

1 Fig. 1.1A shows a buttercup, *Ranunculus cymbalaria*. Fig. 1.1B shows details of a flower of the same plant.



Fig. 1.1

(a) Explain, using only features visible in Fig. 1.1, why *Ranunculus cymbalaria* is classified as a dicotyledonous plant rather than as a monocotyledonous plant.

.....

.....

.....

..... [2]

Fig. 1.2 shows a transverse section through a buttercup root at the end of the cold winter (**W**) and at the end of the warm, moist summer (**S**). At the end of the winter, the cells contain very few starch grains. At the end of the summer, most of the root cells contain many starch grains.

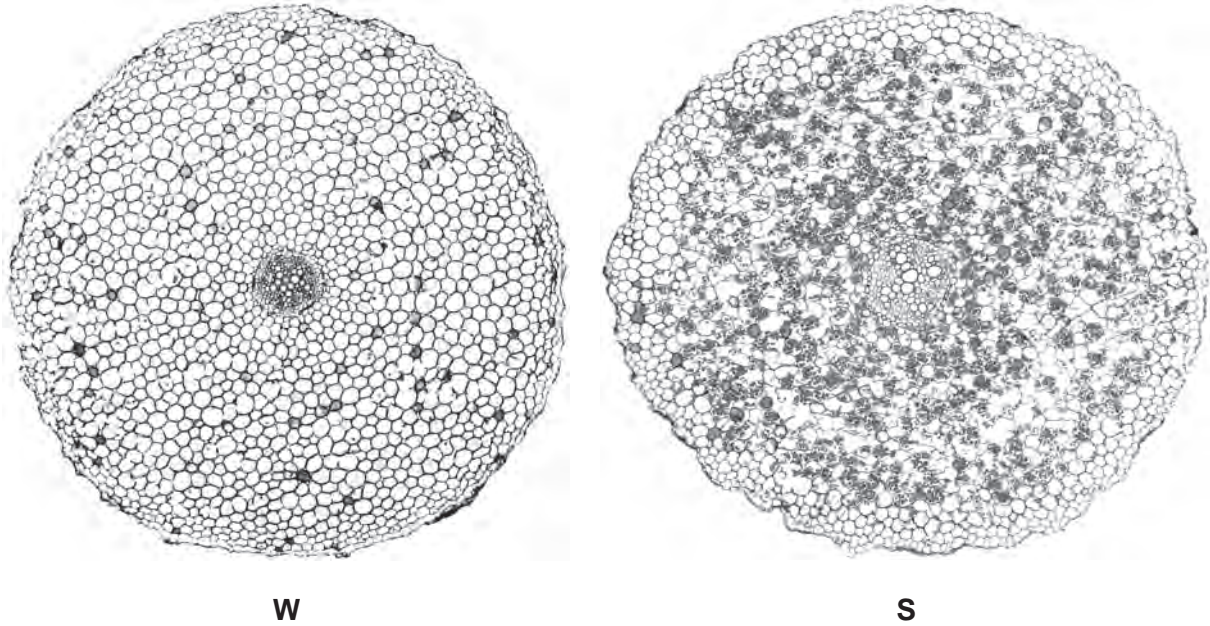


Fig. 1.2

(b) Suggest why there are few starch grains in the cells of **W** compared with a large number of starch grains in the cells of **S**.

.....

.....

.....

.....

.....

.....

.....

[3]

(c) Describe how enzymes in root cells synthesise starch.

.....

.....

.....

.....

.....

[3]

(d) As temperature is increased, for example from 10 °C to 30 °C, enzyme activity increases.

Explain how increasing temperature affects enzyme activity.

.....

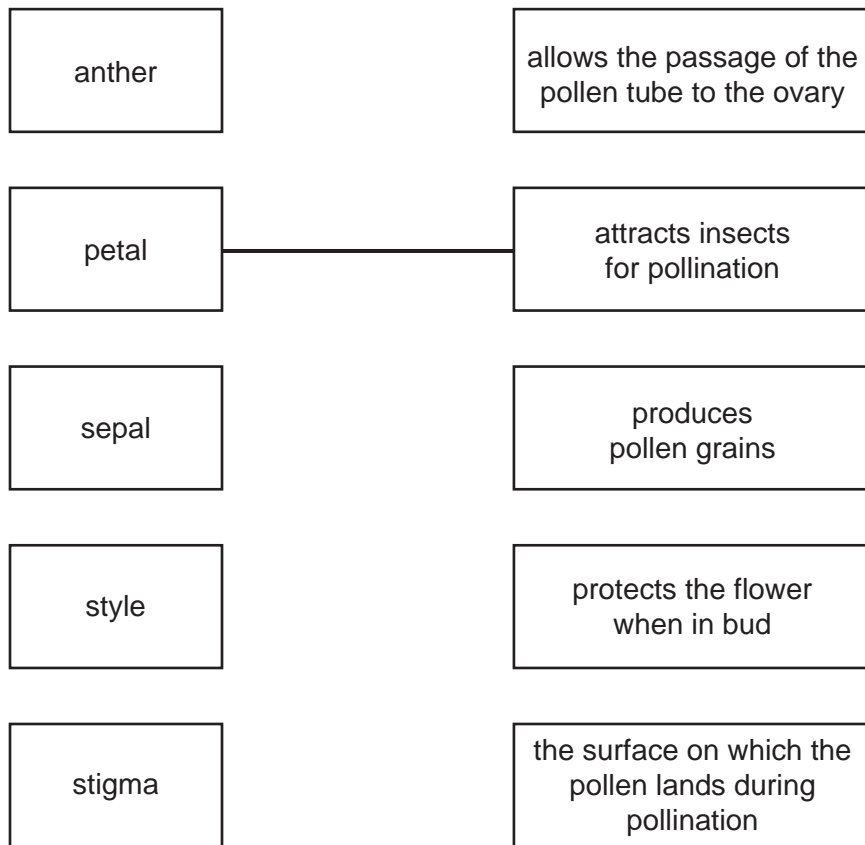
.....

.....

..... [2]

[Total: 10]

- 2 (a) Using straight lines, match the names of the flower parts with their functions. One has been completed for you.



[4]

- (b) Describe how the stigmas of wind-pollinated flowers differ from the stigmas of insect-pollinated flowers. Relate these differences to the use of wind as the pollinating agent.

.....

.....

.....

.....

.....

..... [3]

- (c) Discuss the implications to a species of self-pollination.

.....

.....

.....

..... [3]

[Total: 10]

3 Toads are amphibians. Only two species are native to Britain, the Common toad (*Bufo bufo*) and the Natterjack toad (*Bufo calamita*).
Natterjack toads like warm sandy soil in open and sunny habitats, with shallow pools for breeding. Examples of these habitats are heathland and sand dunes.
Common toads like cooler, more shady habitats, such as woodland.
Many areas of sand dunes are being developed for camp sites. Heathland can easily change to woodland as trees grow on it. In the summer, woodland is colder than heathland due to the shade the trees create.
These conditions suit the Common toad, but not the Natterjack. As a result of the changing habitats the Natterjack toad is becoming an endangered species.

(a) (i) Name **one** external feature that identifies an animal as an amphibian.

..... [1]

(ii) Amphibians are a class of vertebrate.

Name two other vertebrate classes.

1.

2. [2]

(b) State **one** piece of information from the passage to show that the Common toad and Natterjack toad are closely related species.

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

(c) From the information provided, state two reasons why Natterjack toads are becoming endangered.

1.

.....

2.

..... [2]

(d) Suggest measures that could be taken to protect the Natterjack toad from extinction.

.....

.....

..... [2]

Fig. 1.1 shows a food web for British toads.

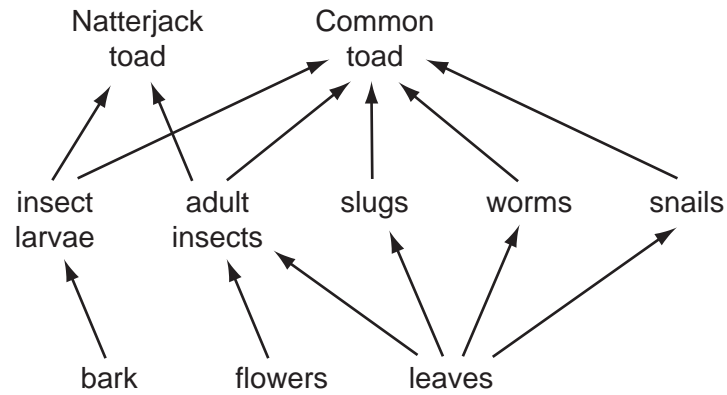


Fig. 1.1

(e) (i) State the trophic level of toads.

..... [1]

(ii) State which foods the two species of toad both eat.

..... [1]

(iii) With reference **only** to food, suggest why the Common toad is more likely to survive when the two species are in competition.

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

[Total: 11]