Downloaded from SEE academy: www.seeacademy.coza

education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

LIFE SCIENCES
MARKING GUIDELINES

JUNE 2024

MARKS: 150

These marking guidelines consist of 10 pages.

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

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 are 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 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 letter is asked for and only name is given (and vice versa**)
    Do not credit.

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

15. **If units are not given in measurements**
    Candidates will lose marks. Marking guideline 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 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 answer 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, who in turn will consult with the national internal moderator (and the Umalusi moderators where necessary).

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

SECTION A

QUESTION 1

1.1.1 B✓ ✓

1.1.2 D✓ ✓

1.1.3 C✓ ✓

1.1.4 B✓ ✓

1.1.5 C✓ ✓

1.1.6 C✓ ✓

1.1.7 C✓ ✓

1.1.8 A✓ ✓

1.1.9 B✓ ✓

1.1.10 C✓ ✓

(10 x

1.2.1 Vitamin A✓

1.2.2 Lysosomes✓

1.2.3 Haemoglobin✓

1.2.4 Peptide bond✓

1.2.5 Connective tissue✓

(5 x

1.3.1 A only✓ ✓

1.3.2 B only✓ ✓

1.3.3 A only✓ ✓

(3 x 2

1.4.1 B✓

(b) It has catalyzed the reaction without itself being changed during the reaction.✓

Enzyme-substrate complex✓

(d) Denatures✓
loses a specific shape and function✓
due to the hydrogen bonds being broken✓

(e) - Enzymes are proteins that control the speed of chemical

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

- reactions in the body.✓
- Used in making of fruit juices to break down cellulose✓ (1)
- used in making lactose free milk✓
- used in production of baby food✓

(f) **Lock and key theory**✓*

- Each enzyme has a specific/particular shape✓
- The substrate on which the enzyme works fit into enzyme✓
- An enzyme-substrate complex is formed✓
- A chemical reaction occurs and substrate is changed✓
- The enzyme and the product are then separated✓
- The enzyme is free to react with more of the substrate✓

(*Compulsory mark, then any four)

1.5.1 They contain enzymes✓

1.5.2 Approximately 37°c ✓

1.5.3 High temperature cause the enzymes to denature✓ /change shape and cannot function✓ effectively. (2

1.5.4 Less washing powder✓ ✓

1.5.5 It is the temperature at which enzymes function the best✓ ✓

(7

TOTAL SECTION A:

SECTION B

QUESTION 2

2.1.1 1 Centriole✓

2 Spindle fibre✓

3 Chromatid✓

2.1.2 Four / 4✓

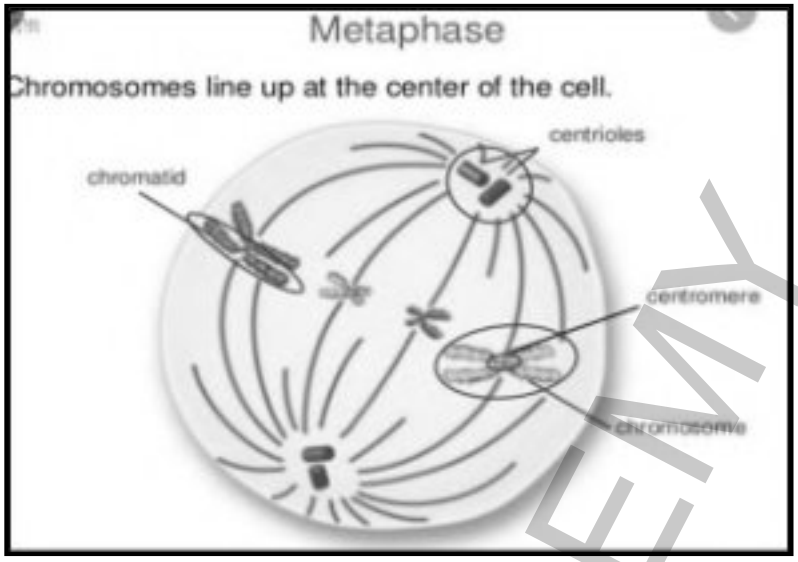
2.1.3 Four/ 4✓

2.1.4
- Growth/ increase in size of an organism✓
- Replacement of dead cells✓
- Responsible for asexual reproduction in certain plants and animals✓
- Repairs damaged tissue✓

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

2.1.5



1 mark for the correct representation of metaphase stage (4)
3 marks for any correct labels

(11

2.2.2 Is the type of cancer that affects the colon and rectum ✓

2.2.2 Refers to cells that are undifferentiated ✓ and are dividing in an uncontrolled manner ✓

2.2.3 Surgery ✓ ✓

2.3.1 Interphase ✓

Metaphase ✓

2.3.2 58- 47 ✓ ÷ 47 ✓ x 100 = 23,4 ✓

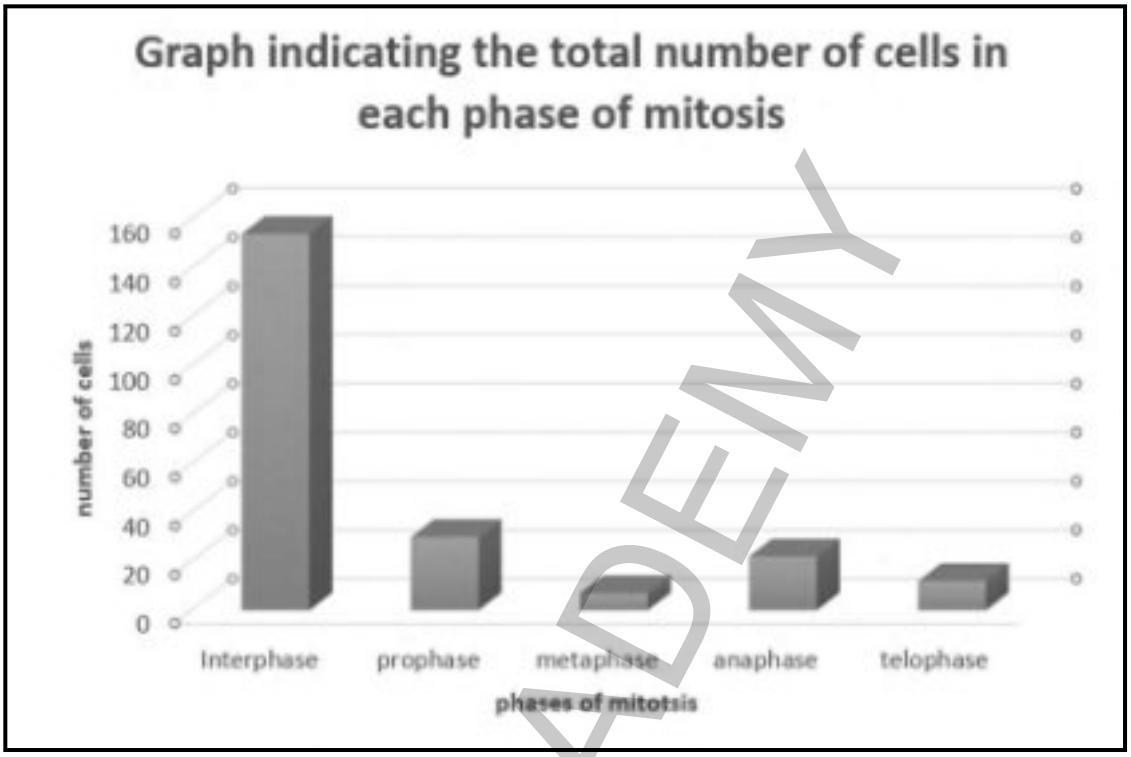
2.3.3
- The nuclear membrane disappears ✓
- Chromosomes are visible ✓
- Centrosome split into two centrioles ✓
- Centrioles move to opposite poles of the cell ✓
- Spindle fibers develops at the centrioles ✓

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

2.3.4



CRITERIA	MARK
Correct type of graph, bar graph (not histogram) (**T**)	1
Caption including both variables (**C**)	1
Labels for X and Y- axes including units (L)	1
Appropriate scale for X (width of bars and intervals) and Y-axes (**S**)	1
Plotting of points on the graph (**P**)	1: correctly plotted one to four points 2: correctly plotted all six points

NB: - if the wrong type of graph is drawn, marks will be lost for the correct type and plotting.
- If axes are transposed, marks will be lost for labelling and scale.

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

2.4.1 Animal cell✓

2.4.2 - Presence of cell membrane only✓
- Presence of centriole✓
- Invagination✓ / cleavage furrow appears
- No cell wall formed✓ / No cell plate formed

2.4.3 B✓

C✓

2.5.1 Tonoplast✓

2.5.2 - Gives turgidity✓ /rigidity/turgor pressure to the cell
- Maintains shape✓ / swollen appearance to the cell
- Storage of cell sap with water and salts✓
- Storage of pigment that give colour to petals of flowers✓
- Plays a part in water balance in cells✓ / osmosis

(Mark the first

2.6

Plant cell	Animal cell
Regular shape✓	Irregular shape✓
Both cell wall and cell membrane✓	Only cell membrane no cell wall✓
Large vacuole✓	Small or absent vacuole✓
No centrioles/ centrosome present✓	Centrioles present/ centrosome✓
No lysosome present✓	Lysosome present✓

Table 1 mark & any 3 x 2

2.7.1 Zhandalee✓

Vastheek✓

2.7.2 It contains haemoglobin✓ ✓

TOTAL QUESTION 2: [50]

QUESTION 3

3.1.1 Transpiration is the loss of water in the form of water vapour✓ from the aerial parts of a plant.✓

3.1.2 As temperature increases✓ , transpiration rate increases✓ when it reaches an optimal temperature✓ , transpiration rate stays the same✓ , the graph levels off.

3.1.3 - Humidity is very high✓ / lots of water vapour in the air

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

- Water potential gradient between inside of the leaf stomata and atmosphere is very low.✓
- Transpiration rate decreases✓ / greatly decreased to the minimal level. (2)

3.1.4 Stomata tend to close at night✓ ✓ **(8**

3.2.1 Sunlight✓

Amount of seed that germinated✓

3.2.2
- Amount of soil✓
- Size of pots✓
- Type of seeds (lettuce)✓ / Number of seeds
- Amount of water✓

3.2.3
- Repeat the experiment more than once✓
- Use more seeds✓ / increase sample size

3.3.1 1 Epidermal cells✓

4 Xylem✓

5 Pericycle✓

3.3.2
- Water enter root hairs by osmosis✓
- Osmosis is the movement of water molecules from the region of high water potential to the region of low water potential.✓
- in the soil there is a region of high water potential✓
- root hairs a region of lower water potential✓
- water moves through the semi-permeable membranes✓ of the cells
- then moves across the cortex✓ of the root
- via the endodermis✓ into the xylem tissue✓

3.3.3 The soil must have high water potential✓ ✓

3.3.4 Root pressure✓

Guttation✓

Capillarity✓

3.4.1 Bone tissue✓

Nerve tissue✓

3.4 .2 1 Dendrites✓

2 Axon✓

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

3.4.3 Goblet cells✓

3.4.4 F✓

D✓

3.4.5 They are attached to the bones to enable movement of the skeleton✓

3.5.1 Potometer ✓ (1

3.5.2 To prevent air from entering✓ ✓

3.5.3 To measure the rate of absorption ✓ which indicates the rate of transpiration✓

3.5.4 To move the air bubble back✓

3.5.5 Apparatus must be airtight✓
Only one factor must be changed in relation to the normal condition✓
Cut the leafy twig under water✓
Use a leafy twig from a growing plant✓
Leave entire apparatus for 30 minutes, for the plant to become adjusted to the factor been investigated✓

(8

3.6.1 P- Starch✓

Q- Glucose✓

R- Lipid test✓

3.6.2 Bright orange✓

Blueish black✓ / Purplish black/ Black

3.6.3

Brick red✓ colour

TOTAL QUESTION : [50]

TOTAL SECTION B: 100

GRAND TOTAL: 150

SEE ACADEMY

Copyright reserved