EKURHULENI NORTH DITRICT
JUNE EXAM

2023

LIFE SCIENCES
GRADE 10
MARKING GUIDELINE

TIME: 2 ½ HOURS
MARKS: 150
09 pages

PRINCIPLES RELATED TO MARKING LIFE SCIENCES 2020

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.

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

Question 1

1.1.1   A ✓✓

1.1.2   D ✓✓

1.1.3   B ✓✓

1.1.4   B ✓✓

1.1.5   D ✓✓

1.1.6   B ✓✓

1.1.7   A ✓✓

1.1.8   B ✓✓

1.1.9   A ✓✓

1.1.10 C✓✓

(20)

1.2.1   Continental Drift ✓

1.2.2   Chlorophyll ✓

1.2.3   Diaphragm✓/mirror

1.2.4   Dinosaurs ✓

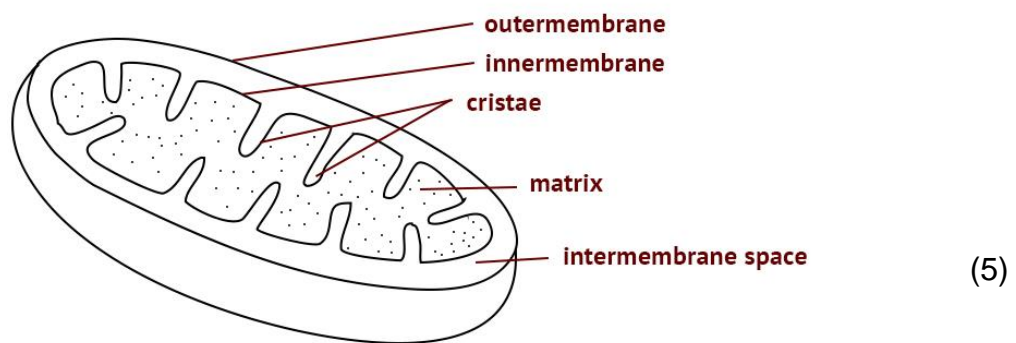1.2.5   Forest ✓   (5)

1.3.1   B only ✓✓

1.3.2   A only ✓✓

1.3.3   B only ✓✓

1.3.4   B only ✓✓

(8)

1.4.1   A. Mitochondrion✓

              B. Nucleoplasm✓Chromatin network

              C. Vacuole✓

              D. Cell wall ✓   (4)

1.4.2   It protect the cell✓/ give the cell its shape   (1)

1.4.3   Cell 2✓ it has a chloroplast/ it has a cell wall✓   (2)

1.4.4   The mitochondrion✓

(5)

CRITERIA	MARK
Heading **(H)**	1
Correct drawing **(D)**	1
Any 3 correct labels **(L)**	3

[12]

1.5.1 Osmosis✓   (1)
1.5.2 Potato✓Part C   (1)
1.5.3 B✓   (1)
1.5.4 A will increase✓. A has lower water potential than B. Water molecules will
       move from compartment B, through the selectively permeable cell
       membranes of the potato cells, to compartment A.✓ Therefore, water
       molecules moved from a high water potential to a low water potential. The
       amount of fluid in A will increase until equilibrium is reached. ✓   (any 2)
                                                                              [10]

SECTION B

QUESTION 2

2.1.1 Carbohydrates ✓   (1)

2.1.2 Monosaccharides ✓/glucose   (1)

2.1.3 Building blocks of all organic material in cells/ growth and development of the

body/ a component in repairing worn out tissue✓

Enzymes are proteins which control many reactions ✓

Hormones are proteins which control metabolic activities ✓/processes

reserve source of energy ✓   (2)

ANY 2

2.1.4 0.35g/30g✓*100✓ = 1.17%✓   (3)

2.1.5 Sodium✓/Salt/calcium   (Any one)   (1)

2.1.6 Calcium ✓   (1)

[9]

2.2.1 To determine the effect of temperature ✓ on the activity of an enzyme ✓   (2)

2.2.2 Enzyme activity ✓   (1)

2.2.3 35 ^{0}C ✓   (1)

2.2.4 Enzymes denatured ✓✓   (1)

2.2.5 Any range between 34 to 36 degrees Celsius ✓   (2)

2.2.6 To digest protein stains ✓✓   (2)

2.2.7 Enzymes have an optimum temperature ✓✓

Enzymes denature at high temperatures ✓✓

Temperature has an effect on enzymes ✓✓   (Any 1x2)   (2)

[11]

2.3.1 Radiometric dating ✓ and Relative dating ✓   (2)

2.3.2 a) X = 28 650 ✓ mya ✓

b) Z = 3. 125 ✓ % ✓   (4)

2.3.3 After 60 million years ✓there is no more carbon-14 remaining ✓

in the fossil.   (2)

2.3.4 Not all organisms become fossilised ✓

Some fossils might not have been found ✓   (2)

[10]

2.4.1   a) Archaeopteryx ✓

b) Coelacanth fish ✓   (2)

2.4.2   A skull with teeth and jaws ✓ - more similar to dinosaurs ✓

Or

Has 3 claws on the end of the bones of each wing ✓ more similar to

dinosaurs✓   (1 x 2)   (2)

And

Has feathers ✓ more similar to birds. ✓

Or

Has 3 forward pointing toes and one backward and pointing ✓ toe more

similar to birds. ✓   (1 x 2)   (2)

2.4.3 The organisms had died next to the flood ✓ plain/ near water.

Sediments ✓ piled up over the organism reducing oxygen ✓ flow.

Soft part decaying ✓ occurred.

Overtime mineral seeped ✓ into the bones ✓ replacing the organic ✓ part.

(Any 4)   (4)

2.4.4   It was thought to be extinct ✓ a long time ago but it was recently found ✓

Organism has not changed ✓ over a long ✓ period of time.

(Any 1 x 2)   (2)

[12]

2.5.1   a) Homo ✓✓
        b) sapiens ✓✓   (4)
2.5.2   Common names vary ✓ from place to place
        Scientific names/Latin names don't cause confusion as the name does not
        change ✓ from place to place   (2)
                                                                          [6]

3.1.1   a) Nitrate ✓
        b) Ammonia ✓   (2)

3.1.2   a) Nitrification ✓/Denitrification /Nitrogen fixation   (1)

3.1.3   Lightning ✓
        Nitrogen fixing bacteria ✓   (2)
                                                                          [5]

3.2.1. Combustion fumes from cars✓   (1)

3.2.2 Burning leaves✓

Changing pH of the soil   ✓   (2)

3.2.3 Reduce emissions✓

Use alternative energy sources✓

Decrease population growth✓

Change people's attitudes / Reduce wants to needs only✓ (any 2) (2)

[5]

3.3.1 Pangaea   (1)

3.3.2 X – (a) ✓

Y – (c) ✓   (2)

3.3.3 North America✓, Europe✓, Asia✓   (3)

3.3.4 Continental drift ✓Continental drift refers to the movement of continental

plates apart or together over a period of time. ✓   `   (2)

[8]

3.4.1 a) B ✓ - Fungi ✓
       b) E ✓ - Plantae ✓   (4)

3.4.2 a) Loxodonta ✓✓
       b) Animalia ✓   (3)

3.4.3 Common characteristics ✓ / features   (1)

3.4.4 Mammalia ✓ / mammals   (1)
[9]

3.5.1 Organisms/ plants that make their own food ✓ using the sun's energy ✓ /

photosynthesis.   (2)

3.5.2 Energy flow ✓ from one organism to the other.   (1)

3.5.3 Grass → Grasshopper → Bird → Foxes ✓✓   (2)

3.5.4 Grass ✓ /Lettuce/Grain   (1)

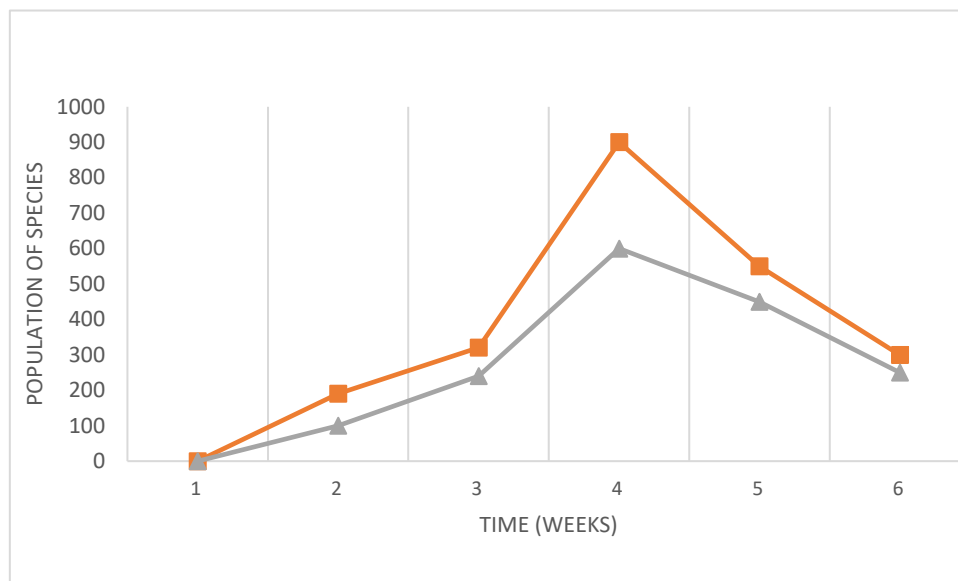3.5.5 Hawk ✓ and Owl ✓   (2)

3.5.6 a) the foxes will slightly decrease since they will now only depend

of rabbits for food. ✓

b) the rabbits will decrease since they will be the only source of

food for the foxes✓

[10]

3.6.1 **Line graph showing the estimated population size of species A and B over 8 weeks**

Criteria for Marking	Marks
Caption **(C)**	1
Correct type of graph **(T)**	1
Scale on X and Y axis **(S)**	1
Labelling + Units (X and Y axis) **(L)**	1
2 Graphs drawn on same set of axes **(G)**	2
Plotting **(P)**	1-2 points correct 1 Mark 1-5 points correct 2 Marks

(8)

3.6.2   a) Time ✓ / weeks

     b) Population size ✓   (2)

3.6.3 The species A numbers will increase ✓ because there will be no predators to kill ✓ them   (2)

3.6.4 Repeat the investigation ✓ OR

Increase the sample size ✓   (1)

[13]

TOTAL MARKS QUESTION 3: 50

Grand Total: 150 Marks