Life Sciences P1 1 FS/September 2022 Grade 12 Prep. Exam. Marking Guidelines

**MOCK EXAMINATION**

**GRADE 12**

LIFE SCIENCES P1

**OCT/NOV 2022**

**MARKS: 150 MARKING GUIDELINES**

# These marking guidelines consist of 10 pages.

**PRINCIPLES RELATED TO MARKING LIFE SCIENCES**

# 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.

# If, for example, three reasons are required and five are given

Mark the first three irrespective of whether all or some are correct/incorrect.

# If whole process is given when only a part of it is required

Read all and credit the relevant part.

# If comparisons are asked for, but descriptions are given

Accept if the differences/similarities are clear.

# If tabulation is required, but paragraphs are given

Candidates will lose marks for not tabulating.

# If diagrams are given with annotations when descriptions are required

Candidates will lose marks.

# If flow charts are given instead of descriptions

Candidates will lose marks.

# 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.

# 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.

# Wrong numbering

If answer fits into the correct sequence of questions, but the wrong number is given, it is acceptable.

# If language used changes the intended meaning

Do not accept.

# Spelling errors

If recognisable, accept the answer, provided it does not mean something else in Life Sciences or if it is out of context.

# If common names are given in terminology

Accept, provided it was accepted at the national memo discussion meeting.

# If only the letter is asked for, but only the name is given (and vice versa)

Do not credit.

# If units are not given in measurements

Candidates will lose marks. Memorandum will allocate marks for units separately.

# Be sensitive to the sense of an answer, which may be stated in a different way.

1. **Caption**

All illustrations (diagrams, graphs, tables, etc.) must have a caption.

# 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.

# 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 D  1.1.2 C  1.1.3 A  1.1.4 D  1.1.5 D  1.1.6 B  1.1.7 C  1.1.8 C  1.1.9 C  1.1.10D | 🗸🗸 🗸🗸 🗸🗸 🗸🗸 🗸🗸 🗸🗸 🗸🗸 🗸🗸  🗸🗸 | (10 x 2) |  |
|  |  | **(20)** |
| 1.2 | 1.2.1 | Parental care 🗸 | |  |
|  | 1.2.2 | Hormones 🗸 | |  |
|  | 1.2.3 | Amniotic 🗸 fluid | |  |
|  | 1.2.4 | Gibberellin 🗸 | |  |
|  | 1.2.5 | Acrosome🗸 | |  |
|  | 1.2.6 | Synapse 🗸/synaptic cleft | |  |
|  | 1.2.7 | Semen 🗸 | |  |
|  | 1.2.8 | Menstruation 🗸 | |  |
|  | 1.2.9 | Conjunctiva 🗸 | |  |
|  |  | (9 x 1) | | **(9)** |
| 1.3 | 1.3.1  1.3.2  1.3.3 | B only 🗸🗸 None 🗸🗸 B only 🗸🗸 | (3 x 2) |  |
|  |  | **(6)** |
| 1.4 | 1.4.1 | 1. Fallopian tube 🗸 2. Cervix 🗸 3. B 🗸 4. A 🗸  * Responsible for the protection of the embryo 🗸 from implantation to birth * provides space for the developing foetus 🗸   Seminal vesicles 🗸 | | (1) |
|  |  | (1) |
|  | 1.4.2 | (1) |
|  |  | (1) |
|  | 1.4.3 |  |
|  |  | (2) |
|  | 1.4.4 | (1) |
|  |  | **(7)** |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1.5. | 1.5.1 | (a) | Goitre 🗸 | (1) |
|  |  | (b) | A lack of iodine 🗸 in the diet | (1) |
|  | 1.5.2 | (a) | Short-sightedness 🗸/Myopia | (1) |
|  |  | (b) | Astigmatism 🗸 | (1) |
| 1.5.3 | | (The reflection of light from) an irregularly shaped cornea 🗸 | | (1) |
| 1.5.4 | | Deafness 🗸/hearing loss/hearing impairment | | (1) |
| 1.5.5 | | (a) Cataracts  | | (1) |
|  | | (b) Middle ear infection  | | (1) |
|  | |  | | **(8)** |
|  | | **TOTAL SECTION A:** | | **50** |
| **SECTION B** | |  | |  |
| **QUESTION 2** | |  | |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 2.1  2.2 | 2.1.1  2.1.2  2.1.3  2.1.4  2.2.1  2.2.2 | * The jelly layer provides protection 🗸 for the early developmental stages of the fertilised egg * Facilitates the movement of the ovum/embryo through the fallopian tube 🗸 **(Any)**   It provides the sperm with energy 🗸 for locomotion. 🗸  Part A is haploid 🗸/has 23 chromosomes  to ensure that after fertilisation the zygote has a diploid 🗸  number of chromosomes/46 chromosomes.  zygote morula blastula/blastocyst 🗸🗸 foetus  External 🗸 fertilisation   * The frogs are close to each other 🗸 * Many males mate with a female 🗸 * Many gametes 🗸 (ova and sperm) are released **(Any) (Mark first TWO only)** | (1)  (2)  (2)  (2)  **(7)**  (1)  (2) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2.2.3 | * Prevent dehydration 🗸 of the developing tadpoles/embryos * Protect the developing tadpoles/embryos from predation 🗸 * Prevent microbial degradation 🗸 and * Provide a healthy environment 🗸 for the embryos   **(Mark first TWO only) (Any)** |  |
|  |  | (2)  **(5)** |
| 2.3 | 2.3.1  2.3.2  2.3.3 | The pathway along which nerve impulses are carried from a receptor to an effector to bring about a reflex action. 🗸🗸  A person would be able to feel the sensation 🗸 but is unable to react 🗸 to the stimuli.  Multiple sclerosis 🗸 |  |
|  | (2)  (2)  (1) |
| 2.4 | 2.4.1 | Smooth muscles 🗸  Heart 🗸muscle  Glands 🗸 **(Any)**  **(Mark first TWO only)** |  |
|  | (2) |
| 2.4.2 | * Every organ/gland are controlled by two sets of nerves 🗸 * that act antagonistically 🗸   Autonomic nervous system is divided into   * Sympathetic nerves 🗸 and * Parasympathetic nerves 🗸 * Sympathetic nerves stimulate 🗸 * fight of flight function 🗸 in emergency situations * Parasympathetic inhibits 🗸 a response and * restores the body to normal 🗸 **(Any)** | (5)  **(12)** |
| 2.5 | 2.5.1 | 1. Corpus luteum 🗸 2. Placenta 🗸   Pituitary gland 🗸/Hypophysis   * The foetus was born 🗸 after 40 weeks, and * milk is the only food source 🗸 for the baby/milk must be produced/After birth, prolactin stimulates milk production/lactation to feed the baby   There is no need to maintain the endometrium any longer 🗸  and allows the placenta's removal/release 🗸 | (1) |
|  |  | (1) |
|  | 2.5.2 | (1) |
|  | 2.5.3 |  |
|  |  | (2) |
|  | 2.5.4 | (2) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2.5.5 | - The drop in progesterone level |  |
|  |  | - stimulates the pituitary gland 🗸/hypophysis |  |
|  |  | - to secrete FSH 🗸 |  |
|  |  | - The high level of FSH stimulates the development of a |  |
|  |  | primary follicle 🗸 |  |
|  |  | - into a graafian follicle 🗸 that |  |
|  |  | - leads to ovulation 🗸 | (5) |
|  |  |  | **(12)** |
| 2.6 | 2.6.1 | (a) Semi-circular canals 🗸 | (1) |
|  |  | (b) Cochlea 🗸 | (1) |
|  | 2.6.2 | - The pinna directs sound waves 🗸 |  |
|  |  | - into the auditory canal 🗸 |  |
|  |  | - The auditory canal transmits sound waves to the |  |
|  |  | tympanic membrane 🗸 |  |
|  |  | - The tympanic membrane transmits sound waves to the |  |
|  |  | middle ear 🗸/ossicles as vibrations |  |
|  |  | - The ossicles transmit 🗸 |  |
|  |  | - and amplify 🗸 the vibrations |  |
|  |  | - to the oval window 🗸 |  |
|  |  | - which vibrates 🗸and transmits the vibrations to the inner |  |
|  |  | ear **(Any)** | (7) |
|  | 2.6.3 | - The auditory nerve 🗸**\*** |  |
|  |  | - No impulses can be transmitted to the cerebrum 🗸 and |  |
|  |  | - cerebellum 🗸 |  |
|  |  | - which leads to a loss of hearing 🗸 and |  |
|  |  | - a loss of balance 🗸 **(\*Compulsory mark + 4)** | (5) |
|  |  |  | **(14)** |
|  |  |  | **[50]** |

|  |  |  |  |
| --- | --- | --- | --- |
| **QUESTION 3** | | | |
| 3.1 | 3.1.1 | Insulin 🗸 | (1) |
|  | 3.1.2 | (a) Pancreas 🗸 | (1) |
|  |  | (b) Islets of Langerhans 🗸 | (1) |
|  | 3.1.3 | - Negative feedback reaction 🗸 |  |
|  |  | - The glucose concentration in the blood drops below |  |
|  |  | normal 🗸 |  |
|  |  | - The alpha cells/islets of Langerhans/pancreas detect the |  |
|  |  | drop and secretes glucagon 🗸 |  |
|  |  | - in the blood 🗸 |  |
|  |  | - which is transported to the liver 🗸/muscle cells |  |
|  |  | - Glucagon stimulates the conversion of glycogen to |  |
|  |  | glucose 🗸 |  |
|  |  | - The glucose concentration in the blood returns to |  |
|  |  | - normal 🗸 **(Any)** | (6)  **(9)** |
| 3.2 | 3.2.1 | Umbilical cord 🗸 | (1) |
|  | 3.2.2 | - The umbilical arteries 🗸 \* |  |
|  |  | - carry deoxygenated blood 🗸/waste products |  |
|  |  | - to the placenta 🗸 |  |
|  |  | - and an umbilical vein 🗸\* |  |
|  |  | - carries oxygenated blood 🗸/nutrients |  |
|  |  | - from the placenta to the foetus |  |
|  |  | **(2 \*Compulsory marks + 2 x 1)** | (4)  **(5)** |
| 3.3 | 3.3.1 | (a) Different light conditions 🗸 | (1) |
|  |  | (b) Diameter of the pupil 🗸 | (1) |
|  | 3.3.2 | Only one person 🗸 participated in the experiment/small |  |
|  |  | sample size |  |
|  |  | The experiment was not repeated 🗸/only done once | (2) |
|  | 3.3.3 | 8 – 5 🗸 100 |  |
|  |  | 8 x 1 🗸 |  |
|  |  | = 37,5 🗸% | (3) |
|  | 3.3.4 | Iris 🗸 | (1) |
|  | 3.3.5 | Pupil mechanism 🗸 | (1) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | 3.3.6 | Circular muscles of the iris relax 🗸 |  |
|  | Radial muscles of the iris contract 🗸 |  |
|  | Pupil diameter increases 🗸 | (3) |
| 3.3.7 | (a) 5 🗸mm | (1) |
|  | (b) 3 🗸 | (1) |
|  |  | **(14)** |
| 3.4 | 3.4.1 | A 🗸- Pituitary gland 🗸/Hypophysis | (2) |
|  | 3.4.2 | - No development of secondary male features 🗸/Any |  |
|  |  | example |  |
|  |  | - No sperm will develop /sperm count will be low | (2) |
|  | 3.4.3 | - The adrenal glands are stimulated 🗸 |  |
|  |  | - to secrete more aldosterone 🗸 |  |
|  |  | - More sodium ions are reabsorbed 🗸 |  |
|  |  | - from the distal convoluted tubules 🗸/collecting ducts |  |
|  |  | - into the surrounding blood capillaries 🗸 |  |
|  |  | - Salt levels in the blood return to normal 🗸 **(Any)** | (4) |
|  | 3.4.4 | Water 🗸 |  |
|  |  | pH 🗸 |  |
|  |  | carbon dioxide 🗸 |  |
|  |  | glucose 🗸 |  |
|  |  | temperature 🗸 **(Any)** | (2) |
|  |  | **(Mark first TWO only)** |  |
|  |  |  | **(10)** |
| 3.5 | 3.5.1 | Auxins 🗸 | (1) |
|  | 3.5.2 | The growth movement of part of a plant in response to a |  |
|  |  | unilateral light stimulus. 🗸🗸 | (2) |
|  | 3.5.3 | - Auxins diffuse through the agar to the stem 🗸 |  |
|  |  | - Auxins are light sensitive 🗸/are destroyed by light/Auxins |  |
|  |  | move away from light 🗸 |  |
|  |  | - There is a higher concentration of auxins on the dark side |  |
|  |  | of the stem 🗸 |  |
|  |  | - Growth is stimulated 🗸 on the dark side which |  |
|  |  | - grows faster 🗸 |  |
|  |  | - causing the stem to grow/bend towards the light 🗸 **(Any)** | (6) |

Please turn over

|  |  |  |
| --- | --- | --- |
| 3.5.4 | * Light will not reach the tip of the stem 🗸 * Therefore, auxins are distributed evenly 🗸 throughout the tip of the stem * The stem will grow straight up 🗸/no bending towards the light |  |
|  | (3)  **(12)** |
|  | **TOTAL SECTION B: GRAND TOTAL:** | **[50]**  **100**  **150** |