GRADE 10 ASSIGNMENT MEMORANDUM

MARKS: 100

TIME: 1.5 H

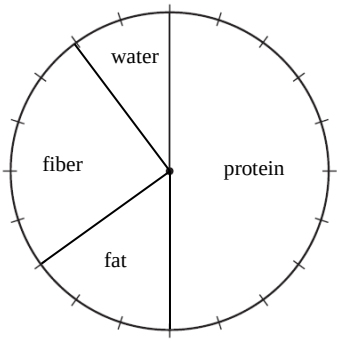
QUESTION 1: BIOLOGICAL MOLECULES

1.1.1. Washing powder/soap that contains enzymes✓
Enzymes break down the stains/cleans the washing ✓ (2)

1.1.2. biological washing powder✓ (1)

1.1.3. 100 °C ✓ temperature for both types of washing powders (1)

2.1.2. *Die nutrient composition of a vegetarian burger* ✓



(6)

Total composition = 50 + 15 + 25 + 10 = 100
Proteins = 50/100 x 360 = 180°
Fats = 15/100 x 360 = 54°
Fibre = 25/100 x 360 = 90°
Water = 10/100 x 360 = 36°

Type of graph correct (T)	**1**
Heading correct (H)	**1**
Proportion of sectors (print on transparency paper) (P)	**1 – 1 to 2 sectors correct** **2 – All sectors correct**
Name of sectors indicated / Key provided (K)	**1**
Calculations correct (C)	**1**

1.2.2. The vegetarian burger weighs 50 grams. 50% protein is present in the vegetarian burger
Therefore: 50 x 0.50✓ = 25✓ grams (2)

1.2.3. Fat in vegetarian burger is 15%
Fat in beef burger is 35%
Fat of beefburger : Fat of vegetarian burger
15 : 35
1✓: 2✓ (2)

1.2.4. Cabihydrates OR Vitamins ✓ (1)

1.3.1.  ✓✓ (learner may use a stripe (**–**) to indicate the bonds) (2)

1.3.2.  ✓✓ (2)

1.4.1. foam controlling substances ✓ (1)

1.4.2. To produce a pleasant scent / Clothes smell fresh and clean ✓ (1)

1.4.3. Because their functioning is very strong/powerful/effective ✓ (1)

1.4.4. Protease ✓, lipase ✓, amylase ✓ (3)

QUESTION 1: [25]

<u>QUESTION 2: THE CELL</u>

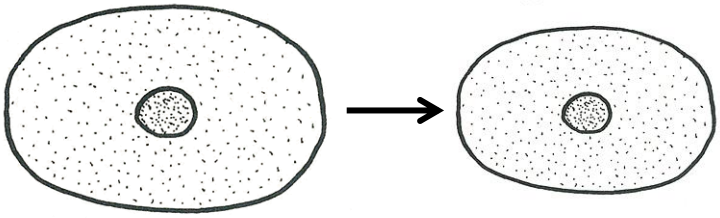
2.1.1.

a) From B✓ → C ✓ / Further into the cell, away from the cell membrane (***Important: a learner cannot just say "away from the cell membrane" without specifying towards the inside or outside of the cell)*** / Closer to C / Closer to 6 at C ✓✓ (2)

b) From B ✓ → A ✓ / Out of the cell / Away from the cell membrane towards the outside / Closer to A / Closer to 6 at A (2)

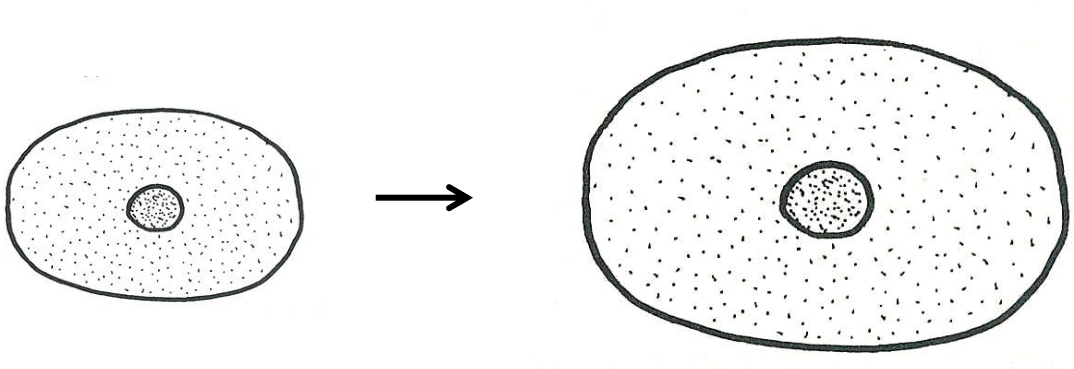
2.1.2. The molecule moves through active transport✓ against a concentration gradient✓(2)

2.2.1. <u>A higher salt concentration (↓ψ) compared to its own cytoplasm (↑ψ)</u>



(a lot smaller than the original) ✓✓ (2)

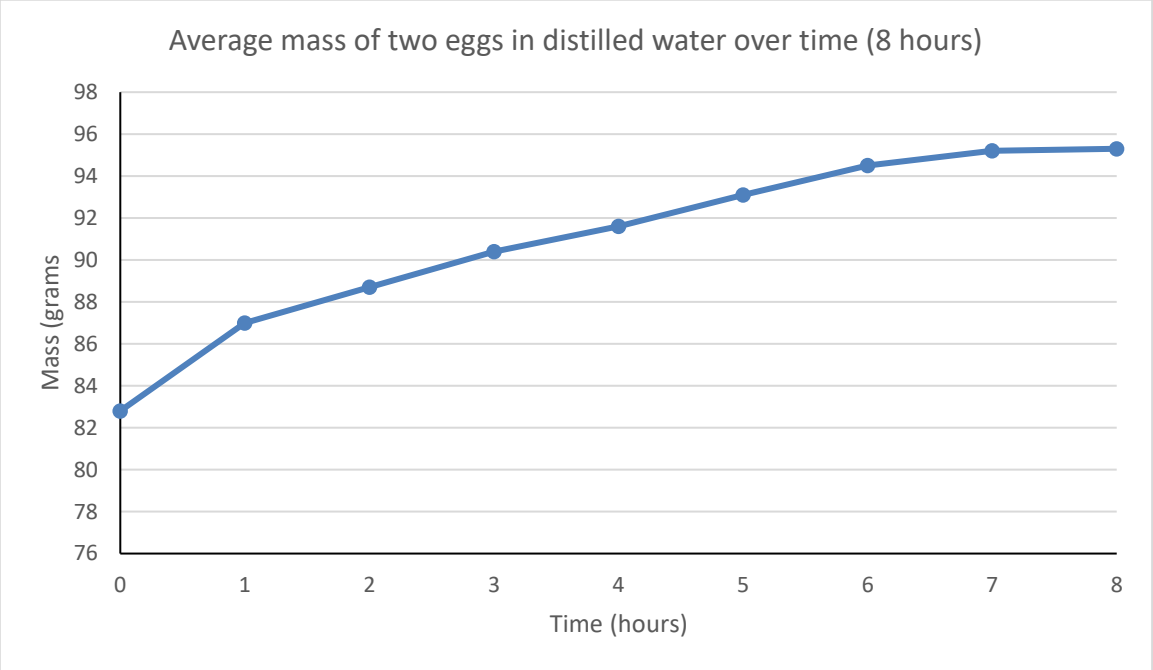
2.2.2. <u>A lower salt concentration (↑ψ) compared to its own cytoplasm (↓ψ)</u>



(much larger than original) ✓✓ (2)

2.3.1. (a) 87.0
(b) 88.7
(c) 90.4
(d) 91.6
(e) 93.1
(f) 94.5 ✓
(g) 95.2 ✓
(h) 95.3 ✓
(check that all averages are correct. Max 3 marks.)

2.3.2.



Type of graph correct (T)	**1**
Heading correct with both variables (H)	**2**
Plotted points (P)	**1 – 3 – 4 points correct** **2 – All points correct**
X-axis name and unit (X)	**1**
X-axis intervals even (Xi)	**1**
Y-axis name and unit (Y)	**1**
Y-axis intervals even (Yi)	**1**
Average values plotted (A)	**1**

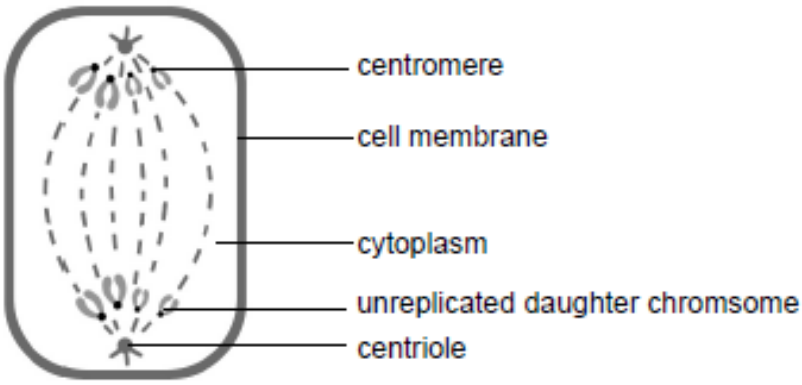
(10)

2.3.3. (a) 0 – 1 hour / during first hour (1)
(b) 7 – 8 hour / during last hour (1)

QUESTION 2: [25]

QUESTION 3: MITOSIS AND PLANT ORGANS

3.1. **ANAPHASE**



Compulsory marks:

- chromatids/unreplicated daughter chromosomes ✓
- pulled to opposite poles ✓
- 6 chromatids/unreplicated daughter chromosomes at each pole✓

Any TWO other marks for correct labels✓✓ (5)

3.2.

All adaptations must have a characteristic (✓) + explanation of its importance (✓)

- Large surface area – fast diffusion of gases
- Transparent cuticle and epidermis – allows sunlight onto the mesophyll
- Many chloroplasts in mesophyll – allows for maximal photosynthesis
- Parenchyma / Palisade mesophyll – cells are tightly packed to fit in as many chloroplasts for maximal sunlight
- Spongy mesophyll – loosely packed with large intercellular air spaces for gaseous exchange
- Moist exchange surface – allows for fast gaseous exchange in the spongy mesophyll
- Stomata help to regulate carbon dioxide, water vapour and oxygen concentrations
- Guard cells of stomata contain chloroplasts – can photosynthesise
- Xylem transports water to the cells in the leaf
- Phloem transports nutrients / dissolved sugars (Min 8 / Max 12)

(Mark the first 6 + 6 = 12 max marks)

Stomatal mechanism **during the day**

- Photosynthesis occurs during the day ✓
- Glucose is produced and accumulates in the guard cells ✓
- Water potential in the guard cells is lower than the surrounding epidermal cells ✓
- Water moves into the guard cells through osmosis ✓
- Guard cells expand unevenly (bean shaped) ✓
- Stomatal pore is pulled open ✓
- Water diffuses in and out of the leaf ✓ (Min 3 / Max 5)

(Mark first 5 facts)

Synthesis:
R – relevant information given only – no irrelevant information
L – Logical sequence of events
C / B – All aspects discussed in a way that shows the learner understood the work / Min 8 out of 12 and 3 out of 5

Total = (20)

QUESTION 3: [25]

QUESTION 4: ANIMAL SUPPORT SYSTEMS

4.1.

Type of joint	*Location*	*Movement*
(a) Ball-and-socket	Shoulder	All directions
(b) Hinge	Ankle	In one plane, e.g. up and down
(c) Hinge	Knee	In one plane, e.g. up and down
(d) Ball-and-socket	Hip	All directions
(e) Partially moveable	Vertebral column	Minimal movement
(f) Gliding joint	Wrist	Bones glide over each other

(18)

4.2.

a) Scapula ✓
b) tibia ✓
c) humerus ✓
d) clavicle ✓
e) sternum ✓
f) femur ✓
g) pelvis ✓

(7)

QUESTION 4: [25]
SUM TOTAL: [100]