

# Asexual & Plant Reproduction

## Question Paper

Level	O Level
Subject	Biology
Exam Board	Cambridge International Examinations
Topic	Development of organisms and continuity of lifes
Sub Topic	Asexual & Plant Reproduction
Booklet	Question Paper

**Time Allowed:** 47 minutes

**Score:** /39

**Percentage:** /100

1 Which statements describe self-pollination?

	transfer of pollen	two plants required
<b>A</b>	from anther to stigma	yes
<b>B</b>	from anther to stigma	no
<b>C</b>	from stigma to anther	yes
<b>D</b>	from stigma to anther	no

2 A number of new plants are growing from pieces of a plant that have become detached and have rooted in soil.

Which statement is correct about these new plants when they mature?

- A** The fruit they produce will all ripen at the same time.
- B** They will all grow to the same size.
- C** They will all have the same colour flowers.
- D** They will all produce the same number of fruit.

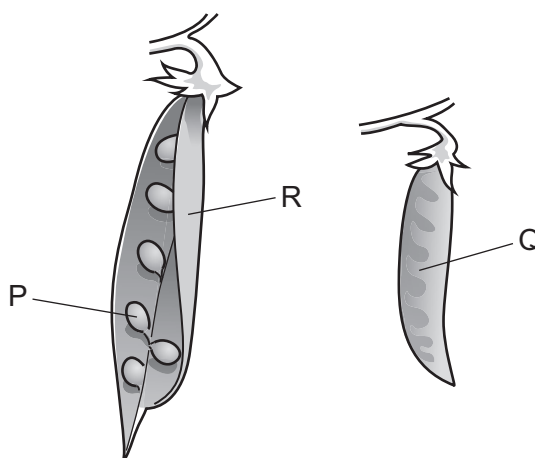
3 A plant has flowers whose anthers mature and fall off before the stigma is fully developed.

What will this prevent?

- A** cross-pollination
- B** insect-pollination
- C** self-pollination
- D** wind-pollination

- 4 A male gamete leaves the pollen tube immediately after the pollen tube has entered which structure?
- A ovary
  - B ovule
  - C stigma
  - D style
- 5 What is always essential for seeds to begin germinating?
- A carbon dioxide
  - B light
  - C mineral salts
  - D oxygen

6 The diagram shows peas growing on the plant.



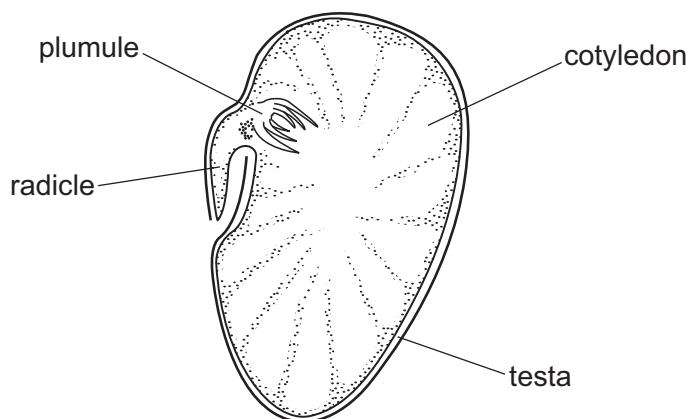
What are the labelled structures?

	P	Q	R
A	fruit	seed	pericarp
B	fruit	testa	seed
C	seed	fruit	pericarp
D	seed	fruit	testa

7 What passes down a pollen tube after pollination?

- A female nucleus
- B male nucleus
- C ovule
- D pollen grain

8 The diagram shows a broad bean seed. Part of it has been cut away to show the internal structure.



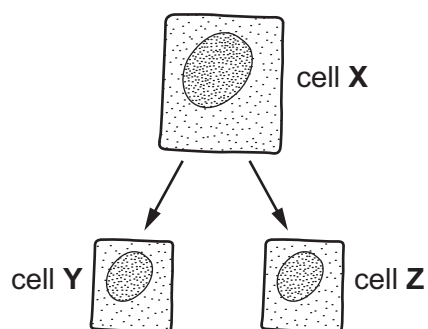
Which parts make up the complete embryo?

- A radicle, plumule, cotyledons and testa
- B radicle, plumule and cotyledons only
- C radicle and plumule only
- D radicle only

9 What are two female parts of a flower?

- A anther and seed
- B sepal and petal
- C stamen and carpel
- D stigma and carpel

10 Cell X contains 24 chromosomes. It divides by mitosis to produce cells Y and Z.



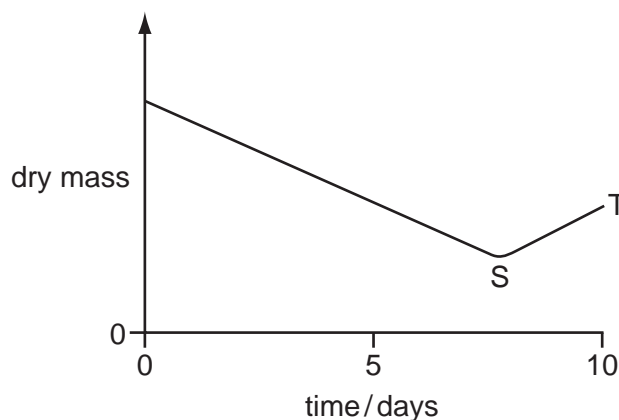
How many chromosomes does cell Z contain?

- A 12
- B 24
- C 46
- D 48

11 What is the function of the sepals of most flowers?

- A to attract insects
- B to produce pollen
- C to protect flower buds
- D to receive pollen

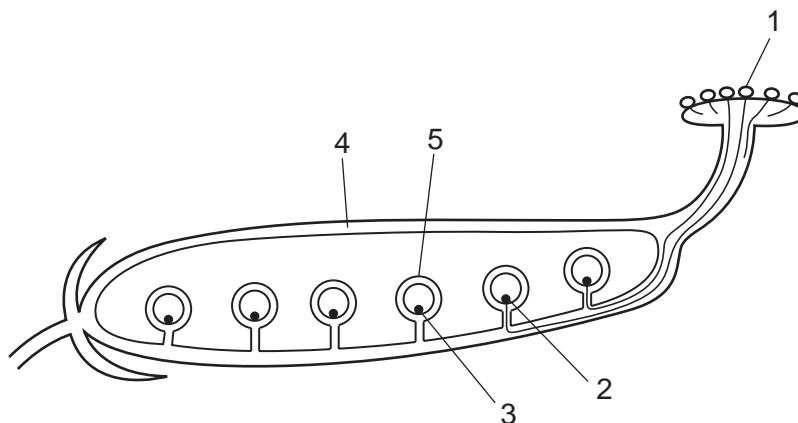
12 The graph shows changes in the dry mass of a seed as it germinates.



What causes the change shown between points S and T?

- A osmosis
- B photosynthesis
- C respiration
- D transpiration

13 The diagram shows part of a flower after it has been pollinated.



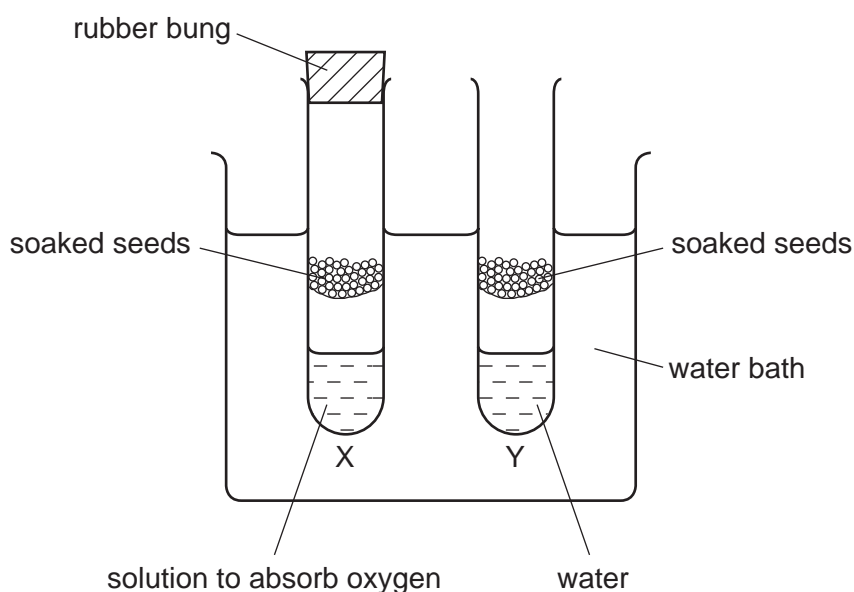
Which labelled structures are diploid and which are haploid?

	diploid	haploid
A	1	4
B	2	1
C	3	2
D	4	5

14 What describes cross-pollination?

- A when one flower pollinates a different flower on a different plant of the same species
- B when one flower pollinates a different flower on the same plant
- C when one flower pollinates a flower of a different species
- D when one flower pollinates the same flower

15 The diagram shows an experiment to find out if seeds need oxygen to germinate.



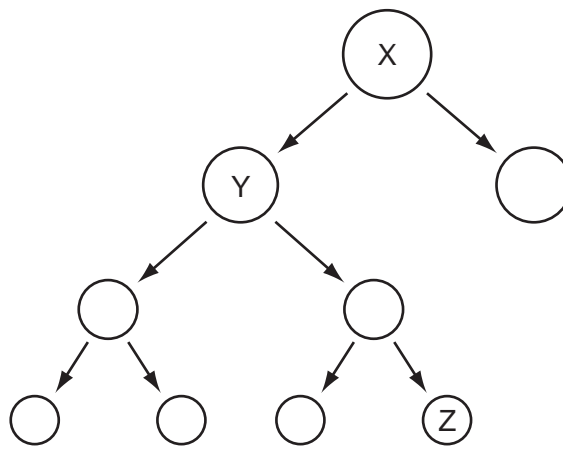
Which change would make tube Y an effective control?

- A Add soda lime (absorbs carbon dioxide) at the bottom of tube Y.
- B Close tube Y with a rubber bung.
- C Do not soak the seeds in tube Y.
- D Replace the soaked seeds in tube Y with seeds that have been boiled.

16 What is pollination?

- A fusion of a pollen grain with an ovule
- B fusion of a pollen grain with an ovum
- C transfer of pollen from an anther to a stigma
- D transfer of pollen from a stigma to an anther

17 Cell X first divides by mitosis and then cell Y divides by meiosis.



How does cell Z compare to cell X?

	cell Z	
	same number of chromosomes as cell X	genetically identical to cell X
<b>A</b>	✓	✓
<b>B</b>	✓	x
<b>C</b>	x	✓
<b>D</b>	x	x

key  
 ✓ = true  
 x = false



18 The seeds of some plants will not normally germinate until they have been in the ground for several months.

Some seeds were collected from a plant of this type.

The seeds were divided into three groups.

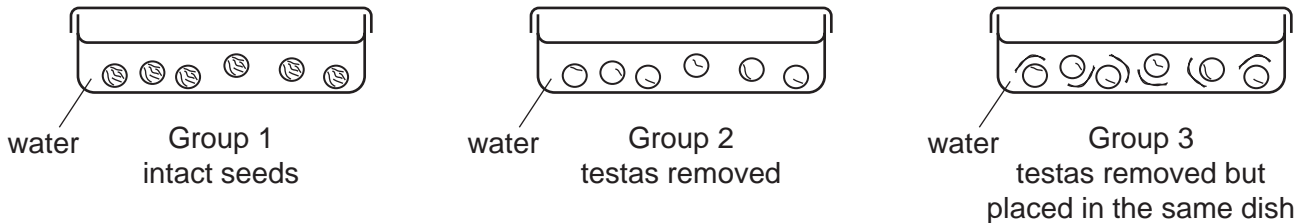
Each group of seeds was put into a shallow dish and covered with water.

The lid that was used was loose fitting so that oxygen could reach the seeds.

*Group 1* were intact seeds.

*Group 2* were seeds from which the testas had been removed.

*Group 3* were seeds from which the testas had been removed, but the testas were placed separately in the same dish.



Only the seeds in Group 2 germinated.

What would be the most logical extension of this experiment?

- A** Change the water of the seeds in group 1 every day to see if they germinate.
- B** Compare the germination of aerated seeds with an unaerated control group.
- C** Repeat the experiment at several different temperatures.
- D** Repeat the experiment using different species of seed.

19 An insect carries pollen from one flower to another flower on the same plant.

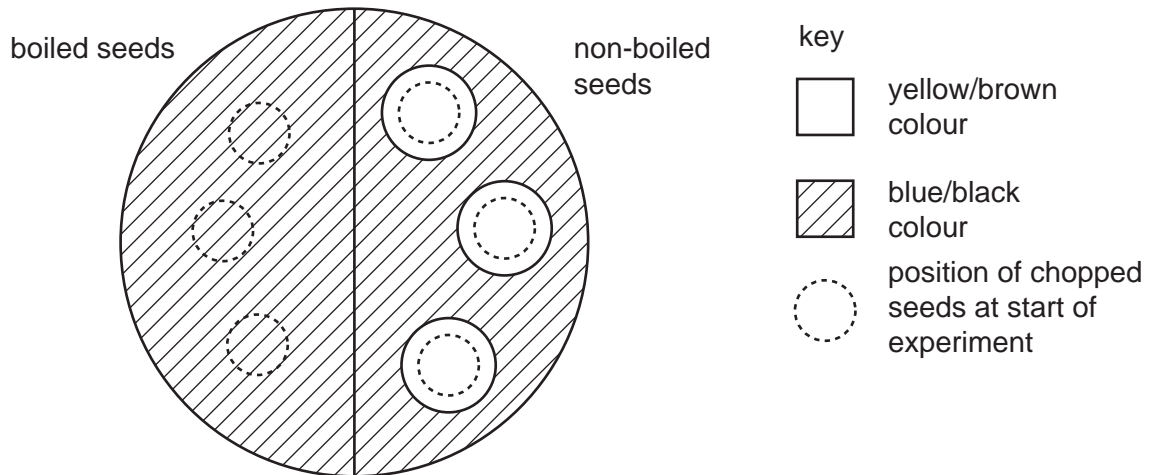
What is the type of reproduction and what is the type of pollination in this plant?

	reproduction	type of pollination
<b>A</b>	asexual	cross-pollination
<b>B</b>	asexual	self-pollination
<b>C</b>	sexual	cross-pollination
<b>D</b>	sexual	self-pollination

20 Six bean seeds were soaked in cold water. Three of them were boiled and cooled. The boiled and the non-boiled seeds were chopped up and then placed on the surface of agar jelly containing starch.

After two days, all the seeds were removed and the jelly was tested with iodine solution.

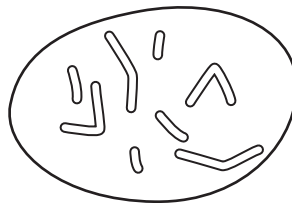
The diagram shows the result of the experiment.



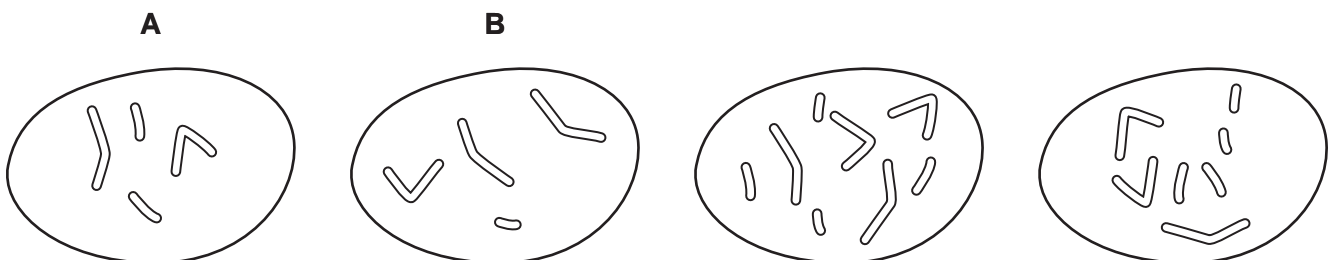
What is the explanation for the results with the non-boiled bean seeds?

- A They absorb iodine.
- B They absorb starch.
- C They contain acid.
- D They contain amylase.

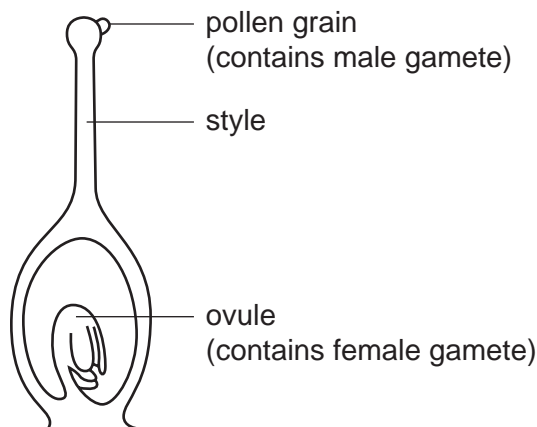
21 The diagram shows the chromosomes in the nucleus of a cell that divides by mitosis.



Which diagram shows the chromosomes in the nucleus of one of the daughter cells produced?



22 The diagram shows part of a flower at the time of pollination.



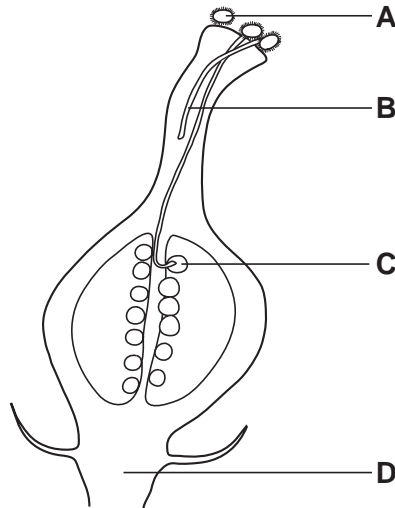
How does the male gamete reach the female gamete?

- A A pollen tube grows down the style.
  - B The pollen grain moves down the style.
  - C The male gamete digests its way down the style.
  - D The male gamete swims down the style.
- 23 Which statement correctly describes advantages or disadvantages of self-pollination to a plant?
- A It needs a lot of pollen but can happen when a plant is on its own.
  - B It needs little pollen but there is a high chance of pollination.
  - C It needs no agent to transfer pollen but pollination is unlikely.
  - D It needs two plants of the same species but there is little variation in the offspring.

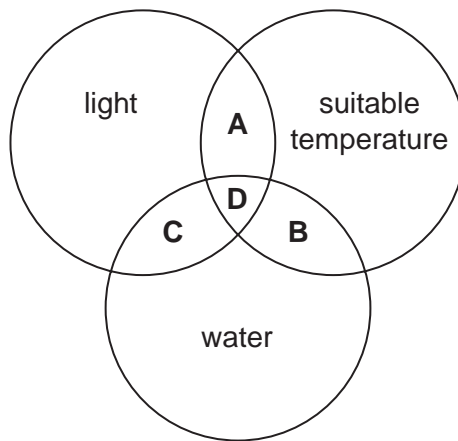
24 New plants may be grown from groups of cells that are taken from other plants.

The diagram shows part of plant X.

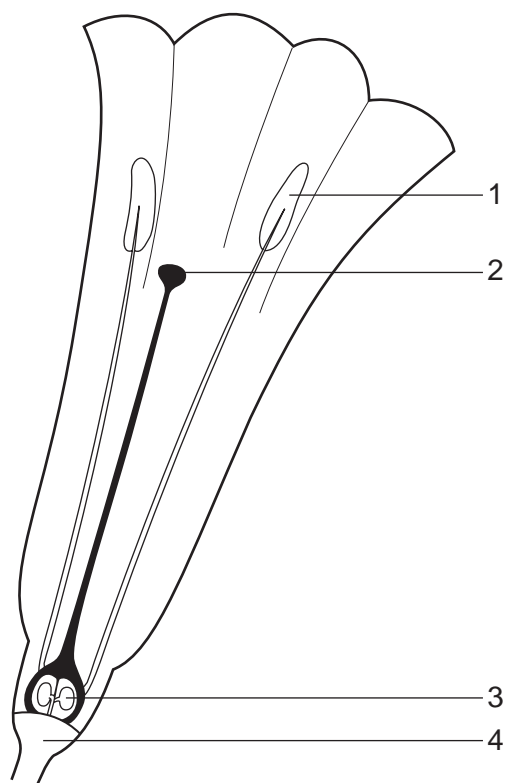
From which structure will cell samples grow into new plants that are genetically identical to plant X?



25 Which conditions are necessary to activate enzymes when a seed germinates?



26 The diagram shows a section through a flower.



In which structures are haploid nuclei formed by reduction division?

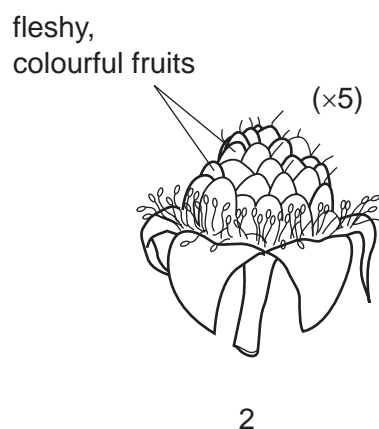
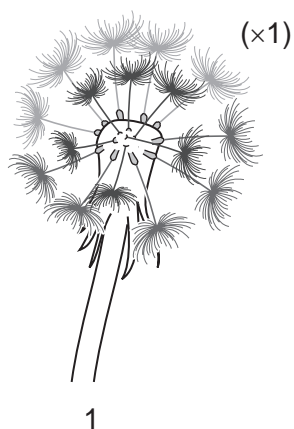
- A** 1 and 3      **B** 1 and 4      **C** 2 and 3      **D** 2 and 4

27 A germinating seed is soaked in blue dye, which becomes colourless in tissues that are actively respiring.

What will be the appearance of the cotyledons, plumule and radicle?

	cotyledons	plumule	radicle
<b>A</b>	blue	blue	blue
<b>B</b>	blue	blue	colourless
<b>C</b>	colourless	blue	colourless
<b>D</b>	colourless	colourless	colourless

28 The diagrams show two kinds of fruit.



How are the seeds of these fruits dispersed?

	1	2
<b>A</b>	birds	mammals
<b>B</b>	birds	wind
<b>C</b>	mammals	birds
<b>D</b>	wind	mammals

29 A plant P is pollinated. A seed from this plant develops into plant Q.

The cells of plant Q contain 14 chromosomes.

How many of these chromosomes are identical to chromosomes from plant P?

	if P was self pollinated	if P was cross pollinated
<b>A</b>	7	7
<b>B</b>	7	14
<b>C</b>	14	7
<b>D</b>	14	14

H€ In plant reproduction, the following processes occur.

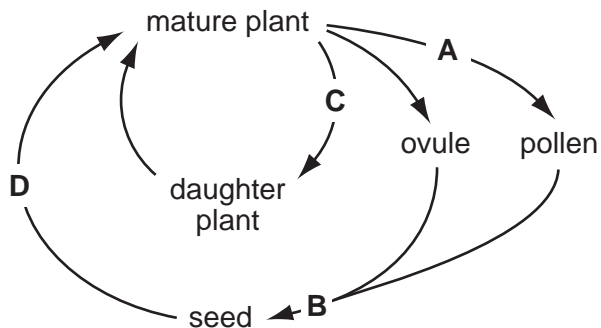
- 1 fertilisation
- 2 growth of a pollen tube
- 3 pollination
- 4 seed germination

In which order do these processes take place?

- A 1 → 4 → 2 → 3
- B 2 → 1 → 3 → 4
- C 3 → 2 → 1 → 4
- D 4 → 3 → 1 → 2

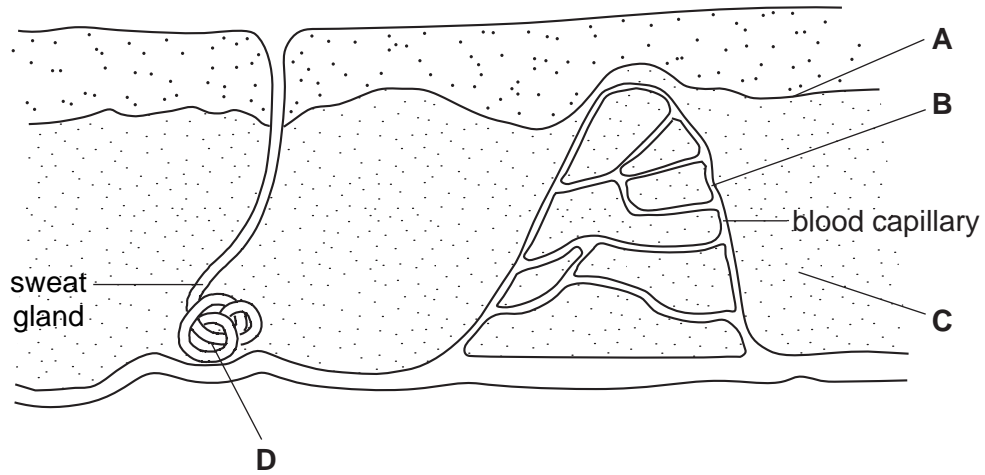
Hƒ The diagram shows the life cycle of a species of plant.

During which stage does reduction division occur?



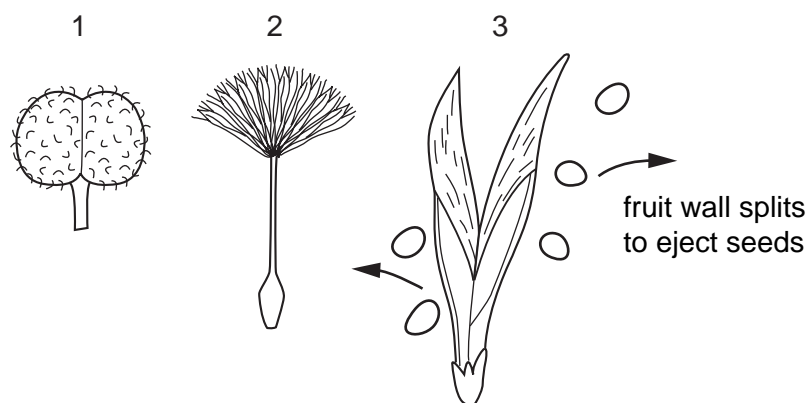
32 The diagram represents a section through the human skin.

In which part is mitosis occurring most rapidly?

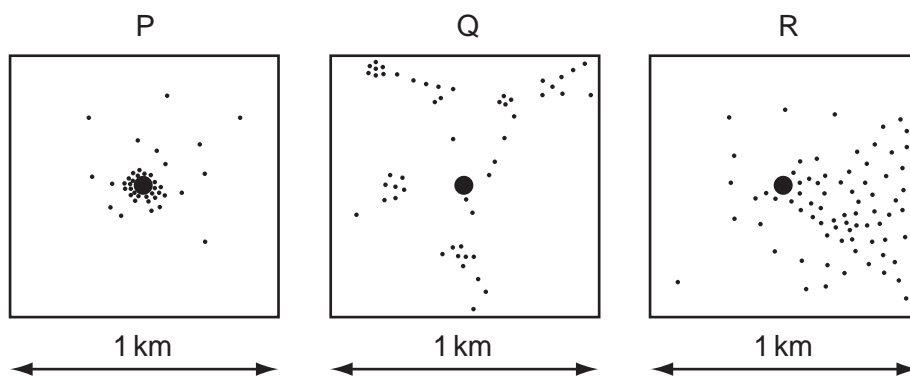




33 The diagrams show the fruits of three species of plant.



P, Q and R are maps showing where the parent plants and their seedlings are growing.



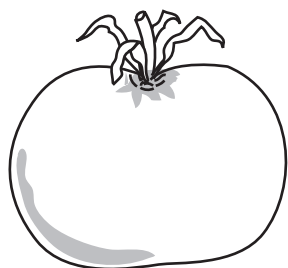
Which map relates to which species?

	species 1	species 2	species 3
<b>A</b>	P	Q	R
<b>B</b>	P	R	Q
<b>C</b>	Q	R	P
<b>D</b>	R	Q	P

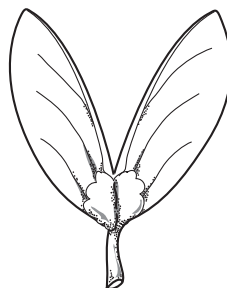
34 The diagrams show four different fruits.



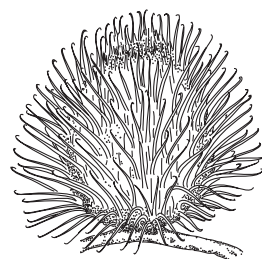
1



2



3



Which two fruits are dispersed by animals?

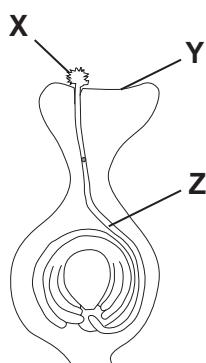
A 1 and 2

B 1 and 3

C 2 and 4

D 3 and 4

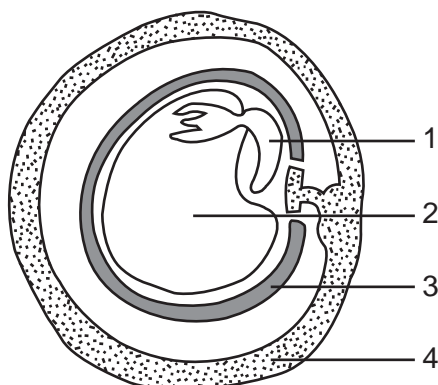
35 The diagram shows the carpel of a flower soon after pollination.



What are the labelled structures?

	X	Y	Z
A	ovule	stigma	filament
B	ovule	stamen	pollen tube
C	pollen grain	stigma	pollen tube
D	pollen grain	stamen	filament

36 The diagram shows a section through a fruit containing a seed.



What are the labelled parts?

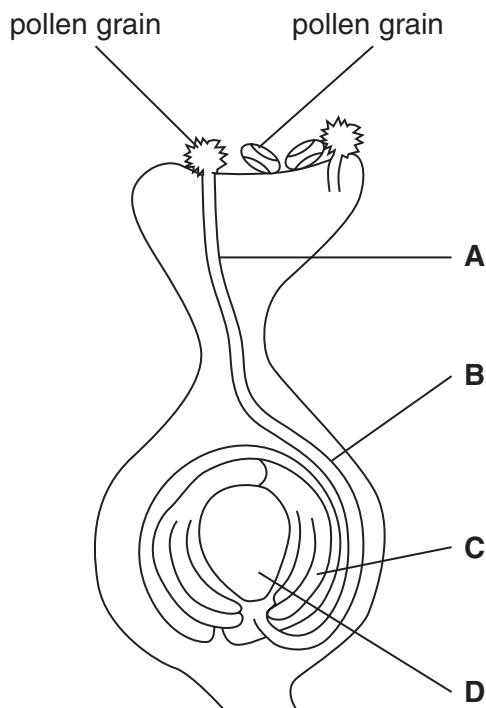
	1	2	3	4
<b>A</b>	cotyledon	radicle	pericarp	testa
<b>B</b>	cotyledon	radicle	testa	pericarp
<b>C</b>	radicle	cotyledon	pericarp	testa
<b>D</b>	radicle	cotyledon	testa	pericarp

37 Which statement is true of asexual reproduction in plants?

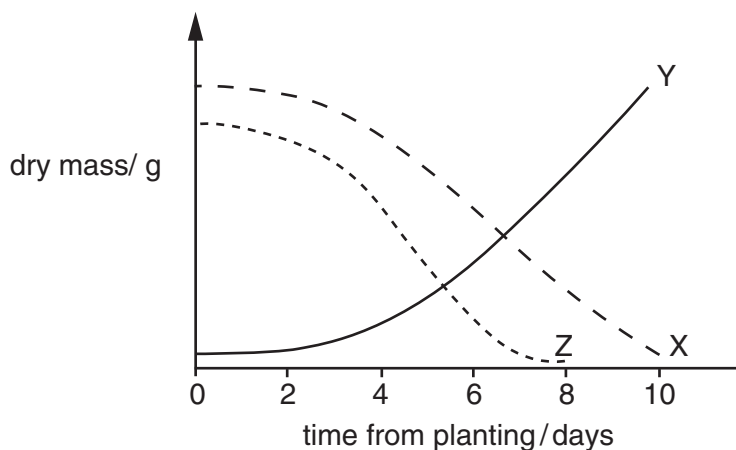
- A** Insects are needed to transfer pollen.
- B** New plants grow from seeds.
- C** Offspring are genetically identical to their parents.
- D** Two types of gamete are involved.

38 The diagram shows the development of a pollen tube and its entry into the ovule.

Which part develops into the testa after fertilisation?



39 The graph shows the changes in dry mass of a whole germinating seed, the cotyledons of the same seed, and the plumule and radicle of the seed.



What do the three curves, X, Y and Z, represent?

	dry mass of whole seed	dry mass of cotyledons	dry mass of plumule and radicle
<b>A</b>	X	Z	Y
<b>B</b>	Y	Z	X
<b>C</b>	Z	X	Y
<b>D</b>	Z	Y	X