1 2.1.1 (a) A ✓ (1)
(b) D ✓ (1)
(c) C ✓ (1)
- 2.1.2 Contains cilia✓/ciliated columnar epithelium for movement of the zygote to the uterus✓ (2)
- 2.1.3 a) Yes✓ (1)
(b) The left/other ovary is still intact✓ and it can produce an ovum✓
Ovulation will take place✓ and fertilization can take place in the fallopian tube✓ **Any 3** (3)
- 2.1.4 - Diploid cells in the ovary undergo mitosis✓
- To form numerous follicles✓
- At the onset of puberty✓
- And under the influence of FSH✓
- One cell inside a follicle enlarges✓ and undergoes meiosis✓
- Of the four cells that are produced✓ only one survives to form a mature, haploid ovum.✓
- This occurs in a monthly cycle.✓ **Any 5** (5)
- (14)**
- 2.2 2.2.1 20 days✓
The progesterone was at 1 at the start and it took 20 days to return to the same level✓ (2)
- 2.2.2 When LH reaches the ovary, it stimulates ovulation✓
After ovulation the graafian follicle changes into the corpus luteum ✓ (3)
Which produces progesterone ✓
- 2.2.3 Progesterone level increase✓/is high to maintain the endometrium during pregnancy✓ (2)
- 2.2.4 (a) Hormones diffuses into the milk✓ (1)
(b) The corpus luteum degenerates✓ and stop producing progesterone ✓/produce less progesterone (2)
(10)

2.3 2.3.1 Umbilical cord✓ (1)

2.3.2

Umbilical vein	Umbilical artery
- Carries oxygenated blood ✓	- Carries deoxygenated blood✓
- Carries nutrition✓	- Carries waste products✓

(Mark first two only + 1 for Table) (5)

2.3.3

- Nutrition for the embryo✓
- Excretion ✓
- Gas exchange ✓
- Acts as a micro-filter✓
- Endocrine function✓

(Mark first two only) (2)
(8)

2.4 2.4.1 When parents spend time and energy/care✓ on feeding/protection/temperature regulation✓ of their offspring (2)

2.4.2 Precocial development✓ (1)

2.4.3

- The eyes are open directly after birth✓
- They are covered in hair✓
- They are immediately active✓
- They regulate their own body temperature✓
- They can feed themselves and drink the mother's milk✓
- They can protect themselves by camouflage. ✓

(Mark first three only) (3)
(6)

2.5 2.5.1 Meninges✓/cerebral membranes (1)

2.5.2 (a) Corpus callosum✓ (1)
(b) Spinal cord✓/meninges (1)
(c) Pituitary gland✓ (1)

2.5.3

- Controls voluntary actions✓
- Interpretes impulses from sensory organs (sight, sound, smell, taste, and touch) ✓
- Controls higher mental functions (memory, intelligence, imagination, emotions, planning, thought and power judgement) ✓

(Mark first two only) (2)

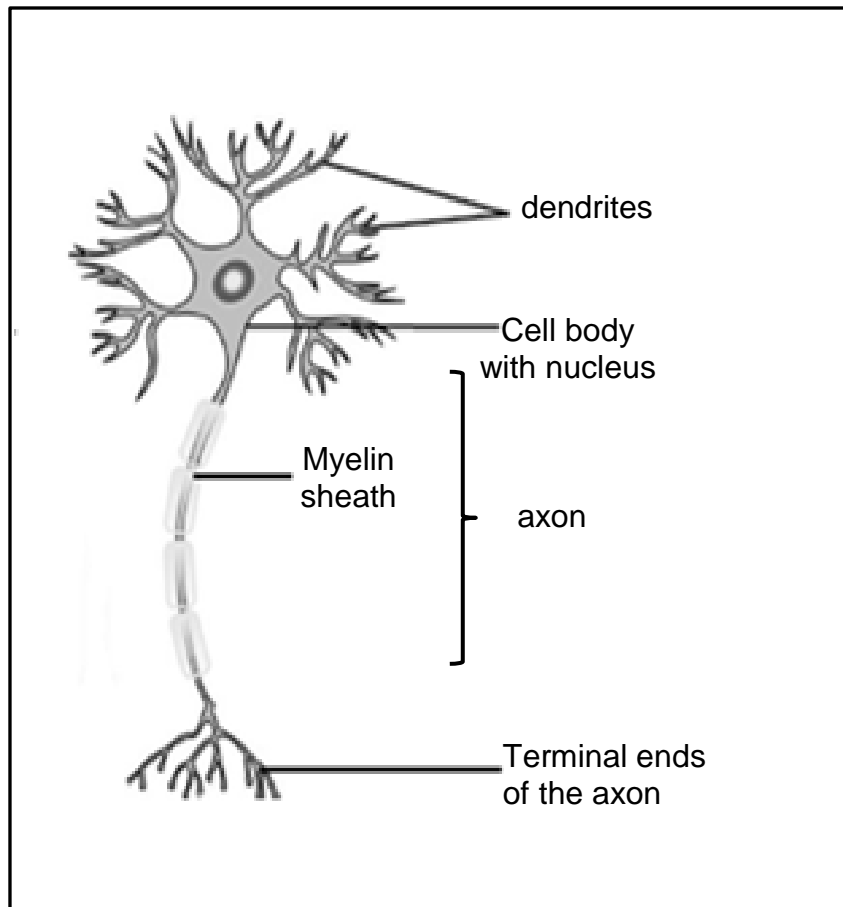
2.5.4 The medulla oblongata/ E

- controls vital processes/heartbeat/breathing✓
- these processes will stop✓

(2)

2.5.5

Motor neuron/ Multipolar neuron



Mark allocation:

Correct drawing (D)	1
Heading (H)	1
Any 2 correct labels (L)	2

TOTAL QUESTION 2

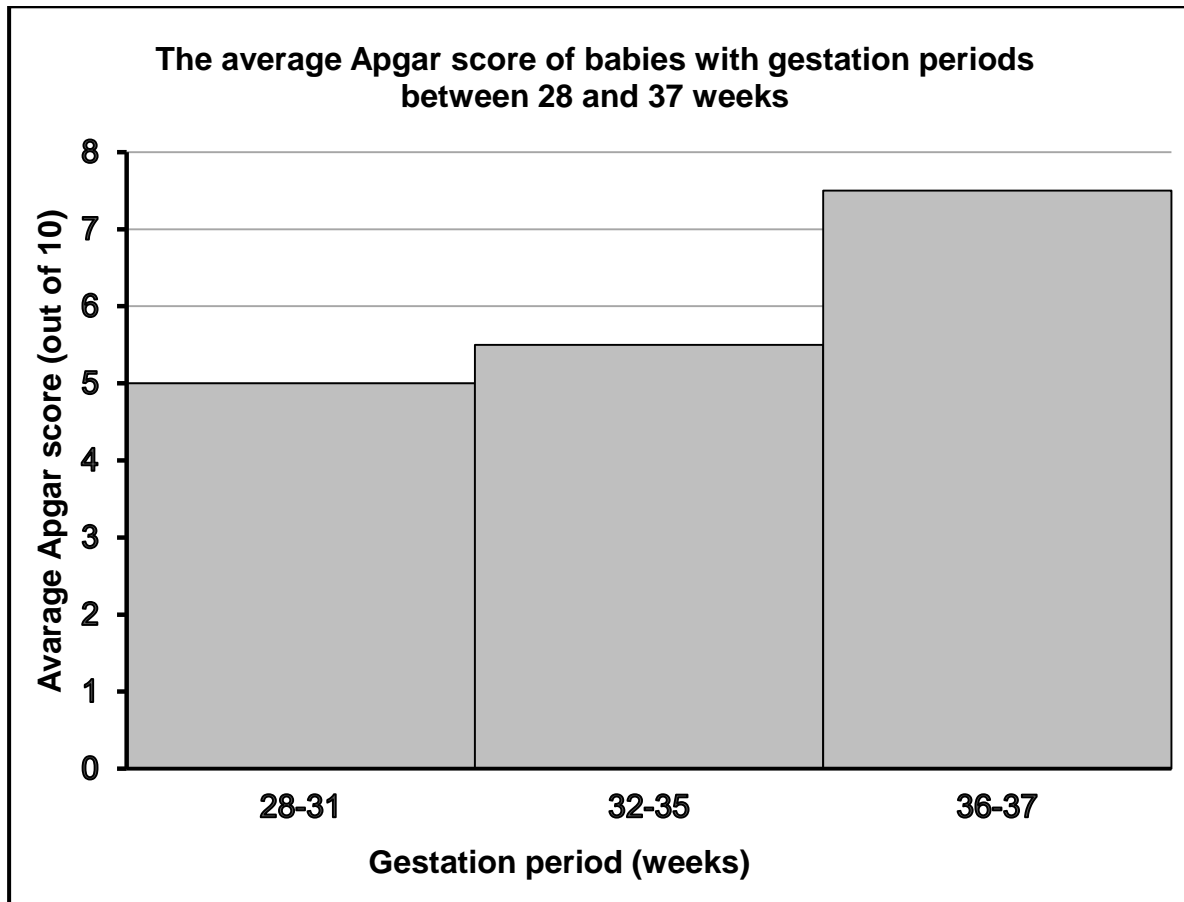
(4)
(12
[50]

QUESTION 3

- 3.1 3.1.1 a) Long sightedness✓/ hypermetropia (1)
(b) Short sightedness✓ / myopia (1)
- 3.1.2 (a) C✓ (1)
(b) F✓ (1)
(c) B✓ (1)
- 3.1.3 - Ciliary muscles contract✓
- Suspensory ligaments slacken✓
- Tension on lens decreases✓
- Lens becomes more convex (more rounded) ✓
- Light rays are refracted (bent) more✓
- Light rays are focused onto the retina✓ (6)
(11)
- 3.2 3.2.1 (a) Interneuron✓/connector neuron (1)
(b) Effector✓/ muscle (1)
- 3.2.2 (a) Ensures one direction flow of impulses✓
(b) Transmits impulses from sensory neurons to motor neurons✓ (2)
- 3.2.3 - The spinal cord shortens reaction time by sending the impulse directly to the effector✓
- The brain delays the reaction causing ✓
- Injury /death✓ (3)
- 3.2.4 - The myelin sheaths are damaged ✓
- This will cause a slow transmission of impulses ✓
- and slow reaction time ✓
- Any 2** (2)
(9)
- 3.3 3.3.1 Ductless gland/ Glands without a duct✓ (1)
- 3.3.2 - When thyroxin levels are low✓
- The pituitary gland is stimulated✓
- to secrete more TSH✓
- which stimulates the thyroid gland✓ to secrete
- more thyroxin✓ (5)
(6)

- 3.4 3.4.1 (a) Pituitary gland✓/hypophysis (1)
(b) Aldosterone✓ (1)
(c) ADH✓ (1)
(d) Salt✓ (1)
- 3.4.2 - Chemical messenger✓
- Secreted in small quantities✓
- Transported via the blood stream✓
- Stimulates a target organ✓/ the kidney **Any 3** (3)
- 3.4.3 - Increases heart rate ✓ to transport oxygen and glucose rapidly to the skeletal muscles✓
- Increases the diameter of the pupil, ✓ to allow more light to enter the eye for clear image✓
- Widen bronchioles✓/ increase rate of breathing, more oxygen is absorbed for faster cellular respiration to release energy. ✓
- Increase sweat production✓ to cool the body during activity. ✓
- Accelerates conversion of glycogen to glucose✓ for more glucose for cellular respiration✓
(Mark first three x 2) (6)
(13)
- 3.5 3.5.1 Gestation period✓ (1)
- 3.5.2 To protect the body from injuries✓✓ (2)
- 3.5.3 The longer the gestation period the faster the palm grasp reflex✓✓ /the shorter the reflex time
- OR**
- The shorter the gestation period the slower the palm grasp reflex✓✓ /the longer the reflex time (2)

3.5.4



CRITERION	ELABORATION	MARK
Correct type of graph (T)	Histogram: No spaces between the bars	1
Correct caption for the graph (C)	Average Apgar score of babies between 28 – 36 weeks (both variables included)	1
Correct label and unit for X- and Y-axes (L)	X – Axis : Gestation period (weeks) Y – Axis : Average Apgar score of babies (out of 10)	1
Correct scale for X- and Y-axes (S)	X – Axis : Bars must be equal width Y – Axis : Scale must be consistent	1
Plotting of points (P)	3 bars plotted and drawn correctly	2
	1 - 2 bars plotted and drawn correctly	1

(6)
(11)

TOTAL QUESTION 3 [50]

TOTAL SECTION B: 100

GRAND TOTAL: 150