AQA GCSE Biology | 8461

SPECIFICATION POINT 4.2.1

Principles of organisation

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**6**
Available paper years	**2009–2023**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

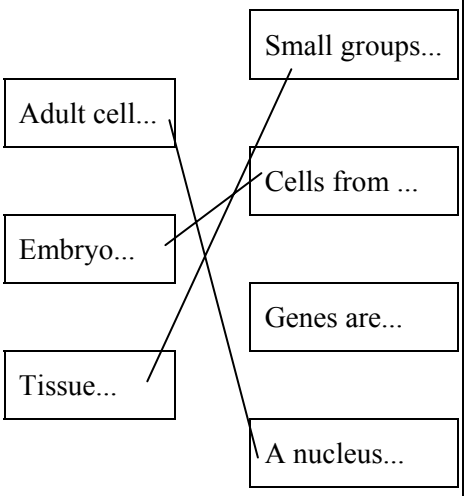
Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.2.1 Principles of organisation

Answer 01 · Mark scheme

June 2009 | BLY1F | Original Q4 | Legacy

Question 4

question	answers	extra information	mark
4(a)	killed by poachers / killed for tusks less trees / leaves to eat land available disappearing	 ignore feed on lots of leaves 	1 1 1
4(b)		all three correct = **3** marks two correct = **2** marks one correct = **1** mark extra line from a statement cancels the mark	max 3
Total			**6**

4.2.1 Principles of organisation

Answer 01 · Mark scheme

June 2009 | BLY1F | Original Q4 | Legacy

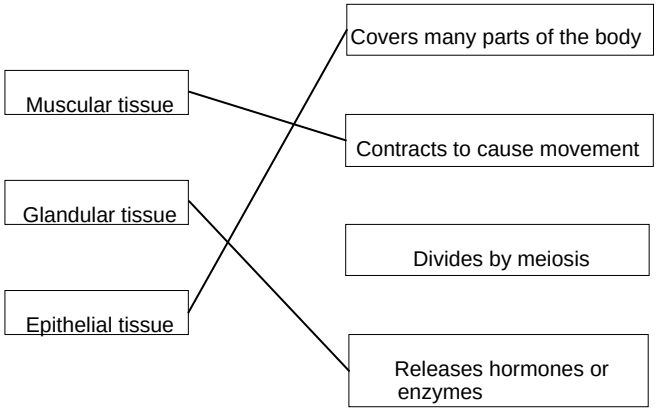
BLY1F

4.2.1 Principles of organisation

Answer 02 · Mark scheme

June 2012 | BL2FP | Original Q2 | Legacy

Question 2

question	answers	extra information	mark
2(a)	in sequence: 2 = tissue(s) 3 = organ(s) 4 = system(s)		1
2(b)		**1** mark for each correct line extra line(s) from one tissue cancel	3
Total			**4**

4.2.1 Principles of organisation

Answer 02 · Mark scheme

June 2012 | BL2FP | Original Q2 | Legacy

BL2FP

4.2.1 Principles of organisation

Answer 03 · Mark scheme

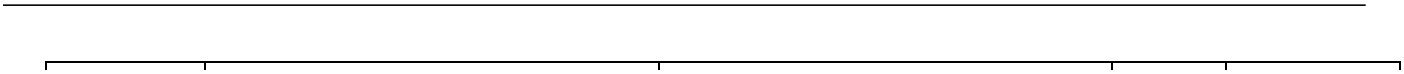
June 2015 | BL2FP | Original Q3 | Legacy

<table>
<tr><th>Question</th><th>Answers</th><th>Extra information</th><th>Mark</th><th>AO / Spec. Ref.</th></tr>
<tr><td>3(a)</td><td>
<table>
<tr><th>Structure</th><th>Organ</th><th>Organ system</th><th>Tissue</th></tr>
<tr><td>Stomach</td><td>✓</td><td></td><td></td></tr>
<tr><td>Cells lining the stomach</td><td></td><td></td><td>✓</td></tr>
<tr><td>Mouth, oesophagus, stomach, liver, pancreas, small and large intestine</td><td></td><td>✓</td><td></td></tr>
</table>
all 3 correct = 2 marks
2 correct = 1 mark
1 or 0 correct = 0 marks
</td><td></td><td>2</td><td>AO1
2.2, 2.2.1a,b,c, d</td></tr>
<tr><td>3(b)(i)</td><td>diffusion</td><td>allow phonetic spelling</td><td>1</td><td>AO1
2.1.2a,b,c</td></tr>
<tr><td>3(b)(ii)</td><td>glucose</td><td></td><td>1</td><td>AO1
2.6.1b</td></tr>
<tr><td>3(b)(iii)</td><td>mitochondria</td><td></td><td>1</td><td>AO1
2.6.1b,d</td></tr>
<tr><td>Total</td><td></td><td></td><td>5</td><td></td></tr>
</table>

4.2.1 Principles of organisation

Answer 03 · Mark scheme

June 2015 | BL2FP | Original Q3 | Legacy



4.2.1 Principles of organisation

Answer 04 · Mark scheme June 2016 | BL3FP | Original Q7 | Legacy

Question	Answers	Extra information	Mark	AO / Spec. Ref.
7(a)	diffusion active transport	this order only	1 1	AO2 3.1.1a/g
7(b)(i)	concentration (of sugar) in the bag was higher (than in the drink) **or** higher concentration of water outside the bag **or** in the drink / boiling tube (so) water moved in (to the tubing) by osmosis	allow concentration (of sugar) in the drink was lower (than in the bag) allow higher water potential outside the bag **or** lower water potential inside the bag allow water moves down **its** concentration gradient do **not** allow sugar moving allow diffusion (of water) do **not** allow sugar moving by osmosis **or** water moving by active transport	1 1 1	AO2 3.1.1.a/b/c
7(b)(ii)	**B**		1	AO3 3.1.1a/b/c
7(b)(iii)	close(st) to the concentration in the bag **or** to 5% (so rate of) diffusion / osmosis is slow	allow small(est) diffusion gradient **or** close(st) to an equilibrium allow (so) less water moves in (to the bag) ignore ref. to sugar	1 1	AO2/3 3.1.1a/b/c
Total			**8**	

4.2.1 Principles of organisation

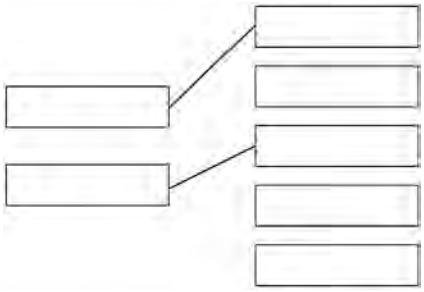
Answer 04 · Mark scheme

June 2016 | BL3FP | Original Q7 | Legacy



4.2.1 Principles of organisation

Answer 05 · Mark scheme June 2018 | 8461/1F | Original Q2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1		additional line from a level of organisation negates the mark for that level of organisation	2	AO1 4.2.1 4.2.3.1
02.2	palisade mesophyll		1	AO2 4.2.3.1
02.3	$\frac{50}{8}$ 6 / 6.25 / 6.3 (micrometres)	an answer of 6 / 6.25 / 6.3 scores **2** marks	1 1	AO2 4.1.1.2
02.4	they have no chloroplasts / chlorophyll	allow they are underground allow they don't get (access to) light allow (because) photosynthesis needs light allow they can't absorb light ignore 'sun' ignore 'it is dark'	1	AO2 4.1.1.3 4.4.1.1
02.5	differentiation		1	AO1 4.1.1.4 4.1.2.3
02.6	to protect endangered plants from extinction		1	AO1 4.1.2.3

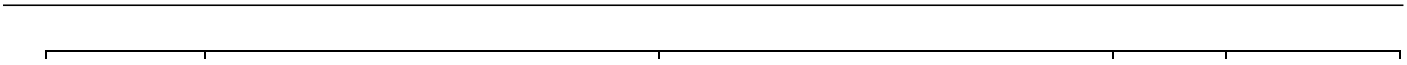
4.2.1 Principles of organisation

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.7	plants can be produced quickly		1	AO1 4.1.2.3
02.8	any **one** from: • glucose / sugars / starch • amino acids / protein • hormones • ions / minerals • vitamins • water	allow named hormones eg auxin allow magnesium / nitrate allow named vitamins e.g. vitamin B allow H_2O / H2O ignore oxygen / carbon dioxide / agar / nutrients / fertiliser	1	AO2 4.1.2.3
Total			**10**	

4.2.1 Principles of organisation

Answer 05 · Mark scheme

June 2018 | 8461/1F | Original Q2



4.2.1 Principles of organisation

Answer 06 · Mark scheme

June 2023 | 8461/1F | Original Q1

Question 1

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.1	a leaf		1	AO2 4.2.1 4.2.3.1

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.2	$\frac{1.1 + 1.1 + 1.4}{3}$ **or** $\frac{3.6}{3}$ 1.2 (grams)	if no answer given on answer lines, allow an answer in **Table 1**	1 1	AO2 4.1.3.2 RPA3

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.3	ring around −32.4 (grams)	table takes precedence allow (−)32.4 (grams) written by question	1	AO3 4.1.3.2 RPA3

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.4	did not include it	allow ignored it	1	AO2 4.1.3.2 RPA3

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.5	control variable		1	AO1 4.1.3.2 RPA3

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.6	time in the salt solution		1	AO3 4.1.3.2 RPA3

4.2.1 Principles of organisation

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.7	osmosis		1	AO2 4.1.3.2 RPA3

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.8	some particles		1	AO1 4.1.3.2 RPA3

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.9	use more concentrations of salt solution		1	AO3 4.1.3.2 RPA3

Total Question 1	**10**

4.2.1 Principles of organisation

Answer 06 · Examiner comments June 2023 | 8461/1F | Original Q1

Question 1 (Low demand)

01.1 Over 70% of students correctly selected the leaf as the largest part of the plant.

01.2 Students were asked to calculate a mean and nearly 75% were able to do this correctly. Errors included multiplication (rather than addition) of the three numbers before dividing by 3, and the selection of tests 1 and 2 only, reflecting the anomaly in the 3rd test for concentrated salt solution. Students are always asked to show their working out and if this was correct, but linked with a final wrong answer, one mark could still be awarded.

01.3 Almost 6% of students did not attempt this question possibly because they did not read the instruction and missed the mark unintentionally. Answers that ambiguously showed a ring around more than one result failed to gain credit.

01.4 Two thirds of students were able to gain the mark here. Some failed to answer the question, however, which specifically asked for what they should do with the result when calculating the mean. The idea of doing another test was clearly inappropriate. Others gave general descriptions of how to work out mean values; others suggested using a figure of 0.7 (the mean of the first 2 tests); others attempted to 'explain' the anomaly instead. None of these answers gained credit.

01.5 A pleasing number of students correctly identified the control variable here, with around 40% of students missing out on the mark.

01.6 Only 20% of students failed to identify the variable that students kept the same as 'Time in the salt solution'.

Answer 06 · Examiner comments June 2023 | 8461/1F | Original Q1

01.7 Almost 80% of students knew that osmosis was the process described.

01.8 Over 85% of students knew that some particles can pass through a partially permeable membrane.

01.9 Over two thirds of students correctly identified 'use more concentration of salt solution' as a means to improving the investigation.