SECTION A

QUESTION 1

1.1.1 D ✓✓ (2)

1.1.2 C (2)

1.1.3 C (2)

1.1.4 B (2)

1.1.5 A (2)

1.1.6 A (2)

1.1.7 C (2)

1.1.8 D (2)

1.1.9 A (2)

1.1.10 B (2)

(20)

1.2 1.2.1 Ribosome ✓

1.2.2 Kwashiorkor

1.2.3 Antagonistic

1.2.4 Hydrostatic

1.2.5 Foramen magnum

1.2.6 Interphase

1.2.7 Diffusion

1.2.8 Potometer

(8 x 1 = 8)

1.3 1.3.1 BOTH ✓✓

1.3.2 B ONLY

1.3.3 NONE

1.3.4 A ONLY

(4 × 2 = 8)

1.4 1.4.1 Iodine <u>solution</u> ✓

1.4.2 Biuret solution / NaOH + $CuSO_4$ ✓

1.4.3 Purple / lilac ✓

1.4.4 Lipids ✓

1.4.5 Translucent spot ✓

1.4.6 Simple/reducing sugars ✓

1.4.7 Benedict's solution ✓

(7)

1.5	1.5.1	Pelvis / pelvic girdle ✓	(1)
	1.5.2	Appendicular ✓	(1)
	1.5.3	a) (Osteo)arthritis ✓ b) Osteoporosis ✓	(2)
	1.5.4	Bone is heavy – movement is energy intensive ✓ More vulnerable to desiccation/hot and cold compared to animals with exoskeletons ✓	(2)
	1.5.5	It needs to be wider in females to allow for childbirth ✓	(1)
			(7)

TOTAL SECTION A: [50]

SECTION B

QUESTION 2

2.1 2.1.1 Metaphase ✓ (1)

2.1.2 Chromosomes are lined up at the equator ✓ (1)

2.1.3 A Spindle fibre ✓ (3)
B chromatid ✓
C Centriole ✓

2.1.4 Caption/heading ✓ (5)
Correct diagram ✓
Any two labels ✓✓
Drawing rules ✓

2.1.5 2 ✓ (1)

2.1.6 Cancer ✓ (1)

2.1.7 Growth ✓
Asexual reproduction ✓
Replace/repair worn out/damaged tissues ✓ **(any TWO)** (2)

2.1.8 In animal cells, the cytoplasm divides via invagination ✓, while in plant cells a cell plate forms ✓ (2)

(16)

2.2 2.2.1 Protein ✓molecules that act as catalysts ✓ in metabolic reactions. (2)

2.2.2 a) Temperature ✓
b) The rate of enzyme action ✓ (2)

2.2.3 a) No bubbles will be visible ✓

b) Bubbles will be visible ✓ (2)

2.2.4 The water bath temperature was too high ✓ and so the enzyme denatured ✓ and the reaction could not take place ✓ (3)

2.2.5 - same amount of chicken liver ✓

- same amount of hydrogen peroxide ✓

- same pH (2)

2.2.6 The experiment could be repeated ✓ (1)

(12)

2.3 2.3.1 Organelle 1: mitochondrion ✓

Organelle 2: chloroplast ✓ (2)

2.3.2 Organelle 1: both ✓

Organelle 2: Plant only ✓ (2)

2.3.3 Caption ✓
Correct drawing ✓
TWO labels ✓ ✓
Drawing rules ✓ (5)

2.3.4 Glucose ✓ (1)

2.3.5 Muscle cell ✓
The cells are more active ✓ (2)

(11)

2.4 2.4.1 Osmosis ✓ (1)

2.4.2 The water potential in the soil would become higher than the water potential in the cell ✓. This would cause water to be drawn out of the root. ✓ The plant cannot photosynthesise ✓ and will die. (3)

2.4.3 C ✓ (1)

2.4.4 Epidermal ✓ (1)

2.4.5 Casparian strip ✓ (1)

2.4.6 Apoplast ✓ route (1)

2.4.7 Transpiration pull ✓
Root pressure ✓
Capillarity ✓ (3)

(11)

[50]

QUESTION 3

3.1 3.1.1 Stem ✓ (1)

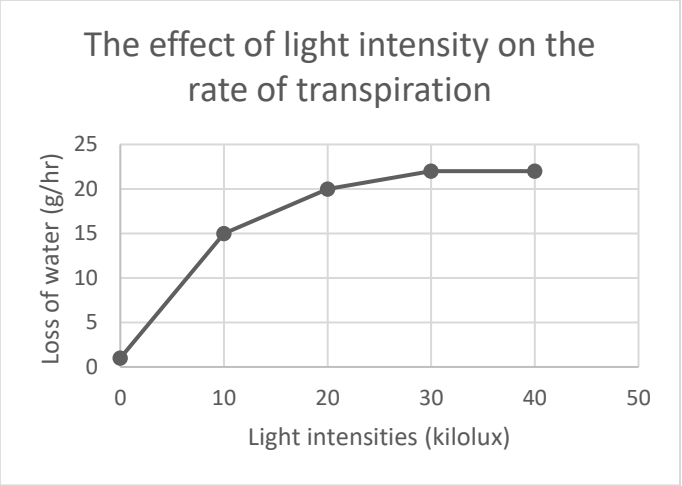
3.1.2 Xylem and phloem are arranged in vascular bundles ✓ (1)

3.1.3 a) Collenchyma ✓
b) Schlerenchyma ✓
c) Phloem ✓ (3)

3.1.4 A, B and C ✓✓ (2)

(7)

3.2 3.2.1



Caption (C)	✓
X & Y axis correct	✓
Scale	✓
Plotting (P)	✓ 1-4 ✓✓ all 5

(6)

3.2.2 High light intensity causes the stomato to open wider ✓ allowing for more water to be lost ✓ (2)

3.2.3 The vacuoles of the guard cell swell up ✓ causing the stomatal pore to open ✓ due to evenly thickened walls ✓ (3)

3.2.4 The movement of air removes accumulated water vapour outside the leaf ✓, causing the diffusion gradient to become steeper ✓ and the transpiration rate to increase. ✓

3.2.5 ANY ONE OF:

Sunken stomata ✓ cause water vapour to collect ✓outside causing the diffusion gradient to become less steep ✓

Stomata close ✓ during the hottest part of the day ✓ to prevent water exiting the leaf ✓

(3)
(17)

3.3 3.3.1 a) Areolar ✓
b) Bone ✓
c) Blood ✓ (3)

3.3.2 a) Yellow elastic fibres ✓
b) White collagen fibres ✓
c) Haversian canal ✓
d) Chondrocyte ✓ (4)

3.3.3 4: Platelet ✓ Blood clotting ✓
5: White blood cell/leukocyte ✓ immune response ✓ (2)

3.3.4 Fibrous cartilage ✓ intervertebral discs ✓
Elastic cartilage ✓ epiglottis / pinnae of ear ✓ (4)

(15)

3.4 3.4.1 The meeting place between bones ✓ (1)

3.4.2 Y: Tendon ✓
Z: Ligament ✓

3.4 3.4.1

PART Y	**PART Z**
Connects muscle to bone	Connects bone to bone
Inelastic	Elastic
Transmit contraction and relaxation of muscle directly to bone	Stabilise joints

✓✓✓✓Any two correct differences
✓ Table (5)

3.4.2 Synovial fluid ✓ Prevents bone from rubbing together/friction ✓ (2)

3.4.3 Irregular ✓ (1)

(11)

[50]