**Y10 Cells Booklet Mark Schemes**

Lesson 1

**Q1.**

(a)     (i)      **C** and **D**

*no mark if more than one box is ticked*

**1**

(ii)     any **one** from:

*do* ***not*** *allow if other cell parts are given in a list*

•        (have) cell wall(s)

•        (have) vacuole(s)

**1**

**Q2.**

(a)      (i)     (cell) membrane

**1**

(ii)     vacuole

**1**

(b)     any **two** from:

•    (cell) wall

•    chloroplast(s)

*ignore chlorophyll*

•    vacuole

*ignore cell sap*

**2**

**Q3.**



***1*** *mark for each correct line*

*mark each line from left hand box*

*two lines from left hand box cancels mark for that box*

**3**

**Q4.**

(a)     **A**       nucleus

**1**

**B**       (cell) membrane

**1**

**C** cytoplasm

**1**

**Q5.**

(a)     **A** nucleus

**1**

          **B** (cell) membrane

**1**

          **C** cytoplasm

**1**

**Medium**

**Q1.**

A – (cell) membrane

**1**

B – cytoplasm

**1**

C – nucleus

**1**

*must be in correct order*

*accept phonetic spelling – see marking guidance 3.6*

**[3]**

**Q2.**

(a)     (i)      the three features correctly labelled on
cheek cell (which are referred to in
part (ii)

*label lines should touch or end very close to part no marks if leaf cell labelled*

nucleus

cytoplasm

cell membrane

mitochondrion

*accept mitochondria or one of these could be labelled vacuole*

**3**

(ii)     any **three** from

**feature                 function**

         nucleus                  controls cell

*accept contains genetic material* ***or*** *genes* ***or*** *chromosomes* ***or*** *stores information
do not credit the brain of the cell*

         cytoplasm              where respiration
occurs

*accept contains food* ***or*** *mitochondria*

**or** reactions occurs

         membrane             less water **or**chemicals

*accept surrounds the cell or lets some things in but not others*

*do not credit keeps things out* ***or*** *protection*

                             in and **or** out

         mitochondria          where energy released

*ecf from leaf cell labelling
accept chloroplasts make sugar* ***or*** *glucose
accept vacuole contains sap
accept if cell wall mis labelled on cheek cell, support* ***or*** *hold together*

**3**

**Q3.**

(a)     (cell) wall
(cell) membrane
cytoplasm
vacuole

*for 1 mark each*

**4**

**Q4.**

(a)     (i)



*award 1 mark for any of the mitochondria correctly labelled if a number are labelled and one is incorrect award 0 marks*

**1**

(ii)     respiration **or** the release **or** transfer
of energy **or** it contains the enzymes
for respiration

*do* ***not*** *accept energy produced*

**1**

**Q5.**

      (i)      one mark for each correctly labelled part

*cell wall
do* ***not*** *accept anything inboard of the inner edge vacuole
accept anything inboard of transplant*

         chloroplast: site of photosynthesis/ for photosynthesis

*accept word equation* ***or*** *balanced equation*

**1**

         cell wall: supports the cell/keeps the shape/keepsit rigid

*do* ***not*** *accept protects the cells*

**2**

(ii)     vacuole: acts as reservoir for water / chemicals/(cell)/sap

**3**

         **or**keeps cell turgid/pushes content to
edge
**or**maintains concentration gradient
**or**allows cell elongation (not growth)

**1**

**[12]**

**Lesson 2**

**Q1.**

(a)     **D**

**1**

any **one** from:

•        has chloroplasts

•        has a (large) vacuole

*ignore has a (cell) wall*

**1**

(b)     **B**

**1**

does **not** have a (cell) wall

*allow has only a nucleus, (cell) membrane* ***and*** *cytoplasm*

**1**

(c)     **C**

**1**

any **one** from:

•        genetic material is not in a nucleus

*allow no nucleus*

•        has a single loop of DNA

**1**

**Q2.**

(a)     any **one** from (bacterial cell):

•        has a cell wall

•        has plasmids

*allow converse*

•        has a single DNA loop

•        has no nucleus

•        is much smaller

**1**

**Q3.**

(a)     any **two** from:

•        only one ‘chromosome’

*allow one strand of DNA*

•        circular

*allow loop*

•        may have plasmids

•        not in a nucleus / no nucleus

**2**

**Q4.**

(a)     (i)      A = (cell) wall

*ignore cellulose*

**1**

B = cytoplasm

**1**

(ii)     any **one** from:

*accept has DNA instead of a nucleus, but not just has DNA*

•        bacterial cell / it has no nucleus

*allow no mitochondria*

•        DNA free in cytoplasm

*ignore size*

•        has no vacuole / no vesicles

*ignore strands of DNA*

**1**

**Q5.**

(a)     (i)      **A** − (cell) wall

**1**

**B** − cytoplasm

**1**

**C** − plasmid

**1**

(ii)     bacterium cell has cell wall / no nucleus / no mitochondria / plasmids present

*accept its DNA / genetic material is not enclosed / it has no nuclear membrane*

*it = bacterium cell*

*accept converse for animal cell*

*ignore flagella*

**1**

(iii)    any **one** from:

•        chloroplast

*ignore chlorophyll*

•        (permanent) vacuole

**Lesson 3**



**Q1.**  conversion of units:

(112 mm ⟶) 112 000 (µm)

**or**

(280 µm ⟶) 0.28 (mm)

**1**

****

**or**

****

*allow* ***1*** *mark for no conversion of units 112 / 280*

***or***

*incorrect value from step 1 correctly substituted*

**1**

400 (×)

*do* ***not*** *accept if units are given*

*if no other mark scored allow* ***1*** *mark for:*

**

*a triangle with words or letters in is insufficient, as the correct rearrangement is needed*

**1**

*an answer of 400 (×) scores* ***3*** *marks*

**Q2.**

 (b)     400

*acceptable range 390-410*

*allow 1 mark for answer in range of 39 to 41*

*allow 1 mark for answer in range of 3900 to 4100*

**2**

**Q3.**

 (ii)      0.5

*gains 2 marks
(5/100 × 10 or ½ /1 gains 1 mark if 0.5 not given)*

**2**

**Q4.**

(a)     

= 29 ÷ 0.03

**1**

= 967

**1**

*allow 967 with no working shown for* ***2*** *marks*

**Q5.**

 (d)     real size = 25 / 100 000

**1**

0.00025

**1**

(conversion to) 0.25 (µm)

*allow 0.25 (µm) with no working shown for* ***3*** *marks*

**1**

**Lesson 4**

**Q1.**  too small / very small

*allow light microscope does not have sufficient magnification / resolution*

*allow ribosomes are smaller than mitochondria*

*ignore not sensitive enough*

*ignore ribosomes are transparent*

**1**

**Q2.**

 (a)     ×4

**1**

reason: any **one** from:

•        gives the largest field of view

•        easier to focus

**1**

(b)     eyepiece lens: ×10

**and**

objective lens: ×40

**or**

eyepiece lens: ×5

**and**

objective lens: ×80

*allow sensible suggestions that give a magnification of ×400*

**1**

(c)     real width = 

**1**

0.031 (mm)

*an answer of 0.031 (mm) scores* ***2*** *marks*

*allow ecf from part (f)*

**1**

**Q3.**

(a)     electron (microscope)

**1**

(b)    

*an answer of 150 (μm) scores* ***2*** *marks*

**1**

150 (μm)

*if answer is incorrect allow for* ***1*** *mark sight of 0.015 / 0.15 / 1.5 / 15*

*allow ecf for incorrect measurement of line* ***X*** *for max* ***1*** *mark*

**1**

**Q4.**

 (a)  turn the (fine focusing) knob until the cells are in focus

*allow focus it*

*do* ***not*** *accept increase magnification*

*ignore decrease magnification*

*ignore clear*

*ignore references to resolution / illumination*

*ignore zoom in / out*

**1**

(b)  (rotate the) nosepiece / objective lens

*allow change the (objective / eyepiece) lens*

**1**

to a higher power (lens)

*allow (to) increase the magnification*

*a comparator is required*

*ignore change / adjust the magnification*

*allow stronger or more powerful lens*

*ignore references to resolution / illumination unqualified*

*ignore zoom in / out*

*ignore references to an electron microscope*

**1**