Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B1 Cell Biology

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Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.

(a) *microscope:*

electron (microscope)

and

reason:

(has a) high resolution / magnification

1

(b) any **three** from:
(prokaryotic cell):

allow converse for eukaryotic cell if clearly stated

- does not have a nucleus
  or DNA is free in the cytoplasm
  or genetic material is free in cytoplasm
  ignore genetic information

- does not have mitochondria
  if no other mark awarded, allow prokaryotic cell has no membrane-bound organelles

- has a single loop of DNA
  or has a single strand of DNA
  ignore genetic information

- (has) plasmids
  allow (small) rings of DNA

- (is) smaller
  allow bacteria have smaller ribosomes

3

(c) *measurement of cell*
36 (mm)

allow correct calculations in cm or mm
allow in the range of 35 to 37 (mm)
allow in the range 3.5 to 3.7 (cm)

1

conversion

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36 × 1000 = 36 000 (µm)

1

real size of cell
(30 × 1.5) = 45 (µm)

1

substitution

$$\text{magnification} = \frac{36\,000}{45}$$

1

800

*do **not** accept if unit given*
*if no other mark awarded allow **1** mark for:*

$$\text{magnification} = \frac{\text{image size}}{\text{real size}}$$

or correct rearrangement

1

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Q2.

(a) A

1

(b) has (large) air spaces (between cells)

allow has (large) gaps (between cells)

1

(so) gases can diffuse / move through the leaf

*allow carbon dioxide **or** oxygen **or** water vapour for gases*

1

to / from the photosynthetic / palisade / B layer

allow to / from the upper mesophyll

if named gas given for mp 2 direction of movement must be correct

1

*if no other marks awarded allow **1** mark for cells have chloroplasts for photosynthesis*

(c) composed of hollow tubes / cells

allow cells are empty

allow no cytoplasm / nucleus / sub-cellular structures

1

(so) no obstruction to water flow

allow (so) water flows easily if linked to hollow tubes

allow to maintain the transpiration stream

OR

has lignin (1)

ignore has thick walls

(to) hold tubes open (1)
or
(to) strengthen the tubes

allow (to) keep water inside xylem

allow (to) make tubes rigid

OR

no end walls (1)

(so) water flows easily (1)
or
(so) water flows continuously

must be linked to an adaptation

allow (so) maintains a constant water flow

allow to maintain the transpiration stream

1

reason must correctly match the structure

(d) <u>water</u> enters (guard) cells by osmosis

allow <u>water</u> enters (guard) cells because the concentration of water is higher outside the cell than inside the cell

1

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cells swell and curve (to open the stoma)

allow cells become turgid and curve (to open the stoma)

*allow inner wall of (guard) cell is thicker / stronger **or** less flexible than outer wall so cells curve (to open stoma)*

1

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