Surname	StemUp Model Solution	Centre Number	Candidate Number
Other Names			2

GCE A LEVEL

A400U20-1

S19-A400U20-1

BIOLOGY – A level component 2
Continuity of Life

THURSDAY, 13 JUNE 2019 – MORNING

2 hours

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**9**	
2.	**10**	
3.	**12**	
4.	**13**	
5.	**16**	
6.	**14**	
7.	**17**	
8.	**9**	
Total	**100**	

A400U201
01

ADDITIONAL MATERIALS

In addition to this examination paper, you will need a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen. Do not use correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional pages at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

The assessment of the quality of extended response (QER) will take place in question **8**.

The quality of written communication will affect the awarding of marks.

JUN19A400U20101

© WJEC CBAC Ltd.

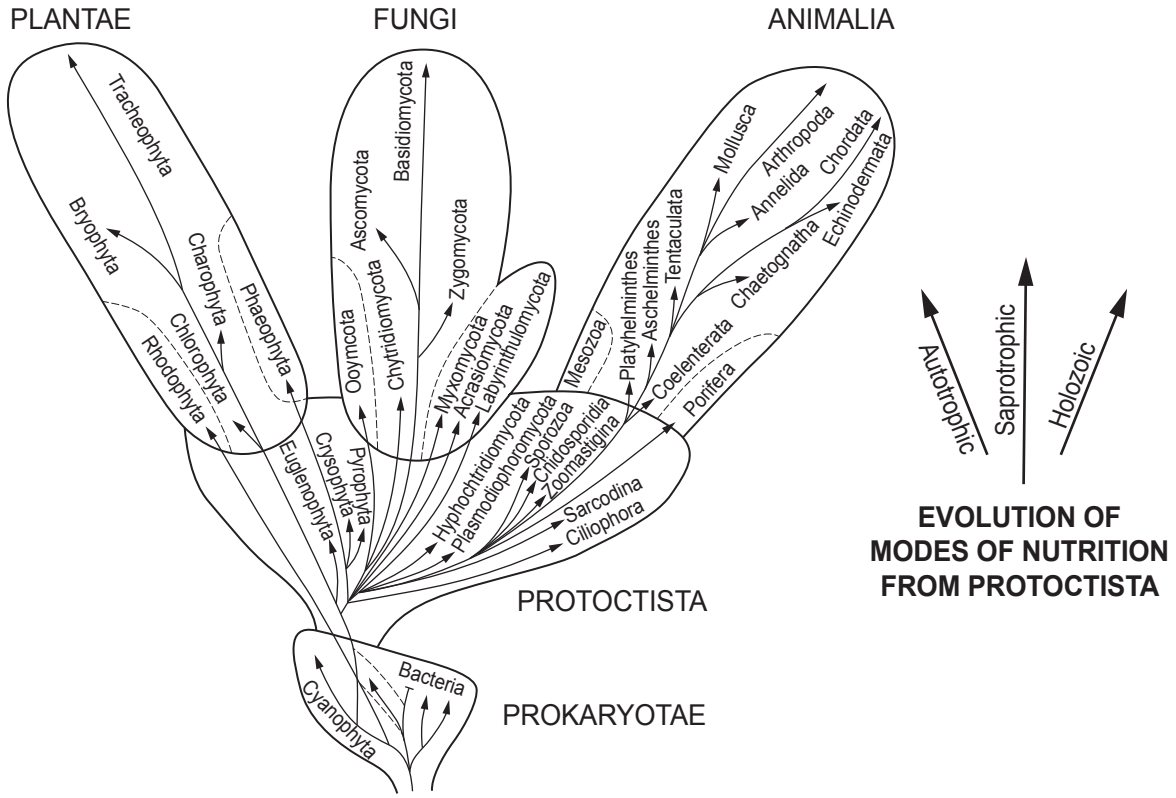
stemup.co.uk

Examiner only

Answer **all** *questions.*

1. Classifying organisms is important because it allows scientists to better understand evolutionary relationships. In 1969, RH Whittaker proposed a five Kingdom system including evolutionary relationships based on modes of nutrition.

Figure 1.1



(a) (i) Explain how the three arrows indicating mode of nutrition on Figure 1.1 illustrate the evolution of the three higher Kingdoms from the Protoctista. [3]

Plants are autotrophic: they make their own organic food by photosynthesis.

Fungi are saprotrophic: they secrete enzymes onto dead organic matter and absorb the soluble products.

Animals are holozoic: they ingest food and digest it internally.

So each of the three higher Kingdoms evolved from Protoctista ancestors with a different mode of nutrition.

© WJEC CBAC Ltd.

stemup.co.uk

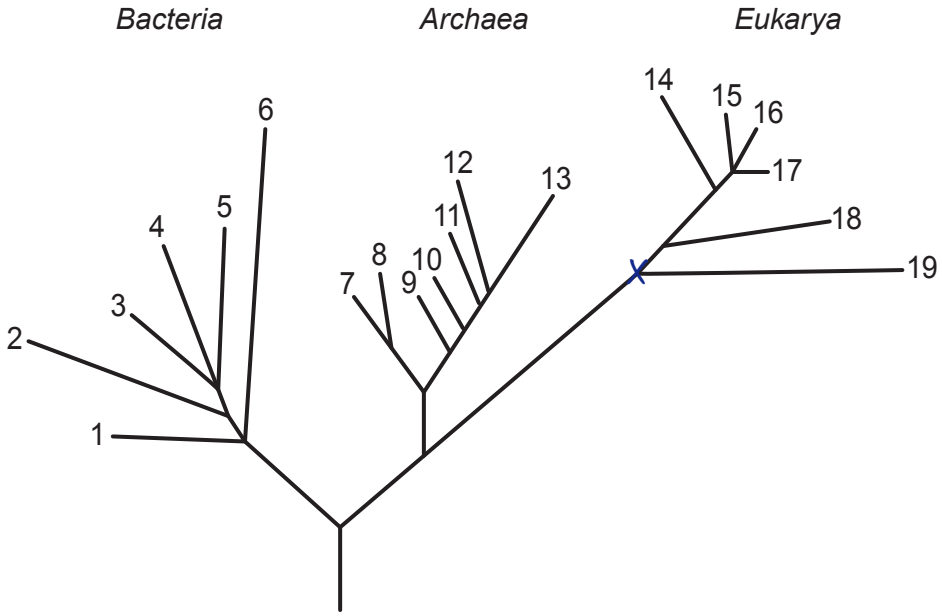
Examiner only

(ii) Identify which of the Kingdoms is described in the following extract taken from the 1969 paper.
"Primarily multinucleate organisms with eukaryotic nuclei dispersed in a walled and often septate mycelial syncytium, plastids and photosynthetic pigments lacking."
[1]

Fungi

In 1990, Carl Woese justified replacing the five Kingdom system because, *"Molecular comparisons show that life on this planet divides into three primary groupings, commonly known as the bacteria, the archaea, and the eukarya."* He illustrated his suggestion with a phylogenetic tree. Figure 1.2 is adapted from it.

Figure 1.2



(b) (i) State the term that is used for the three primary groups in this system. [1]

Domains

(ii) Name a biochemical technique that can be used to investigate evolutionary relationships between organisms. [1]

DNA sequencing

(iii) **Write a letter X** on the phylogenetic tree in Figure 1.2 to show the **most recent** common ancestor of the Eukarya. [1]

A400U201
03

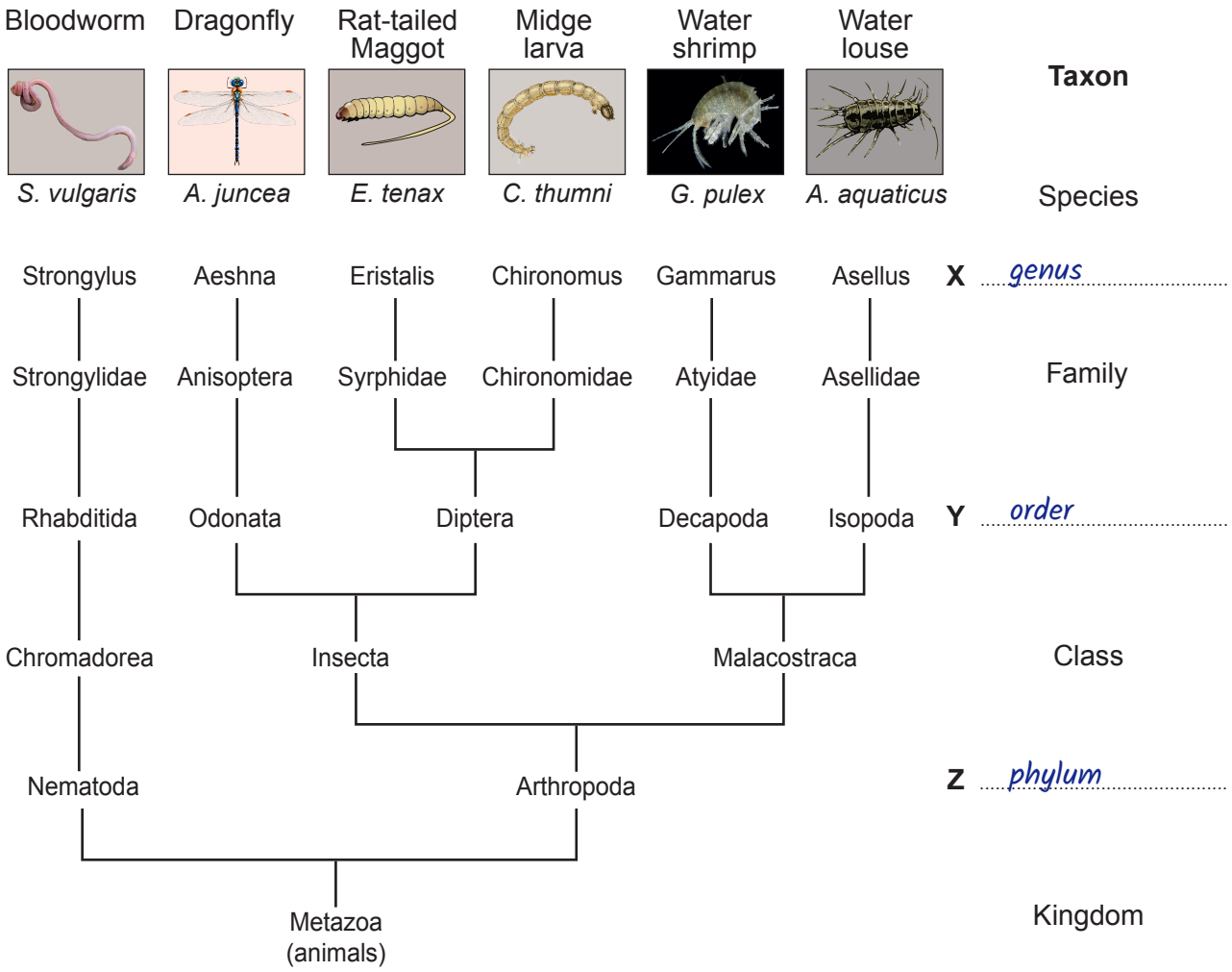
© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

(c) The phylogenetic tree in Figure 1.3 shows the evolutionary relationships between some organisms that were caught during a survey of a stream.

Figure 1.3



(i) **Complete Figure 1.3** by writing in the names of the missing taxa **X**, **Y**, **Z**. [1]

(ii) Using information from the phylogenetic tree in Figure 1.3, place dragonfly, midge larva, bloodworm and water louse in order of how closely related they are to the rat-tailed maggot, from most related to least related. [1]

Rat-tailed maggot

Most closely related — Midge larva

Dragonfly

Water louse

Least closely related — Bloodworm

9

© WJEC CBAC Ltd.

stemup.co.uk

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

2. A recently developed technique in genetic engineering is called CRISPR. In this technique guide RNA is made which attaches to complementary sequences on DNA.

Nucleic acid molecules are constructed from sub-units called nucleotides.

(a) Describe **three** ways in which a DNA molecule differs from an RNA molecule. [2]

DNA is double stranded (double helix); RNA is single stranded.

DNA has deoxyribose sugar; RNA has ribose.

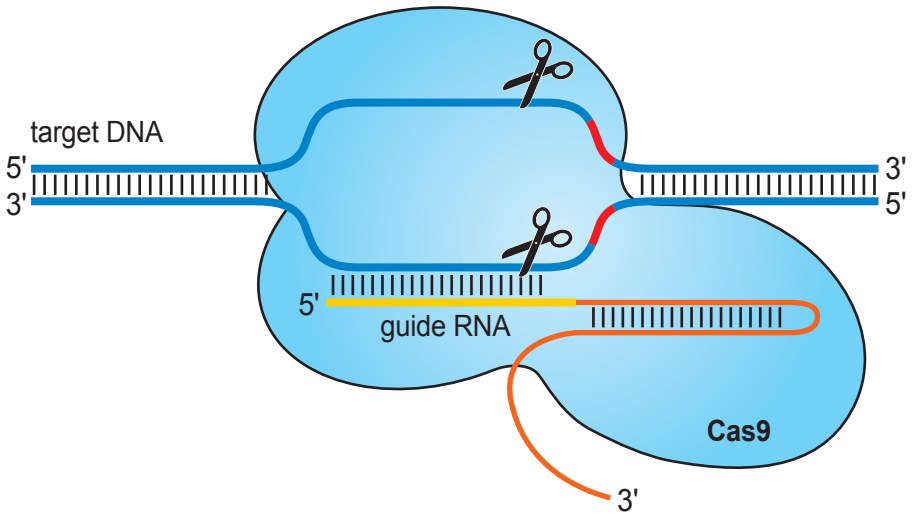
DNA has the base thymine; RNA has uracil instead.

DNA is a much longer molecule than RNA.

The CRISPR technique can be used to remove a target gene.
In this technique:

- Guide RNA is made.
- The guide RNA and Cas9 endonuclease combine to form a CRISPR / Cas9 complex.
- The complex is then inserted into a cell.
- The guide RNA attaches to the target gene as shown in Figure 2.1.

Figure 2.1



(b) Cas9 enzyme is a restriction endonuclease. State what is meant by a restriction endonuclease. [2]

An enzyme that cuts DNA (hydrolyses the sugar-phosphate backbone)

at a specific base sequence (recognition site).

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Genetic engineers have discovered that by synthesising guide RNA with particular nucleotide sequences they can target any gene in any organism, if they know its nucleotide sequence. Using this technique it is possible to remove a target gene.

(c) Scientists have identified a gene that is essential for fertility in mosquitoes of the genus *Anopheles*.

Suggest how the CRISPR technique could be used to modify mosquito eggs to produce sterile adult mosquitoes. [3]

Make guide RNA with a base sequence complementary to the fertility gene (target gene) of Anopheles.

Combine it with Cas9 and insert the CRISPR/Cas9 complex into the eggs, where Cas9 cuts out (removes) the gene that makes them fertile.

Incubate the eggs and allow them to mature into sterile adults.

(d) Explain how releasing these sterilised mosquitoes into the wild might benefit humankind and suggest an ethical reason for not doing so. [3]

When released, the sterile mosquitoes mate with wild mosquitoes but no offspring are produced, so the fertility of the population is reduced and mosquito numbers fall.

Anopheles mosquitoes are the vector of malaria, so fewer mosquitoes means less malaria transmitted to humans, saving lives.

Ethical reason: humans may not have the right to make another species extinct; also removing mosquitoes from food chains could harm ecosystems and biodiversity, and the effects of releasing GM mosquitoes into the environment are unknown.

A400U201 07

10

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

3. In order to investigate the effects of mowing on biodiversity, a group of students carried out surveys on two different sites on their school fields.

- A playing field that was mown regularly throughout the growing season.
- A meadow set aside for conservation that was mown once a year.

The students used quadrats to estimate the numbers of plants of the species found on the two sites.

The results were analysed using the Simpson's Diversity Index.

(a) Explain the steps the students should have taken to ensure their sampling methods produced representative totals. [3]

Use a random number generator to give random coordinates on a grid for placing quadrats, to avoid bias.

Use a large enough number of quadrats (until the number of species found is consistent).

Sample both sites at the same time of year (or repeat at different times of year).

(b) The meadow had a Simpson's Diversity Index of 0.58. The results for the playing field are shown below.
Calculate the Simpson's Diversity Index for this site. [3]

Species	n	(n–1)	n(n–1)
ryegrass	401	400	160 400
daisy	11	10	110
buttercup	2	1	2
dandelion	2	1	2
yarrow	4	3	12
plantain	3	2	6
clover	11	10	110
(N)	434	$\sum$n(n–1) =	160 642
$N(N–1)$ =	187 922	D = 1 – (160 642 ÷ 187 922) = 1 – 0.855	

$D = 1 - \frac{\sum n(n-1)}{N(N-1)}$, where N = number of organisms present and n = the number in each species.

D = 0.145

© WJEC CBAC Ltd.

stemup.co.uk

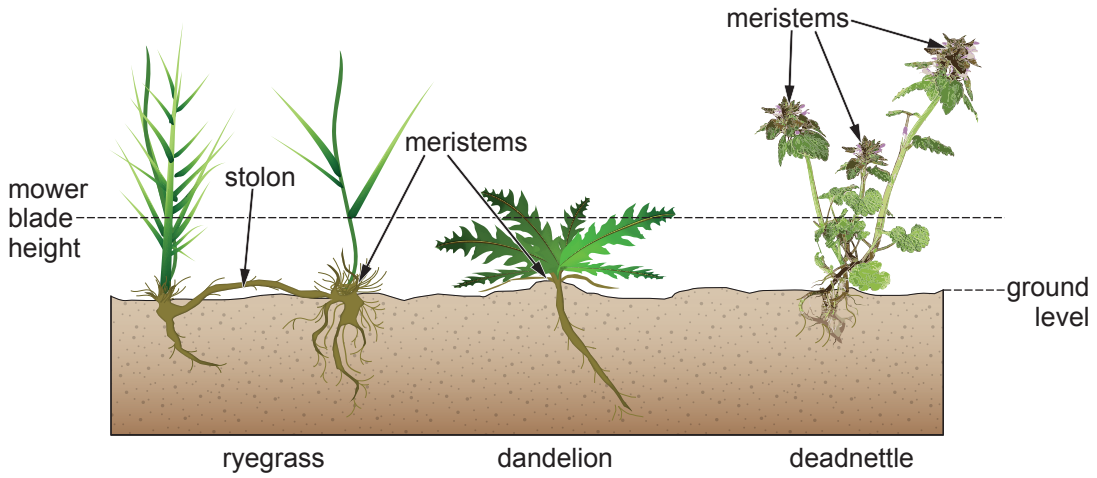
Examiner only

(c) State a conclusion about the effect of mowing on the biodiversity of grassland. [2]

The regularly mown playing field (D = 0.145) has a much lower biodiversity than the meadow (D = 0.58), so regular (frequent) mowing reduces the biodiversity of grassland.

Figure 3.1 shows the morphology of common meadow species: ryegrass, dandelion and deadnettle. It also shows the height the mower blade passes over the ground.

Figure 3.1



(d) Using information from Figure 3.1 give an explanation that could account for your conclusion in part *(c)*. [4]

Meristems are the growing points of the plant (regions of cell division). The stolons and meristems of ryegrass and the meristem of dandelion are at ground level, below the height of the mower blade, so they are not removed by mowing and these plants can regrow. The meristems of deadnettle are above the height of the mower blade, so they are removed and deadnettle cannot regrow (it is killed). So on the mown field ryegrass outcompetes other species and dominates (401 of 434 plants), lowering diversity.

A400U201 09

12

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

4. A species of bird called the Monarch flycatcher *(Monarcha castaneiventris)* is found on the Solomon Islands. There are a number of sub-species of this bird which have distinctive plumage colourings and live on different islands.

(a) Explain why they are classified as sub-species and not as separate species. [1]

They can still interbreed and produce fertile offspring (not reproductively isolated).

One sub-species is polymorphic. The undersides of the three forms of the sub-species found on the islands are shown in Figure 4.1.

Figure 4.1



chestnut chestnut-black black

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

(b) In breeding experiments:

- chestnut crossed with black always produced chestnut-black offspring,
- chestnut-black crossed with other chestnut-black produced offspring of all three phenotypes.

Using appropriate symbols, complete the key to identify the alleles involved.
Use these symbols to complete the genetic diagram below to show a cross between two chestnut-black parents and predict the phenotype ratio of the offspring. [4]

Key: Allele for Chestnut colour ..C.. Allele for Black colour ..B..

Parental phenotypes:	chestnut-black	x	chestnut-black
Parental genotypes:	CB	x	CB
Gametes:	C B	x	C B

gametes

	C	B	
C	CC	CB	chestnut
B	CB	BB	chestnut-black / black

F_1 Genotypes	CC	CB	CB	BB
F_1 Phenotypes	chestnut	chestnut-black	chestnut-black	black

Phenotype ratio 1 chestnut : 2 chestnut-black : 1 black

A400U201
11

© WJEC CBAC Ltd.

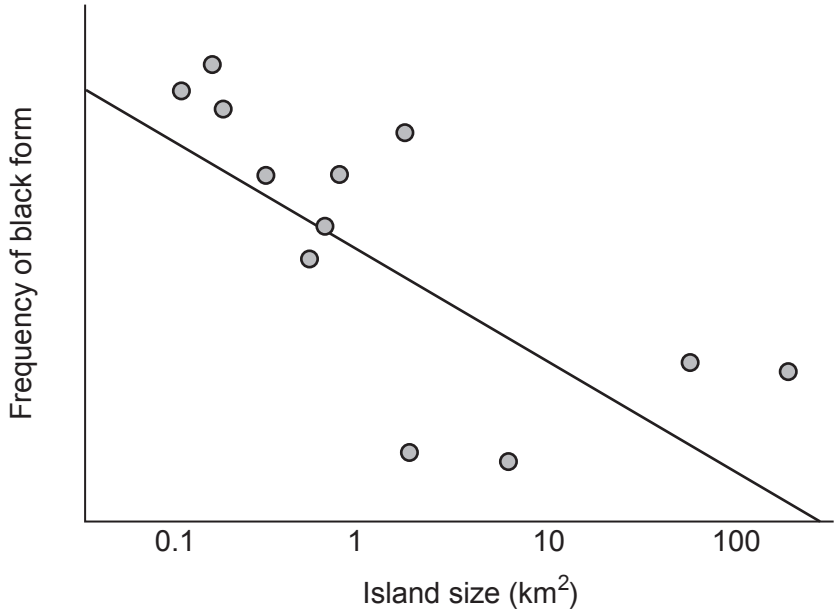
stemup.co.uk

Examiner only

A group of scientists studied the frequency of the black forms on the Russell Islands within the Solomon group.

Their results are shown in Figure 4.2. The island size is shown as a log scale.

Figure 4.2



Monarch flycatchers are known to be territorial and behaviour studies have shown increased aggression in black forms.

(c) State the trend shown on the graph and use the information about the birds' behaviour to suggest a possible mechanism to account for the trend. [3]

Trend: the larger the island, the lower the frequency of the black form.

On small islands there is greater competition for territories (food and nesting sites).

The black forms are more aggressive, so aggression (linked to the black allele) gives a selective advantage: black birds outcompete the other forms for territories, survive and reproduce more and pass on the allele.

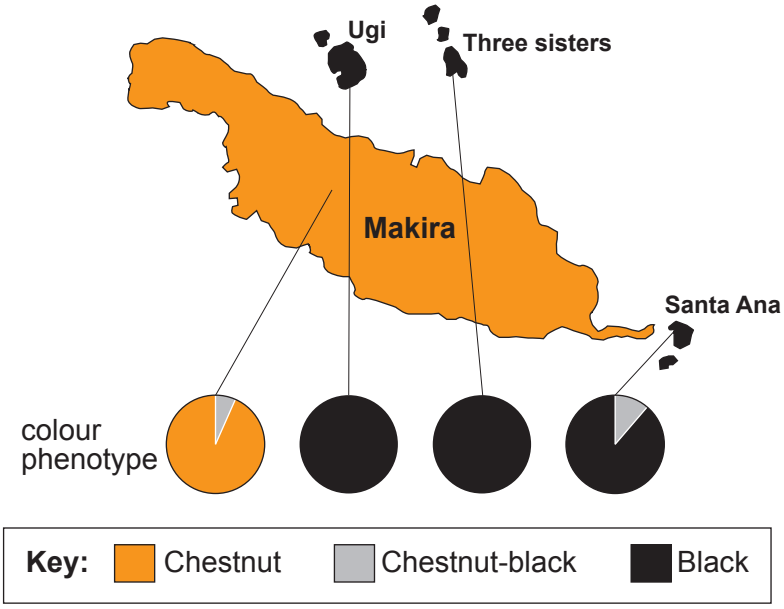
© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

(d) Figure 4.3 shows the distribution of the phenotypes on the southern-most islands of the Solomon group.

Figure 4.3



(i) Explain how the evidence from the phenotype distribution in Figure 4.3 supports your answer from part *(c)*. [1]

There are more (a higher frequency of) black birds on the smaller islands; large Makira is mostly chestnut.

(ii) Explain the presence of chestnut-black forms on Santa Ana. [2]

Santa Ana is very close to Makira, so chestnut birds from Makira can fly there and breed with the black birds on Santa Ana.

This gene flow produces heterozygous chestnut-black offspring.

(e) Since the 1950s, nuclear weapons tests have taken place in the South Pacific. Suggest how this might have accounted for the emergence of the black phenotype on the Solomon Islands. [2]

Radiation from the nuclear weapons tests acts as a mutagen, increasing the rate of mutation.

A mutation in the gene for plumage colour could have produced the new allele for black colour.

A400U201
13

13

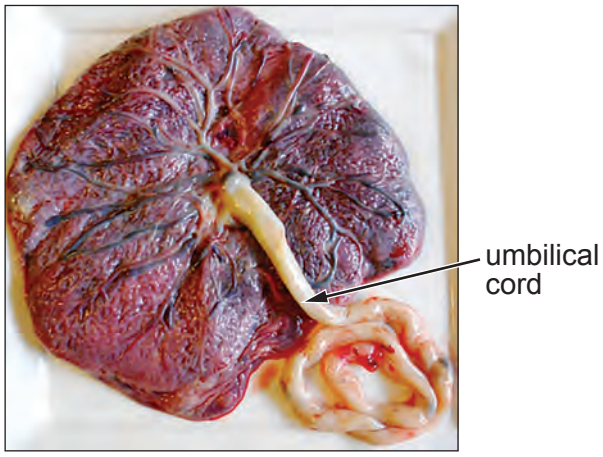
© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

5. Figure 5.1 shows a placenta at full term and a transverse section through the umbilical cord.

Figure 5.1



Placenta



T.S. umbilical cord

(a) Name structures **A** and **B** in Figure 5.1 and give details of the features that allowed you to identify each one. [4]

Structure	Name	Features
A	*vein*	*thin (smooth) muscle layer; large lumen*
B	*artery*	*thick (smooth) muscle layer; small lumen*

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Figure 5.2 shows the maternal and fetal blood supplies to the placenta.

Figure 5.2



(b) Using appropriate labels from Figure 5.2 describe how the maternal blood flows through the placenta. [2]

Maternal blood enters through the maternal arteriole and flows into the intervillus space, where it pools around the chorionic villi. It leaves the placenta through the maternal venule.

(c) Using Figure 5.2 compare the arrangement of blood vessels in the fetal circulation within the placenta with the arrangement of blood vessels in the maternal circulation within the placenta. Explain how this increases the efficiency of exchange. [2]

Fetal blood is in capillaries in the villi, but there are no capillaries between the maternal arteriole and maternal venule (blood pools). So there is one less layer of cells to cross, giving a shorter diffusion path, and pooling allows more time for diffusion.

A400U201 15

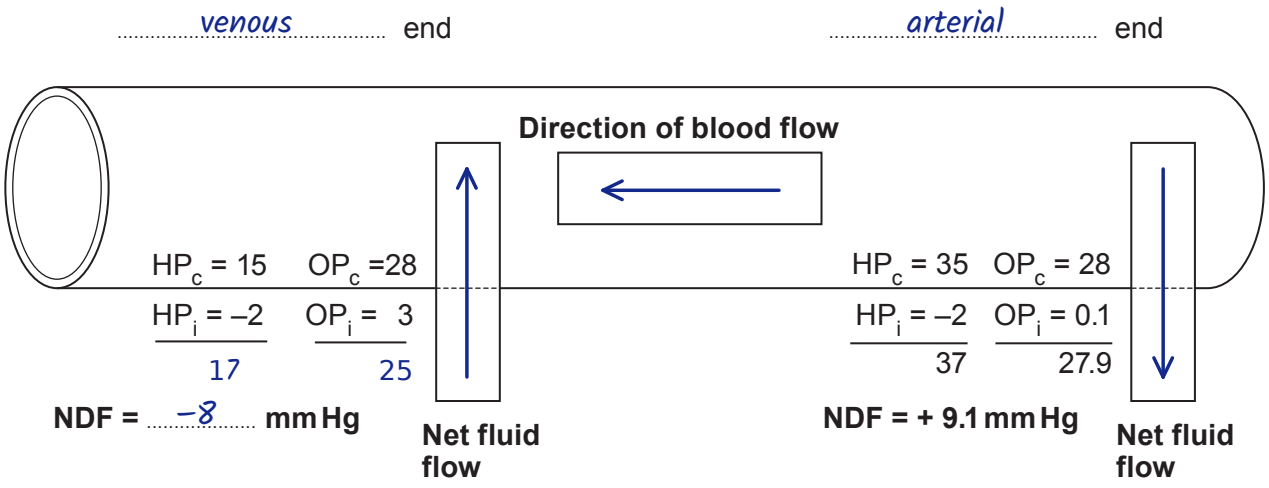
© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Tissue fluid is the name given to fluid that passes across capillary membranes and leaves the blood at the arterial ends of capillaries. Some of the fluid returns to the blood at the venous ends of capillaries, the rest is drained away by lymph vessels. Figure 5.3 shows the forces affecting the movement of fluid **across** capillary membranes at both ends of a capillary. The forces are hydrostatic pressure (HP) and osmotic pressure (OP), all values are in mmHg.

Figure 5.3



The Net Driving Force (NDF) can be calculated from the formula:

$$NDF = (HP_c - HP_i) - (OP_c - OP_i)$$

- HP_c is the capillary hydrostatic pressure
- HP_i is the interstitial hydrostatic pressure
- OP_c is the capillary osmotic pressure
- OP_i is the interstitial osmotic pressure

(d) (i) The NDF for the right-hand end of the capillary has been calculated using this formula. Use the formula to calculate the missing NDF and **enter your value on Figure 5.3**. [2]

Space for working.

$NDF = (HP_c - HP_i) - (OP_c - OP_i)$

$= (15 - (-2)) - (28 - 3) = 17 - 25 = -8$ mmHg

(ii) By convention, **outward** force is defined as **positive**, and **inward** force is defined as **negative**. Use the given value of NDF and the result of your calculation, to conclude whether the net fluid movement would be outward or inward at each end of the capillary. **Draw arrows in the two rectangles labelled 'net fluid flow'** to show your conclusions. [1]

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

(iii) Use all the information provided and calculated to identify

I. the arterial and venous ends of the capillary. **Write your answers on the dotted lines above Figure 5.3.** [1]

II. which direction blood is moving inside the capillary. **Draw an arrow in the rectangle labelled 'direction of blood flow'.** [1]

(e) Predict what might happen to a patient's leg if lymph vessels were damaged during a hip replacement operation. [1]

Tissue fluid would build up (accumulate) as it cannot drain away, so the leg would swell (oedema).

Following birth, babies must adapt to exchanging gases using lungs. Premature babies often have lungs which are not completely developed and they must be treated with surfactants.

(f) Explain the purpose of treating premature babies with surfactants. [2]

Surfactant reduces the surface tension of the fluid lining the alveoli, which prevents the alveoli collapsing (keeps them open), so gas exchange can take place.

16

© WJEC CBAC Ltd.

stemup.co.uk

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

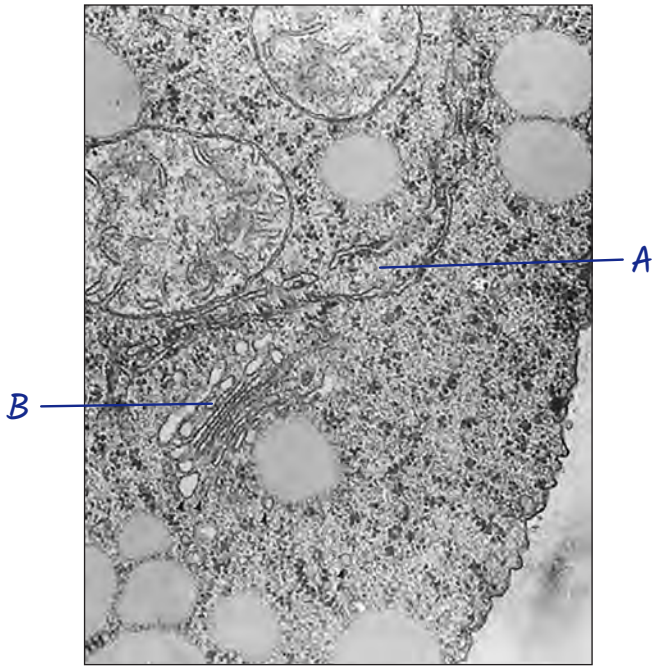
© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

6. The brewing industry relies on biological processes that take place in two organisms, barley and yeast. Figure 6.1 is an electron micrograph showing part of a cell from the aleurone layer of a germinating barley grain.

Figure 6.1



(a) **Complete the table below** by naming the organelles that carry out the following functions. **Label each of the organelles on the photomicrograph** using the letters **A** and **B**. [2]

Organelles	Name	Function
A	rough endoplasmic reticulum	synthesises proteins
B	Golgi body (apparatus)	packages proteins

In the brewing process the sugars produced by the germinating grains are extracted and are used to provide yeast with their respiratory substrate.

(b) Give the word equation for anaerobic respiration in yeast. Explain why it is less efficient than aerobic respiration for the yeast but essential to the brewing industry. [3]

glucose → ethanol + carbon dioxide

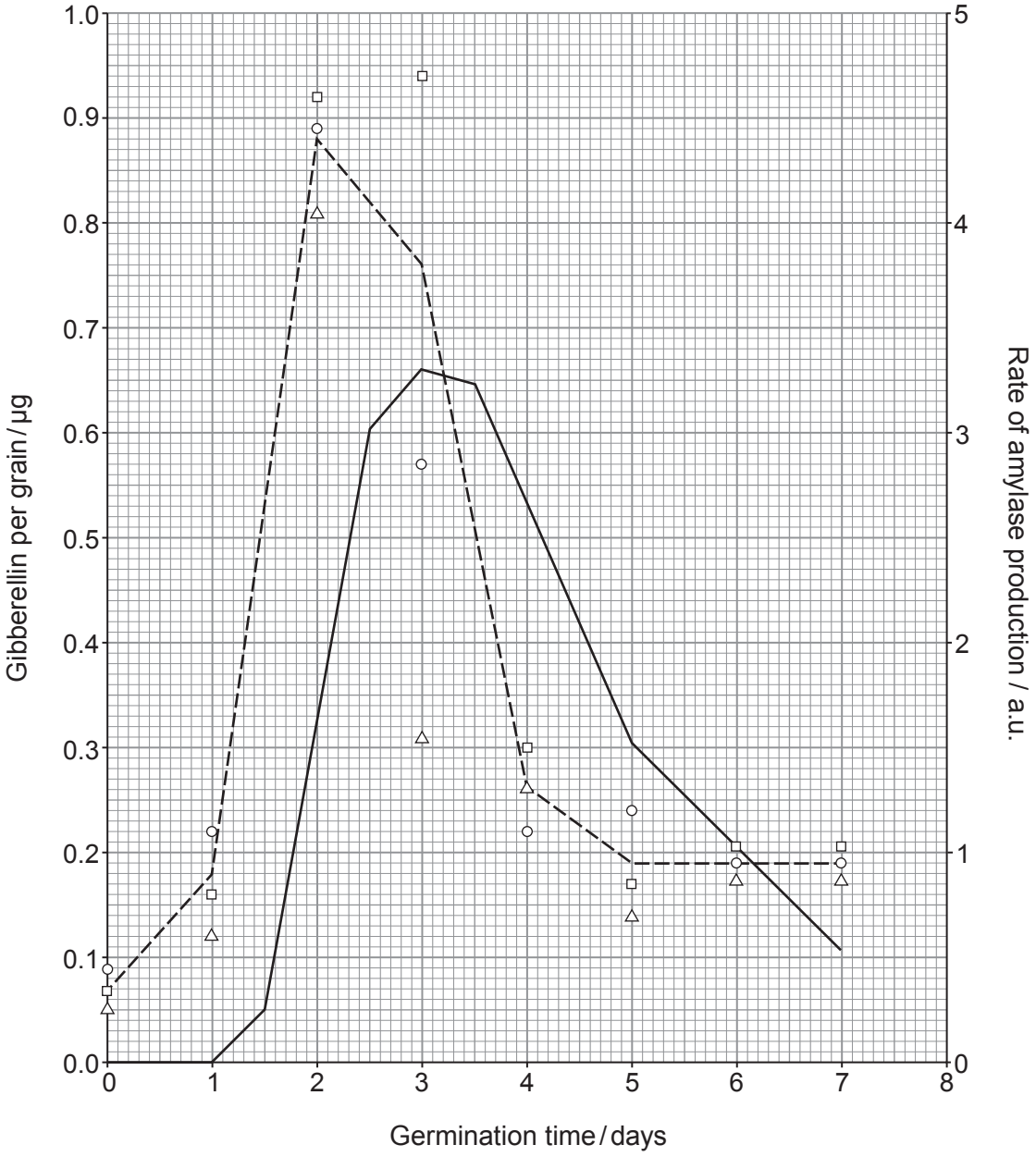
Less ATP is released (2 ATP) as glucose is not completely broken down, but ethanol is needed for beer.

© WJEC CBAC Ltd.

stemup.co.uk

Gibberellin is a hormone which induces the production of amylase. The production and effects of gibberellin on barley germination were studied by three separate teams of scientists. Each team repeated the experiment ten times. Figure 6.2 shows the results of the investigation.
The mean gibberellin production for each team is indicated with a different symbol; team 1. □ team 2. ○ team 3. △ .
The dashed line indicates the mean gibberellin production for all repeats for all teams.
The solid line indicates the mean rate of amylase production in the barley grains for all repeats for all teams.

Figure 6.2



© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

(c) Reliability has two aspects, repeatability, which describes the variation in the data from one team and reproducibility, which describes the variation in the data between different teams.

(i) State how reproducibility is represented on Figure 6.2 and comment on the reproducibility of the data obtained. [3]

Reproducibility is shown by the mean for each team, plotted with a different symbol on each day.

Reproducibility is good on most days, but poor at day 3, where the team means range from 0.31 to 0.94 µg.

At days 0, 6 and 7 the means are exceptionally close (e.g. all about 0.2 µg on day 6).

(ii) Name a mathematical value that each team could have calculated to indicate the variability of its results and the aspect of reliability of the experiments that would be assessed by this value. Describe how this aspect could have been improved. [3]

I. mathematical value standard deviation

II. aspect of reliability repeatability

III. Improvement increase the number of repeats in each team (e.g. more than ten), so anomalies can be identified and removed.

(iii) Identify a statistical test that could have been used to test if the mean results from teams 1 and 3 were significantly different. [1]

Student's t-test

(iv) The solid line on Figure 6.2 shows the rate of production of amylase in the barley grains. Explain what evidence from the graph supports the hypothesis that the production of gibberellin induces the production of amylase. [2]

The patterns for gibberellin and for the rate of amylase production coincide: both rise to a peak and then fall.

There is a time lag: gibberellin rises first and peaks at day 2, and amylase production increases after it, peaking at day 3.

14

© WJEC CBAC Ltd.

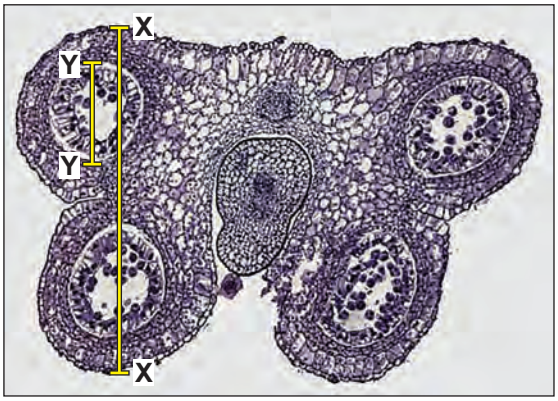
stemup.co.uk

Examiner only

7. A student examined the TS Anther shown in the photomicrograph in Figure 7.1 through a microscope and measured the dimensions indicated by lines **X-X** and **Y-Y** using a calibrated eyepiece graticule.

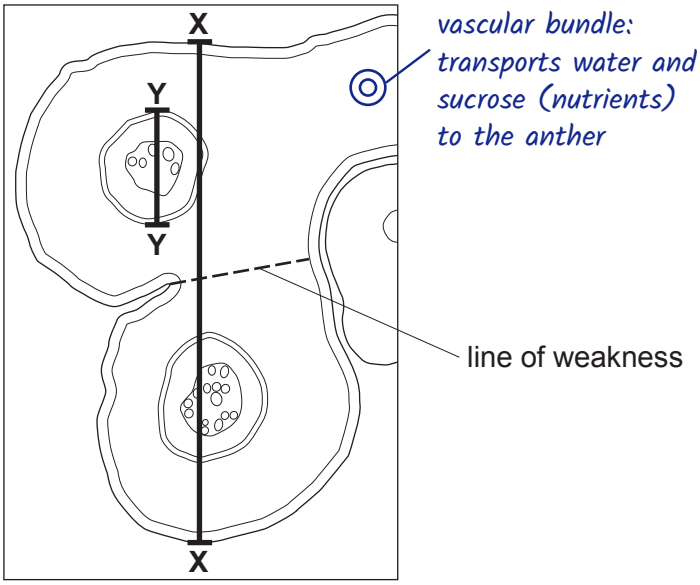
Figure 7.1

X-X measured 1080 µm; **Y-Y** measured 360 µm.



The low power plan drawing of a **representative portion** of the specimen is shown in Figure 7.2.

Figure 7.2



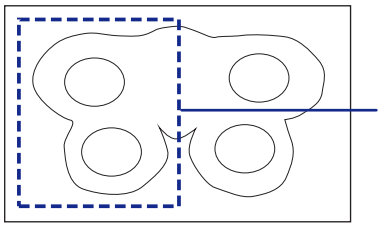
(a) (i) One structure is shown in the micrograph in Figure 7.1 but missing from the low power plan in Figure 7.2.
Draw this structure on the low power plan. Label it with its name and its function. [3]

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

(ii) **In the rectangle provided** below, which contains a sketch of the whole section, indicate which part is shown in the tissue plan in Figure 7.2. [1]



(b) Use the measurement lines on Figure 7.2 and the measurements given for the photomicrograph in Figure 7.1 to deduce whether the low power plan in Figure 7.2 is in proportion. Show all workings. [4]

Drawing: X-X = 66 mm, Y-Y = 16 mm

Actual ratio X-X : Y-Y = 1080 : 360 = 3 : 1

Drawing ratio X-X : Y-Y = 66 : 16 = 4.13 : 1

(Magnification: X-X = 66 000 ÷ 1080 = ×61.1; Y-Y = 16 000 ÷ 360 = ×44.4)

The ratios (and magnifications) are different, so the plan is not in proportion (Y-Y is drawn too small).

(c) (i) Describe the part played by **mitosis** and **meiosis** in the formation of the male gametes in flowering plants, explaining the biological significance of each type of cell division. [5]

In the pollen sacs mitosis produces many diploid pollen mother cells. Each divides by meiosis to give a tetrad of four haploid cells (pollen grains). Meiosis halves the chromosome number, so the diploid number is restored at fertilisation, and it increases genetic variation. In the pollen grain the haploid nucleus divides by mitosis into a generative nucleus and a pollen tube nucleus; the generative nucleus divides by mitosis to form two male gametes. Mitosis is significant as the daughter nuclei are genetically identical and keep the (haploid) chromosome number, giving two gametes for double fertilisation.

(ii) State the function of the tapetum. [1]

It provides nutrition for the developing pollen grains.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Figure 7.3 shows an anther undergoing dehiscence.

Figure 7.3



(d) Use the photomicrograph in Figure 7.3 and the low power plan in Figure 7.2 to suggest the significance of a line of weakness in the position shown on the drawing. [3]

The line of weakness is where the wall of the anther (pollen sacs) breaks open when the anther is mature and dries out (dehiscence). As in Figure 7.3, it splits between the two pollen sacs on each side, so both sacs open together and release the pollen, which can be picked up by insects for pollination.

17

© WJEC CBAC Ltd.

stemup.co.uk

BLANK PAGE

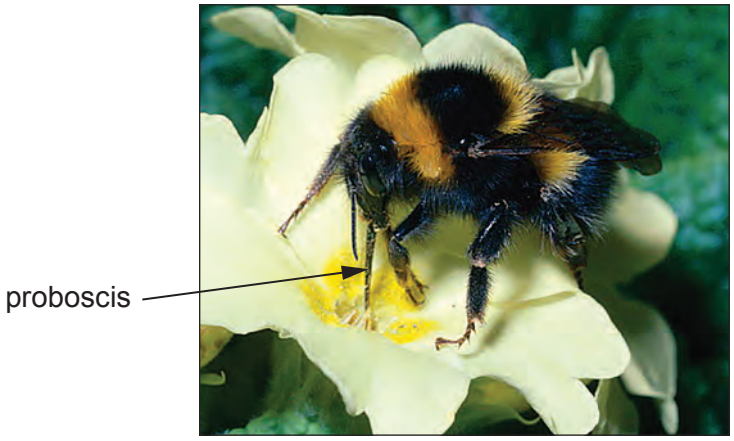
PLEASE DO NOT WRITE ON THIS PAGE

© WJEC CBAC Ltd.

stemup.co.uk

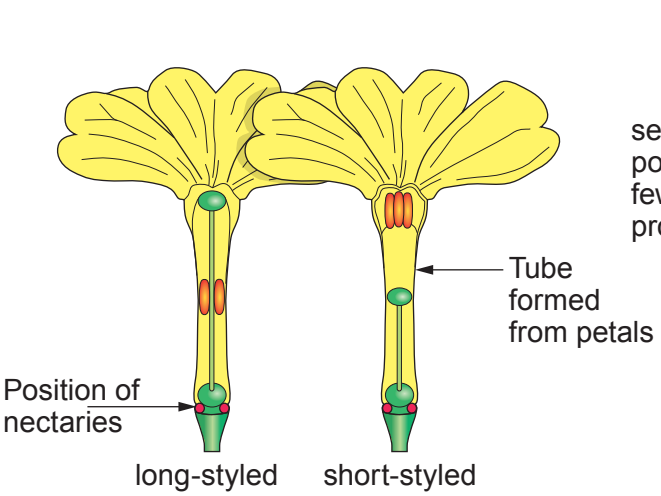
8. Figure 8.1 shows a bumble bee collecting nectar from a flower of *Primula vulgaris*.

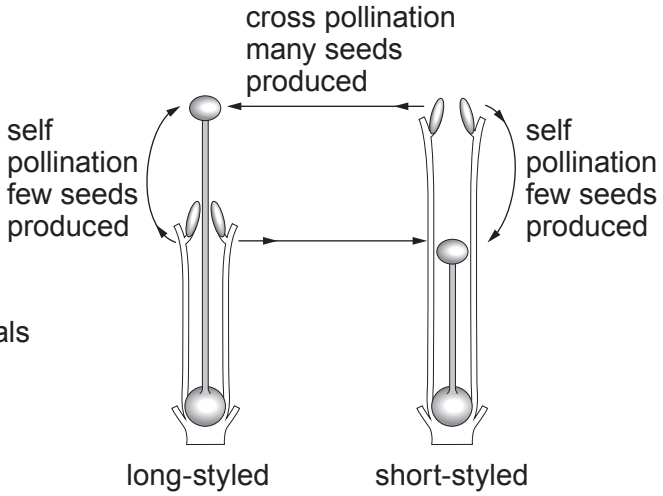
Figure 8.1



There are two different forms of these flowers. Each plant only has one of the two forms.

Figure 8.2





Apart from the length of the style, there are other differences between the two types:

- the stigma is rougher in the long-styled flowers;
- the pollen-grains are smaller in the long-styled flowers;
- the pollen-grains of the long-styled flowers are more triangular.

Experiments have been carried out where some flowers have been protected from insects (to force self-pollination) and others were allowed to cross pollinate. The number of viable seeds produced was counted as a measure of fertility. The structure of the flowers and the results are shown above.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Describe the structural differences visible between the drawings of the long-styled and short-styled flowers in Figure 8.2. Explain how the anatomy of these flowers promotes cross-pollination. Use the observations about the stigma and pollen to explain why self-pollination produces fewer seeds than cross-pollination. [9 QER]

Structural differences: in the long-styled flower the style is long, so the stigma is at the mouth of the corolla tube (protruding from the tube formed from petals), while the anthers are attached halfway down the tube. In the short-styled flower the style is short, so the stigma is halfway down the tube, while the anthers are at the mouth of the tube. So the long-styled flower has its stigma above its anthers, whereas the short-styled flower has its anthers above its stigma. The stigma of one form is at the same height as the anthers of the other form.

Promoting cross-pollination: the nectaries are at the base of the tube, so a bee must push its proboscis (and head) down the tube to reach the nectar. Pollen from anthers at the mouth of a short-styled flower is picked up on the bee's head (near the base of the proboscis), and this is the same height as the stigma of a long-styled flower, so it is transferred there when the bee visits a long-styled flower. Pollen from anthers halfway down a long-styled flower sticks further down the proboscis, which matches the position of the stigma in a short-styled flower. So the relative positions of anthers and stigmas mean pollen is transferred between the two forms. In the long-styled flower the stigma is above the anthers, so pollen is less likely to fall onto its own stigma, and in the short-styled flower the anthers are above the stigma but separated from it, which reduces self-pollination. As each plant has only one form, pollen transferred between forms must come from a different plant, which is cross-pollination.

Fertility experiments: self-pollination gives few seeds while cross-pollination gives many seeds. The stigma of the long-styled flower is rougher and its pollen grains are smaller and more triangular, while the short-styled flower has

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

a smoother stigma and larger, rounder pollen grains. So the size, shape and texture of the pollen are matched to the stigma of the other form: small pollen from its own flower may not attach to (be held by) the rough long-styled stigma, and large pollen may not attach well to its own smooth stigma. Pollen landing on a stigma of its own form may not be compatible and may not germinate, so no pollen tube grows down the style and fewer ovules are fertilised. With cross-pollination, more pollen attaches and germinates, more pollen tubes reach the ovules and more ovules are fertilised, so more viable seeds are produced. This also increases genetic variation in the offspring.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

END OF PAPER

9

© WJEC CBAC Ltd.

stemup.co.uk

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

© WJEC CBAC Ltd.

stemup.co.uk

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

© WJEC CBAC Ltd.

stemup.co.uk

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

© WJEC CBAC Ltd.

stemup.co.uk