BERGVLIET HIGH SCHOOL

Grade 10 **LIFE SCIENCES NOVEMBER PAPER 1 EXAM** **15 Nov 2024**

Time: 2½ hours **150 Marks**

Examiner: Mrs. M. Brouwer

Moderators: S. Lambrechts, G. O'Connor and M. Wentworth

MEMO

1.1.1. B ✓✓
1.1.2. D ✓✓
1.1.3. C ✓✓
1.1.4. A ✓✓
1.1.5. A ✓✓
1.1.6. B ✓✓
1.1.7. C ✓✓
1.1.8. D ✓✓
1.1.9. B ✓✓
1.1.10. C ✓✓ /20/

1.2.1. Areolar connective✓
1.2.2. Chondrocytes ✓
1.2.3. Interphase ✓
1.2.4. Guard (cells) ✓
1.2.5. Smooth ✓
1.2.6. Axis ✓
1.2.7. Eutrophication ✓
1.2.8. Saturated ✓
1.2.9. Canaliculi ✓
1.2.10. Transpiration ✓/10/

1.3.1. B only ✓✓
1.3.2. A only ✓✓
1.3.3. B only ✓✓ /6/

1.4.1. A – Carbohydrates ✓ B – Protein ✓ C – Lipid/Fat ✓ (3)
1.4.2. X – peptide ✓ (1)
1.4.3. Amino acids ✓ (1)
1.4.4. a) A ✓ (1)
b) B ✓ (1)
c) C ✓ (1)
d) A ✓ (1)
e) B ✓ (1)
/10/

1.5.1. Organic ✓ (1)
1.5.2. X – RNA ✓ Y – DNA ✓ (2)
1.5.3. Nucleotide ✓ (1)
/4/

TOTAL SECTION A: [50]

2.1.1. Protein ✓ (**Mark the first ONE only**) (1)

2.1.2. Butter ✓ it contains the <u>most</u> vitamin A ✓ (2)

2.1.3. 2,8 + 0,6 + 0,15 = 3,55 ✓g x 5 ✓ = 17,75 ✓ g (3)

2.1.4. a) Vitamin B_1 ✓ (1)

b) Vitamin C ✓ (1)

c) Iron ✓ (1)

2.1.5. Bread contains the most carbohydrates ✓ which is a basic source of energy ✓ (2)

2.1.6. Vitamin C ✓ Vitamin B_1 ✓ (**Mark the first TWO only**) (2)

/13/

2.2.1. Plant ✓ (1)

2.2.2. Cell wall ✓/ <u>Large</u> vacuole ✓/ chloroplasts ✓ (**Mark the first TWO only**) (2)

2.2.3. Cellulose ✓ (1)

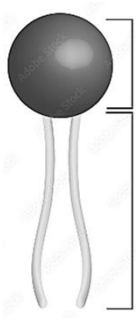
2.2.4. a) H ✓ (1)

b) I ✓ (1)

c) G ✓ (1)

2.2.5. <u>Phospholipid ✓ molecule</u>

ONE correctly drawn molecule ✓



Phosphate Head ✓

Fatty acid Tail ✓

(4)

/11/

2.3.1. Osmosis ✓ (1)

2.3.2. A membrane allowing certain substances ✓ to pass through ✓ (2)

2.3.3. The 'cell' will shrink ✓

because of the water moving out ✓

The water potential in the 'cell' is higher✓ than the water potential outside✓ the cell. (4)

2.3.4. Hyp**o**tonic ✓ (1)

/8/

2.4.1. Metaphase ✓ (1)

2.4.2. The chromosomes are aligned on the equator ✓ (1)

2.4.3. A – Chromosome ✓

B – Centromere ✓

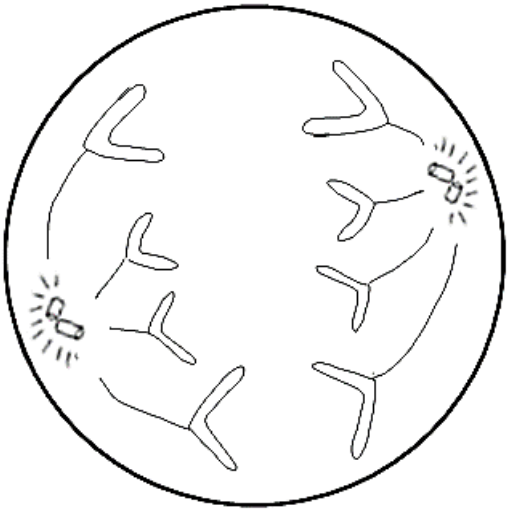
C – Centriole ✓

D – Spindle fibre ✓ (4)

2.4.4. Growth ✓ / Repair ✓ / <u>Asexual</u> reproduction ✓ (**Mark the first TWO only**) (2)

2.4.5. .

<u>Anaphase ✓</u>



Correct phase – chromosomes being separated ✓

Correct number of chromosomes ✓

Drawing rules applied ✓

(4)

2.4.6. 4 ✓ (1)

/13/

2.5.1. Uncontrolled cell division ✓ (1)

2.5.2. Not eating healthy ✓ smoking/pollution/sun ✓ stress ✓ (**Mark the first TWO only**) (2)

2.5.3. Hair loss ✓ Nausea ✓ (2)

/5/

[50]

3.1.1. X – Cuboidal epithelium ✓
Y – Squamous epithelium ✓
Z – Columnar epithelium ✓ (3)

3.1.2. Secretion ✓
Absorption ✓ (**Mark the first TWO only**) (2)

3.1.3. a) Y ✓
b) X ✓
c) Z ✓ (3)

3.1.4. Goblet cells ✓ - secrete mucus ✓ (2)

/10/

3.2.1. Stem ✓ (1)

3.2.2. Vascular bundle present ✓ / collenchyma beneath epidermis ✓ /
sclerenchyma cap ✓ (**Mark the first ONE only**) (1)

3.2.3. H ✓ (1)

3.2.4. D – parenchyma ✓
G – phloem ✓ (2)

3.2.5. ✓ for table

(collenchyma)	**(Sclerenchyma)**
Cell walls thickened unevenly ✓	Cell walls thickened evenly ✓
Thickened with cellulose ✓	Thickened with Lignin ✓
Cells are living / no lumen✓	Cells are dead /and hollow (lumen) ✓

(**Mark the first TWO only**) (5)

/10/

3.3.1. Potometer ✓ (1)

3.3.2. The speed of movement of the air bubble will be greatly reduced. ✓ Vaseline prevents transpiration at the ventral surfaces ✓ by blocking the stomata. ✓ (3)

3.3.3. As the temperature increases the transpiration rate will increase ✓✓

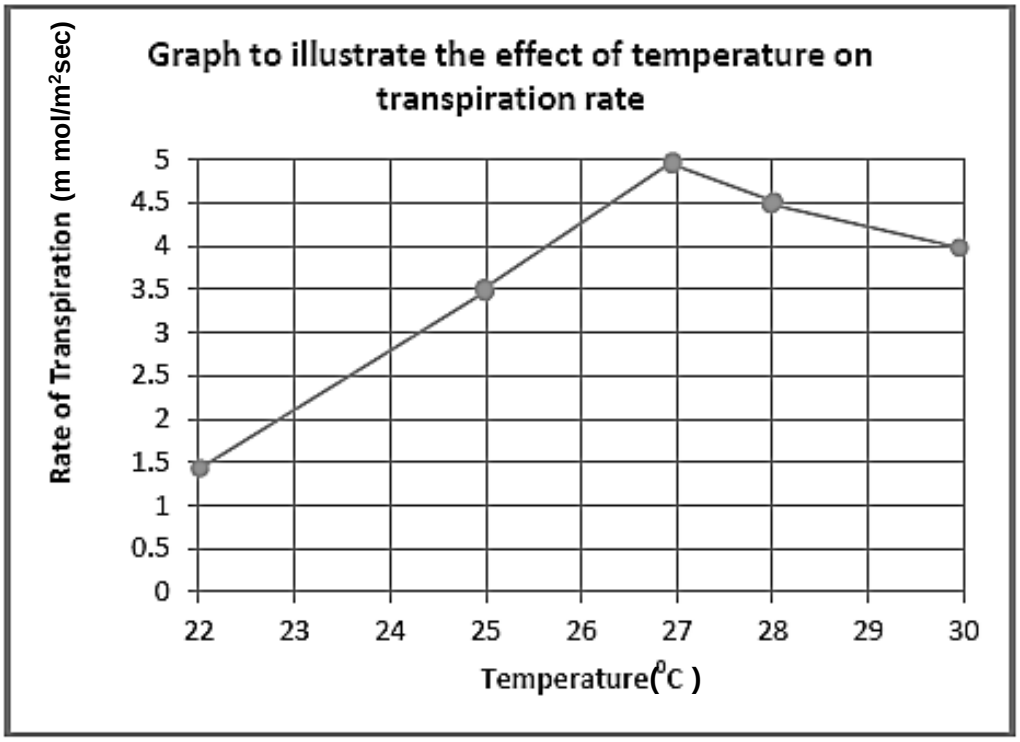
OR (**all or nothing**)

As the temperature increases the transpiration rate will decrease ✓✓ (2)

3.3.4. a) temperature ✓

b) transpiration rate ✓ (2)

3.3.5.



Rubric: graph

Type of graph (Line graph)	**T**	1 ✓
Heading for graph (both variables)	**H**	1 ✓
Correct scale X-axis and Y-axis	**S**	1 ✓
Correct label X and Y-axis (units)	**L**	1 ✓
Plotting of values	**P**	2 ✓✓

(6)

3.3.6. As the temperature increases the rate of transpiration increases ✓ to an optimum temperature

The transpiration rate then starts to decrease. ✓ (2)

/16/

3.4.1. A ✓ B ✓ (**mark the first TWO only**) (2)

3.4.2. B – Scapula ✓

D – Ulna ✓

G – Metacarpal ✓ (3)

3.4.3. X – Ball and socket ✓ allows movement in all directions ✓

Y – Hinge ✓ allows movement in one plane only ✓ (4)

3.4.4. The synovial membrane ✓ secretes synovial fluid ✓ which together with (hyaline) cartilage ✓ (reduces friction between bones.) (3)

3.4.5. Support structure for the body ✓
Storage of minerals ✓
Movement
Protection of organs
Produces blood cells
Hearing (**mark the first TWO only**) (2)

/14/
[50]
TOTAL SECTION B: [100]
GRAND TOTAL: 150 MARKS