KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA



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NATIONAL SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES

OMMON TEST

NG GUIDELINE

2022



MARKS: 120

N.B This marking guideline consist of 8 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 a[illegible]



accept the answer, provided it does not mean something
nces 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)**

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 learners' assessment language used to the greatest extent in his/her be credited if it is correct. A marker that is proficient in the language should be consulted. This is applicable to all es.



SECTION A

QUESTION 1

1.1 1.1.1 D✓✓
1.1.2 B✓✓
1.1.3 A✓✓
1.1.4 D✓✓
1.1.5 C✓✓
1.1.6 C✓ ✓
1.1.7 A✓ ✓



2X6 **(14)**

1.2 1.2.1 Lipids ✓/fats
1.2.2 Vertebral column✓ /vertebrae
1.2.3 Fine adjustment knob✓
1.2.4 Diffusion✓
1.2.5 Cuboidal epithelium ✓
1.2.6 Phloem✓
1.2.7 Tonoplast✓
1.2.8 Cranium✓
1.2.9 Amino acids 1x9 **(9)**

1.3 1.3.1 None ✓ ✓
1.3.2 A only✓✓
1.3.3 B only✓✓
1.3.4 A only✓✓ 2x4 **(8)**

1.4 1.4.1 (a) Starch ✓ (1)
(b) Fats/lipids✓ (1)

1.4.2 Glucose✓ (1)

1.4.3 They are source of energy✓
They are energy storage molecules eg starch and glycogen✓ (2)

1.4.4 red orange✓ (1)

1.4.5 Benedict's solution ✓ /Fehling solution A and B (1)

1.4.6 Brown ✓/take the colour of iodine solution (1)

1.4.7 Glucose✓ (1)
(9)

TOTAL SECTION A: 40

SECTION B

QUESTION 2

2.1 2.1.1 Ciliated columnar epithelium✓ 

(1)

2.1.2 Nucleus✓ (1)

2.1.3 A✓ (1)

2.1.4 -Has goblet cells✓
-That produces mucus to trap the germs/moisten the surface✓
-Has cilia✓
-Remove dust particles ✓ (4)
(Mark the first TWO only) **(7)**

2.2 -Cells are elongated✓/ joined end to end✓
-Forming long, continuous tubes✓

-cells are non-living✓/have no cell contents to enable the movement of water✓

-Contained thickened✓ / lignified walls to withstand pressure of water✓

-Perforated with pits ✓for lateral water transport ✓
(Mark the first THREE only) 2x3 **(6)**
(13)

2.3 2.3.1 (a) rate of transpiration in leaves✓ (2)
(b) Different light intensity✓ (1)

2.3.2 It increased the rate of transpiration✓ /remained constant

2.3.3 There might be other limiting factors✓ that became in short supply that led to no further increase in transpiration rate ✓ (2)

2.3.4 Repeat the investigation✓
Increase sample size✓
Calculate the average ✓
(Mark the first TWO only) (2)

2.3.5 Humidity✓
Temperature✓
Wind ✓
(Mark the first TWO only) (2)

2.3.6 For control✓ so that results can be compared✓ (2)

2.3.7 The rate of transpiration increases with an
intensity ✓✓up to a point where it no longe (2)
(13)



2.4 2.4.1 Anaphase ✓ (1)

2.4.2 Spindle fibres had contracted✓
Chromatids are pulling towards opposite poles✓
(Mark the first TWO only) (2)

2.4.3 (a) cell membrane✓ (1)
(b) spindle fibre✓ (1)

2.4.4 D✓ – Centriole/Centrosome✓ (2)

2.4.5 Metaphase*✓
Chromosomes arrange themselves along the equator✓
Chromosome attach to spindle fibres✓
By centromeres✓
(*compulsory + Any 3) (4)

2.4.6 - Responsible for growth and development✓
- Responsible for asexual reproduction✓
- Replacement of dead✓ / lost cells
- Repair of damaged cells ✓/ worn-out cells
(Mark the first THREE only) (3)
(14)

TOTAL QUESTION 2 [40]

QUESTION 3

3.1 3.1.1 (a) Golgi apparatus✓ (1)
(b) Chloroplast✓ (1)

3.1.2 Plant cell *✓
-Have large vacuole✓
-Have chloroplast✓
-Have cell wall✓ (4)
-Have fixed shape ✓
(Mark *compulsory + first THREE only)

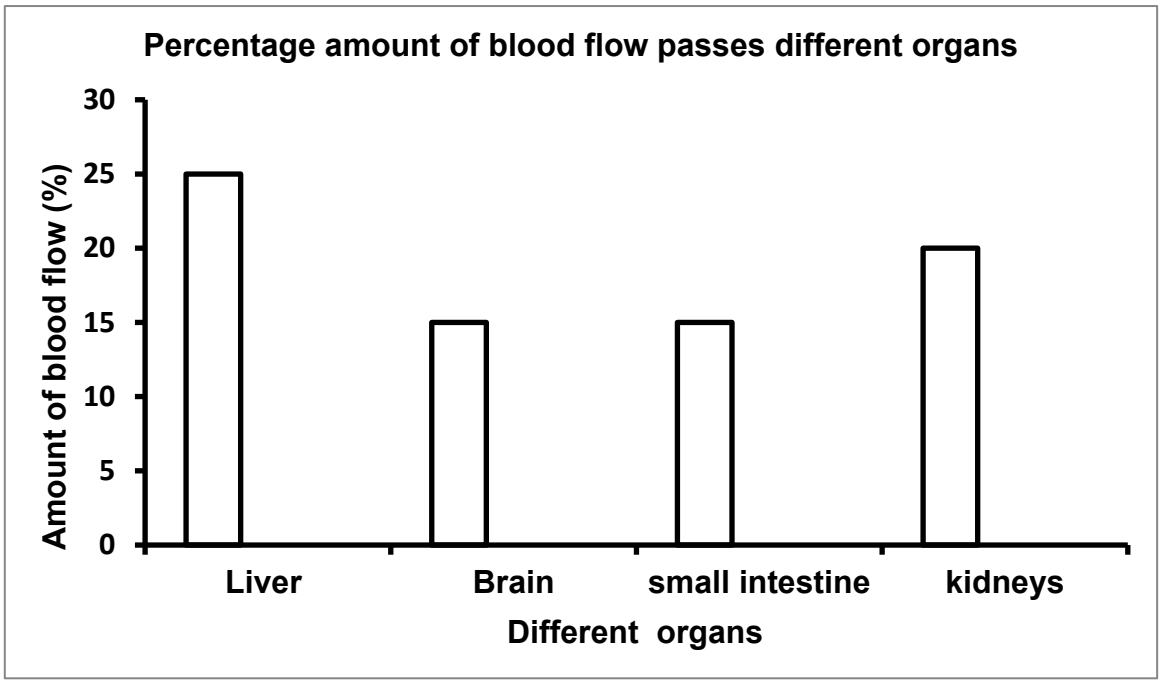
3.1.3 Protects the inner parts of the plant cell✓
Gives plant cells a regular shape✓ (3)
Provide support to the plant body✓

(Mark the first THREE only)

3.1.4 B✓/ mitochondria provides energy✓ ,for contraction of muscles✓for movement (3)

3.1.5 - chlorophyll*✓
-which traps the radiant energy from the sun✓
-and use this energy to produce sugars during photosynthesis✓ (3)
(*compulsory + Any 2) **(15)**

3.2 3.2.1



Marking criteria:

Features	Mark allocation
Caption **(C)**	1
Correct type of graph **(T)**	1
Correct labels on X-axis and Y-axis with units **(L)**	1
Correct scale on X-axis and Y-axis with equal width and equal spaces between bars **(S)**	1
Correct plotting **(P)**	1-3 bars plotted correct:1 All 4bars plotted correct:2

(6)

3.2.2 (25+15+15+20) = 75✓
100 - 75✓= 25%✓ (3)
(9)



3.3 ✓

Artery	Vein
Has thick outer walls✓	Has thin outer walls✓
Has thick layer of muscle fibres and elastic fibres✓	Has thin layer of muscles and elastic fibres✓
Has small lumen (space) ✓	Has large lumen (space) ✓
No valves present✓	Valves are present✓

(Mark the first TWO only+ 1 for the table) (5)

(14)



3.4 3.4.1 (a) substrate molecule✓ (1)
(b) enzyme-substrate molecule✓ (1)
(c) products✓ (1)

3.4.2 Enzymes are specific✓ to the reaction they catalyse (1)

3.4.3 -Enzymes are sensitive to temperature✓
-Enzymes are sensitive to pH✓
-Enzymes can be used repeatedly✓ (2)
(Mark the first TWO only)

3.4.4 To show that the enzyme has catalysed/acted on the substrate molecule (1)

3.4.5 When part N/ enzyme become denatured, it loses its shape✓
bind with substrate molecule✓
nt biochemical reactions to occur at faster rate✓
functioning of the body✓
lead to death ✓ **Any** (4)
(11)



TOTAL QUESTION 3 (40)

TOTAL SECTION B (80)

GRAND TOTAL [120]

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