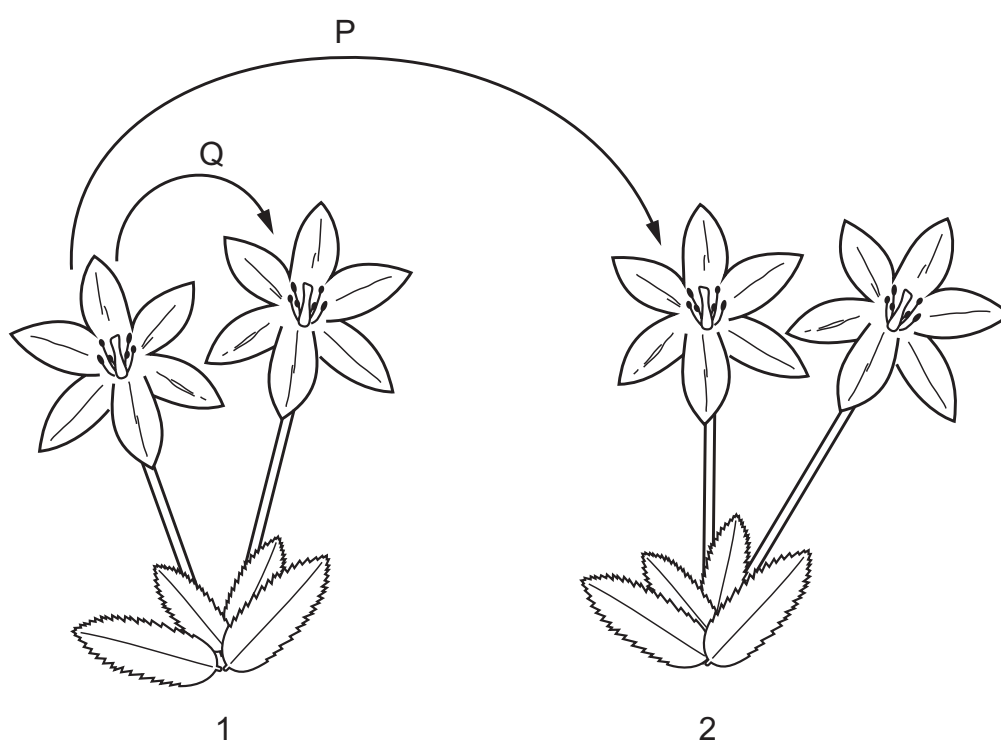


24 Where does fertilisation occur in a plant?

- A** ovule
- B** pollen grain
- C** pollen tube
- D** stigma

24 The diagram shows parts of two different plants, 1 and 2, of the same species.

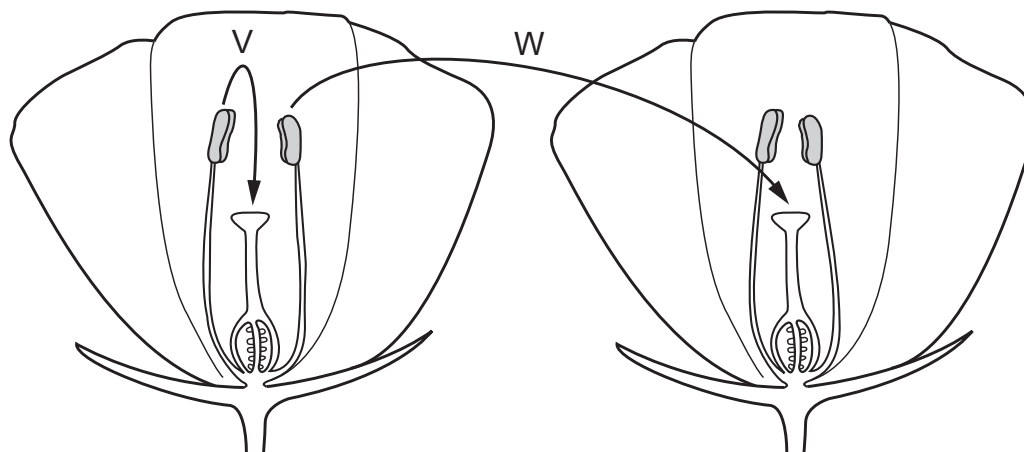
The transfer of pollen between the flowers of these two plants is shown by the arrows labelled P and Q.



Which arrows show cross-pollination, and which transfer of pollen would produce the most variation in the offspring?

	cross-pollination	transfer of pollen that produces the most variation in the offspring
A	P only	P
B	P only	Q
C	P and Q	P
D	P and Q	Q

- 27** The diagram shows two methods of pollination, V and W. The two flowers are on different plants of the same species.



A student made three conclusions about these two methods of pollination.

- 1 Method V will produce genetically identical offspring.
- 2 Method W will produce genetically different offspring.
- 3 Method W increases the ability of the species to adapt to its surroundings.

Which conclusions are correct?

- A** 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

- 4 Fig. 4.1 is a photograph of a bee on a flower. One of the bee's legs is covered with pollen.



Fig. 4.1

- (a) (i) State **three** features of flowers that attract pollinating insects such as bees.

1
2
3 [3]

- (ii) State **one** way that pollen grains are adapted for pollination by bees.

.....
.....
..... [1]

- (b) Describe **two** ways the structure of a monocotyledonous plant differs from the structure of a dicotyledonous plant.

1
.....
2
..... [2]

(c) Fig. 4.2 is a diagram of a cross-section of an insect-pollinated flower.

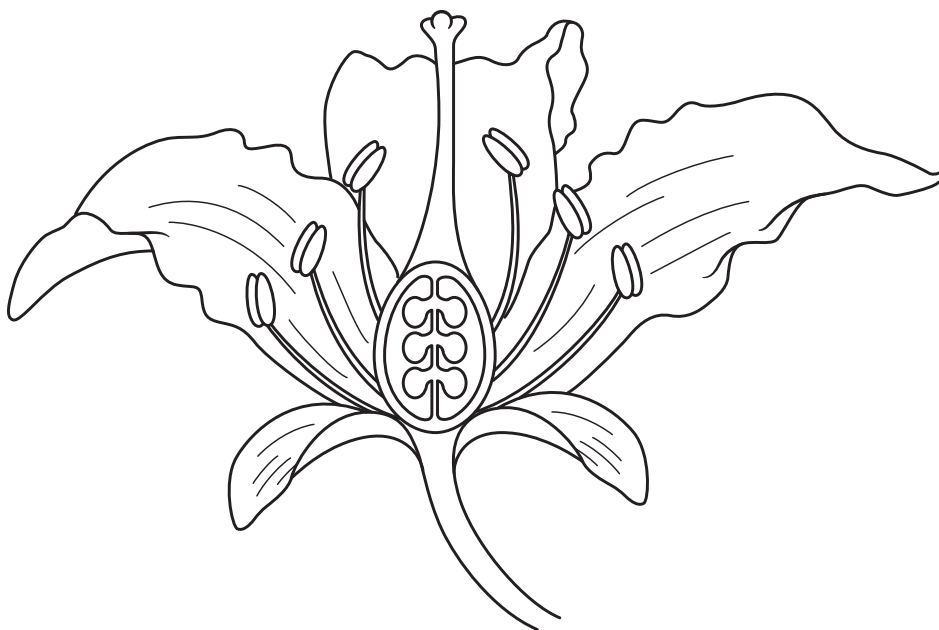


Fig. 4.2

On Fig. 4.2, name and draw label lines to:

- the structure that supports an anther
- a structure that protects the flower bud
- an ovule.

[3]

(d) Describe sexual reproduction in a flower, from the release of pollen to the formation of a zygote.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(e) Sexual reproduction also occurs in humans.

(i) State the name of the male gamete in a human.

..... [1]

(ii) State where gametes are formed in the human male reproductive system.

..... [1]

(iii) Human male gametes are haploid.

State the name of the process that produces haploid male gametes.

..... [1]

(iv) Describe the function of the prostate gland in the male reproductive system.

.....

 [1]

[Total: 18]

29 Which description of cross-pollination is correct?

- A** the transfer of pollen grains from the anther of one plant to the stigma on a different plant
- B** the transfer of pollen grains from the anther to the stigma on the same plant
- C** the transfer of pollen grains from the stigma of one plant to the anther on a different plant
- D** the transfer of pollen grains from the stigma to the anther on the same plant

28 Which statement about pollination is correct?

- A** Self-pollination increases the ability of the population to respond to changes in the environment by increasing variation.
- B** Self-pollination increases the ability of the population to respond to changes in the environment by reducing variation.
- C** Self-pollination reduces the ability of the population to respond to changes in the environment by increasing variation.
- D** Self-pollination reduces the ability of the population to respond to changes in the environment by reducing variation.

- 3 (a) Fig. 3.1 shows one stage involved in plant reproduction after pollination.

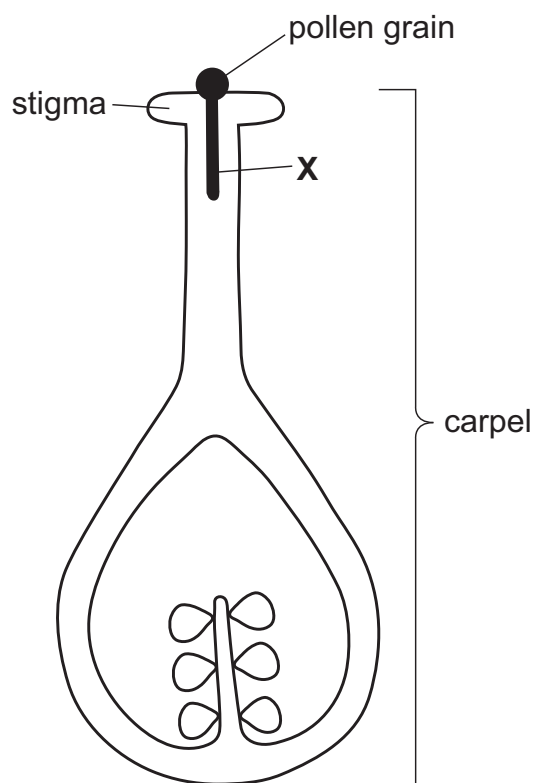


Fig. 3.1

- (i) State the name of the part labelled X in Fig. 3.1.

..... [1]

- (ii) Describe the events that occur after the stage shown in Fig. 3.1 that result in fertilisation.

.....
.....
.....
.....
.....
.....
..... [3]

(b) A species of plant can use self-pollination and cross-pollination.

(i) Suggest reasons for this species of plant to use self-pollination rather than cross-pollination.

[3]

(ii) Discuss the potential effects of only using self-pollination in a population of plants.

[3]

(c) Meiosis produces gametes and is a source of genetic variation.

State **two other** sources of genetic variation in populations.

1

2

[2]

(d) Describe mitosis and its roles in organisms.

[4]

(e) State the name of the unspecialised cells that divide by mitosis.

[1]

[Total: 17]

25 Which row describes self-pollination?

	pollen transferred from an anther to the stigma of a different flower on the same plant	pollen transferred from an anther to the stigma of a flower on a different plant of the same species	pollen transferred from an anther to the stigma of the same flower
A	✓	✓	✗
B	✓	✗	✓
C	✗	✗	✓
D	✗	✓	✓

key
✓ = yes
✗ = no