

1. **Nov/2020/Paper_11/No.36**

The diagram shows a food chain.

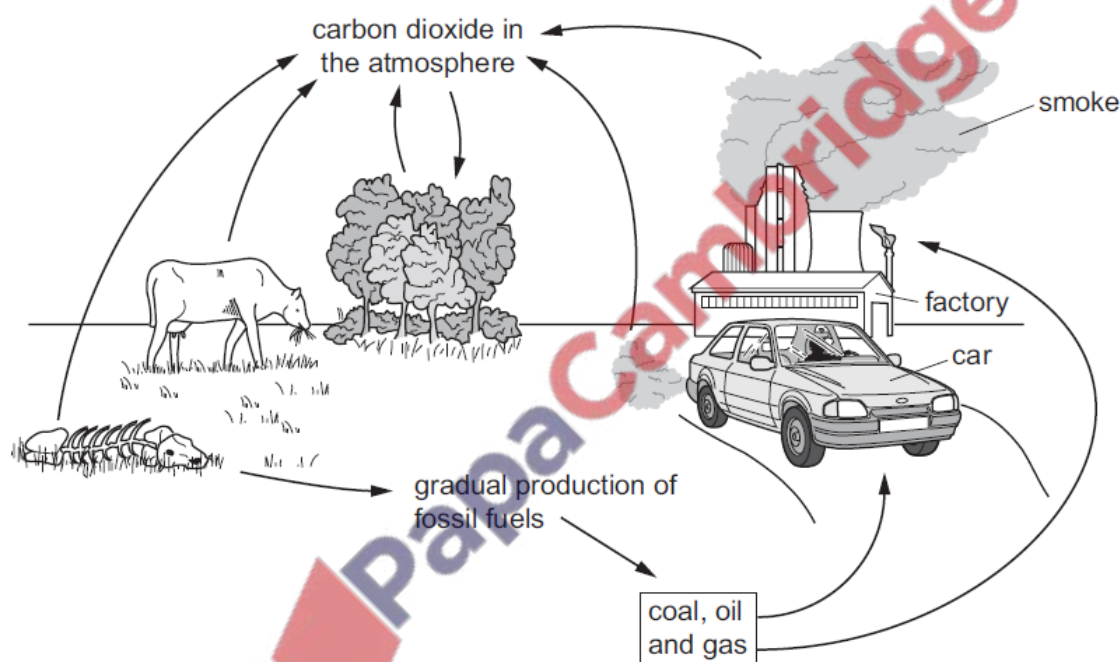
clover plant → rabbit → fox

Which terms can be used to describe the fox in this food chain?

- A carnivore and primary consumer
- B carnivore and secondary consumer
- C carnivore and tertiary consumer
- D carnivore only

2. **Nov/2020/Paper_11/No.37**

The diagram represents the carbon cycle.



Which process produces the carbon dioxide from the factory and the car?

- A combustion
- B condensation
- C decomposition
- D precipitation

3. **Nov/2020/Paper_11/No.38**

In the water cycle, which stage is **only** carried out by plants?

- A condensation
- B evaporation
- C precipitation
- D transpiration

4. Nov/2020/Paper_12/No.35

A food chain is shown.

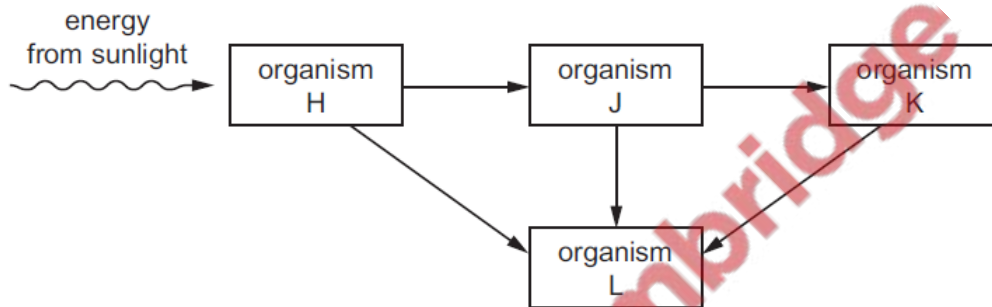
potato plant → slug → hedgehog

By which process is energy transferred from the slug to the hedgehog?

- A egestion
- B excretion
- C ingestion
- D photosynthesis

5. Nov/2020/Paper_12/No.36

The diagram shows a food web.

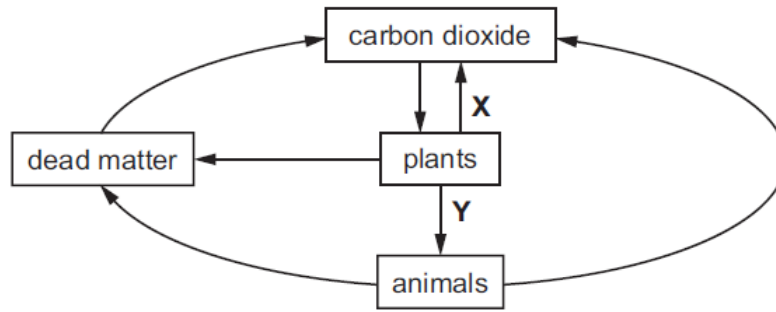


What is organism L?

- A a carnivore
- B a decomposer
- C a herbivore
- D a producer

6. Nov/2020/Paper_12/No.37

The diagram shows part of the carbon cycle.

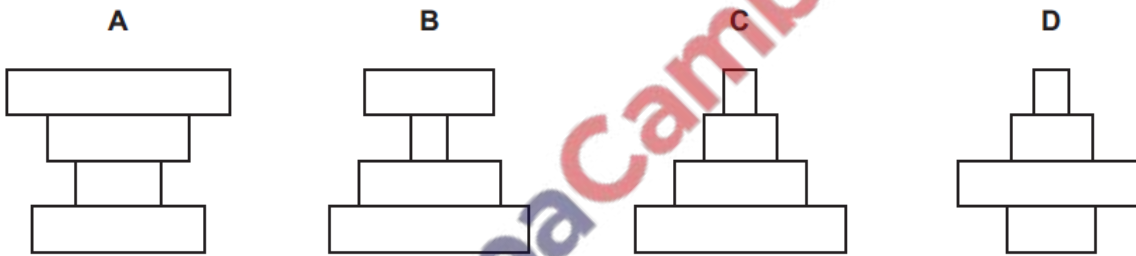


What do arrows X and Y represent?

- A decay and respiration
- B feeding and photosynthesis
- C photosynthesis and respiration
- D respiration and feeding

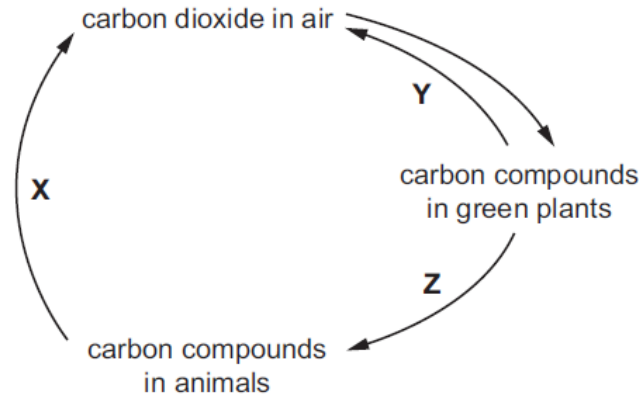
7. Nov/2020/Paper_13/No.35

Which pyramid of numbers has more tertiary consumers than producers?



8. Nov/2020/Paper_13/No.36

The diagram represents part of the carbon cycle.

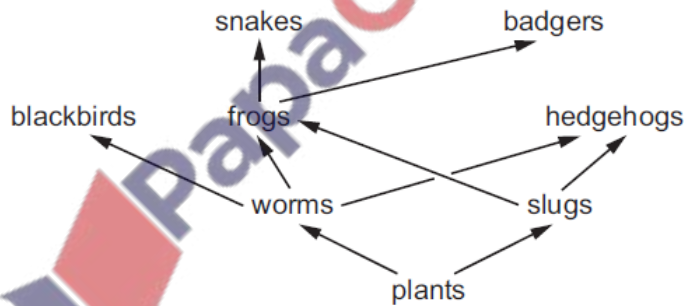


Which processes are represented by X, Y and Z?

	X	Y	Z
A	photosynthesis	feeding	combustion
B	respiration	respiration	feeding
C	combustion	feeding	photosynthesis
D	feeding	respiration	combustion

9. Nov/2020/Paper_13/No.37

The diagram shows part of a food web.

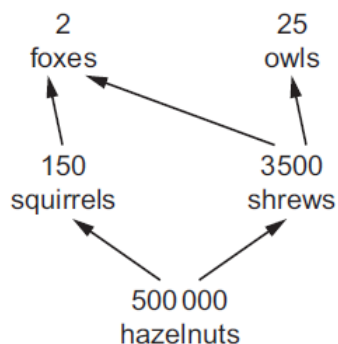


What is most likely to decrease the size of the frog population?

- A fewer badgers
- B fewer slugs
- C more plants
- D more worms

10. Nov/2020/Paper_21/No.35

The diagram contains information about the number and mass of organisms in a food web.



organism	average mass/g
fox	13 000
hazelnut	3
shrew	20
owl	600
squirrel	400

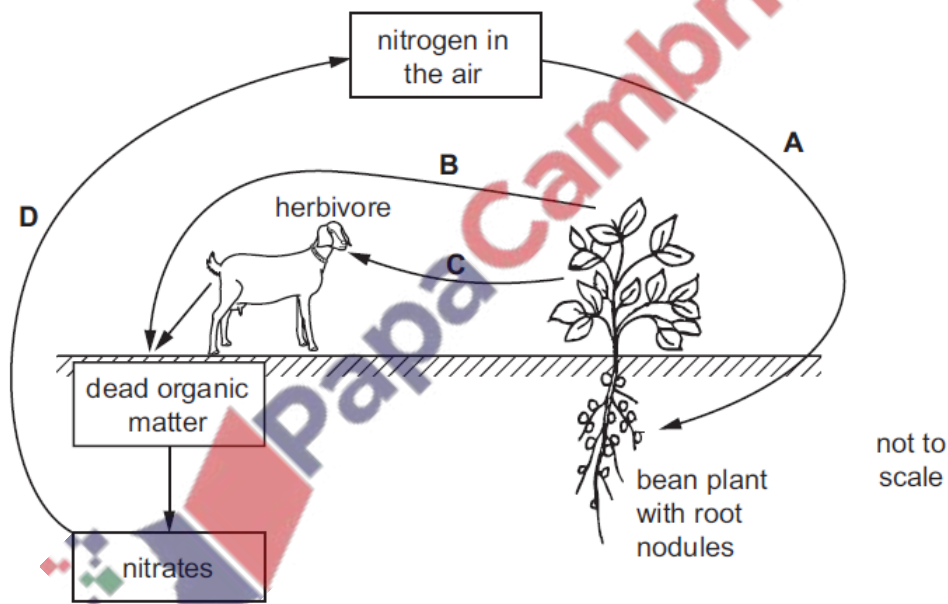
What is the total biomass of all the primary consumers in this food web?

- A 130 kg B 420 kg C 3650 kg D 130 000 kg

11. Nov/2020/Paper_21/No.36

The diagram shows some of the stages in the nitrogen cycle.

Which arrow represents the process of nitrogen fixation?



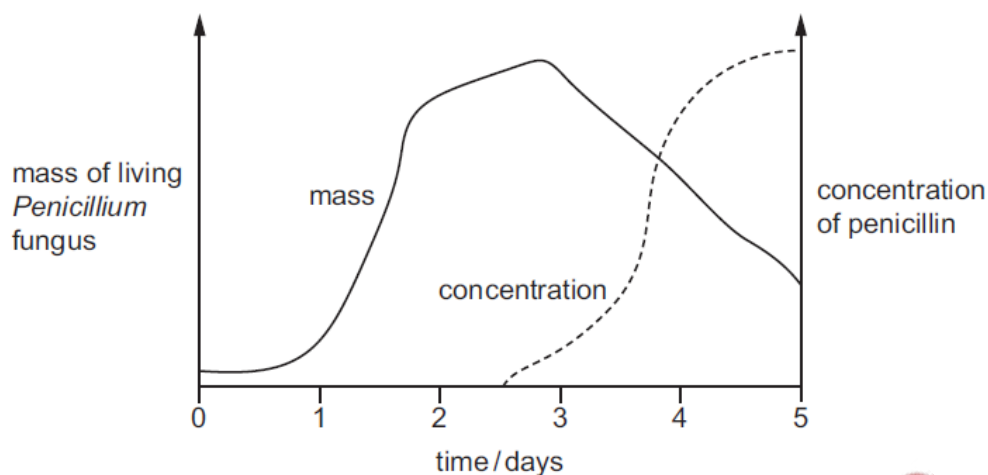
12. Nov/2020/Paper_21/No.37

Which term is used to describe the phase of fastest growth in a population of bacteria?

- A stationary
 B lag
 C exponential
 D sigmoid

13. Nov/2020/Paper_21/No.39

Penicillin is produced in a fermenter by growing the fungus *Penicillium*. The graph shows how the mass of living *Penicillium* fungus and the concentration of penicillin changed over time.



When is the best time to collect the penicillin?

- A at 1.5 days
- B at 3 days
- C at 3.5 days
- D at 5 days

14. Nov/2020/Paper_22/No.40

The hormones from the female contraceptive pill can pollute water courses.

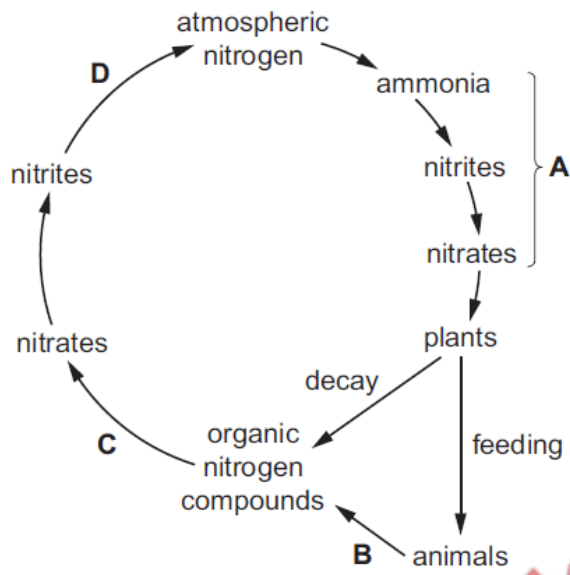
What effect do they have?

- A decrease the amount of oxygen for fish
- B decrease the sperm count of men
- C increase the growth of producers
- D increase the number of decomposers

15. Nov/2020/Paper_23/No.35

The diagram shows part of the nitrogen cycle.

Which letter represents denitrification?



PapaCambridge

Fig. 5.1 shows a food web.

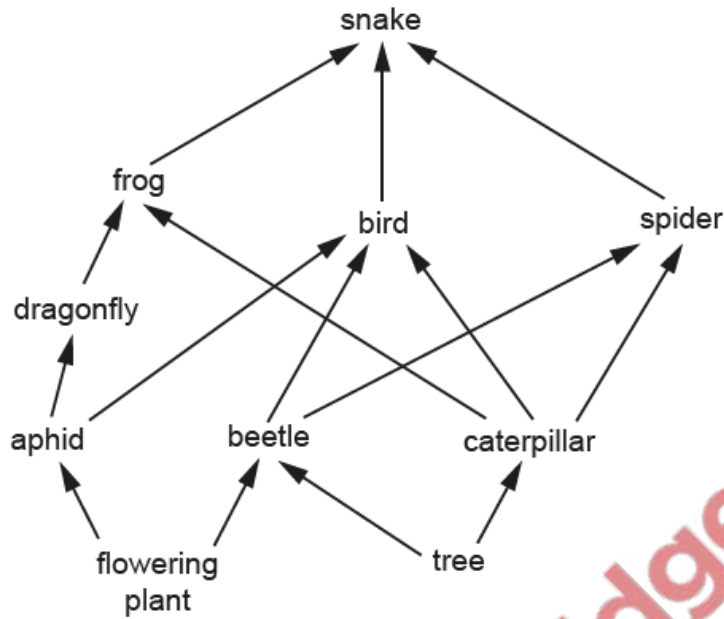


Fig. 5.1

(a) (i) Complete Table 5.1 using the information in Fig. 5.1.

One has been done for you.

Table 5.1

	number shown in Fig. 5.1
producers	2
herbivores	
primary consumers	
carnivores	

[3]

(ii) State the name of **one** organism in Fig. 5.1 which obtains its energy from eating three different organisms.

..... [1]

(b) A disease killed most of the snakes in the food web in Fig. 5.1.

Complete the sentences by circling the correct words in bold.

The first one has been done for you.

The population of snakes **increases** / **decreases** / **stays the same** .

The population of spiders **increases** / **decreases** / **stays the same** because there is less **predation** / **food** / **competition** .

The population of caterpillars **increases** / **decreases** / **stays the same** because there is more **predation** / **food** / **competition** .

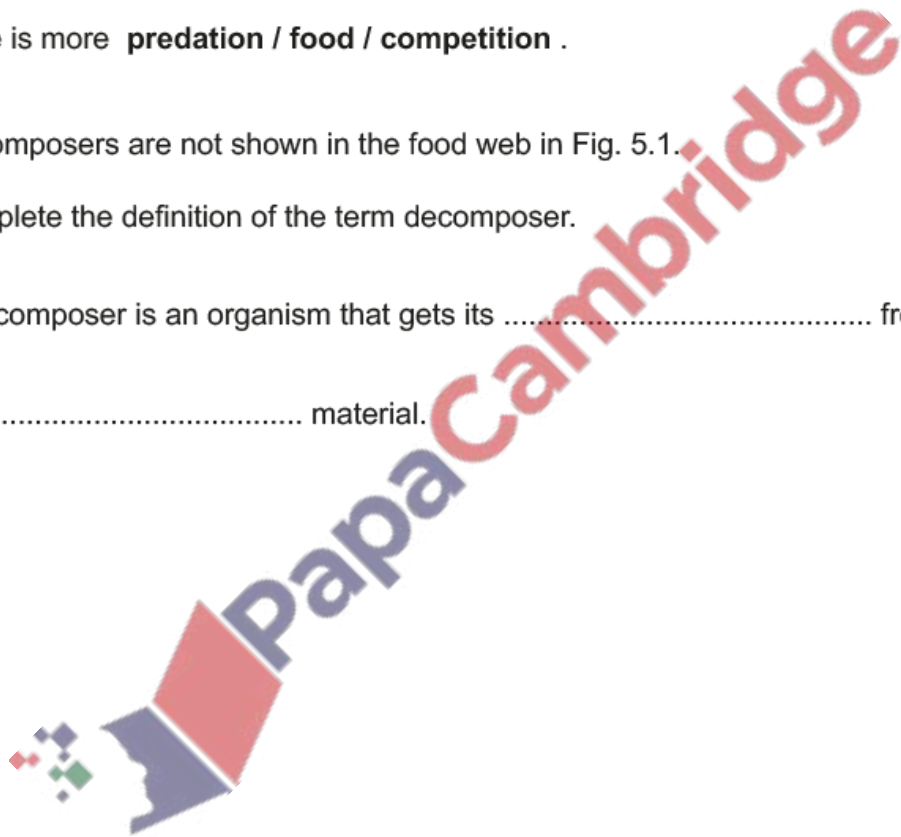
[2]

(c) Decomposers are not shown in the food web in Fig. 5.1.

Complete the definition of the term decomposer.

A decomposer is an organism that gets its from dead or waste
..... material.

[2]



(d) Fig. 5.2 shows a food chain.



Fig. 5.2

Table 5.2 shows the number of organisms in this food chain and some of the information needed to draw a pyramid of numbers.

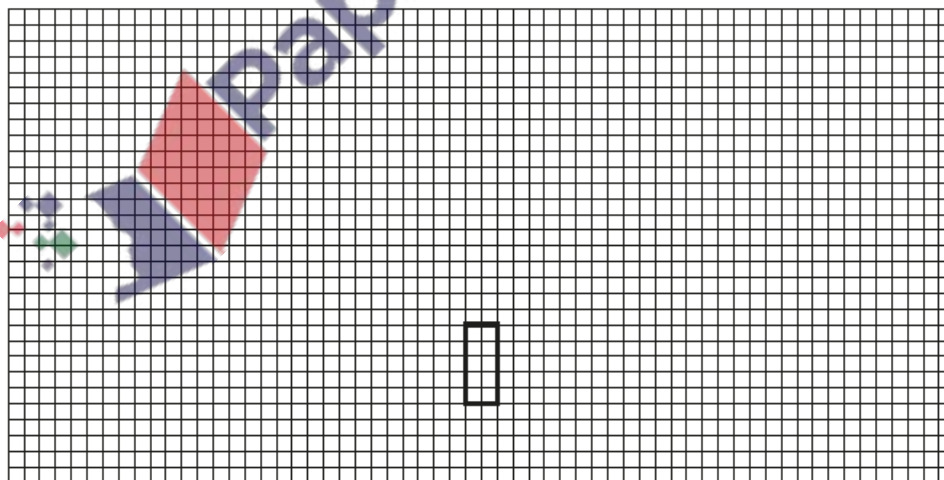
Table 5.2

organism	number of organisms	width of bar in pyramid /mm
bird	2	
caterpillar	20	80
cabbage	1	4

(i) Complete Table 5.2 by calculating the missing value and writing it in the table. [1]

(ii) Complete the pyramid of numbers on the grid for the food chain shown in Fig. 5.2 using the information in Table 5.2. The bar for the cabbage has been done for you.

Label the organisms on the pyramid of numbers.



[3]

[Total: 12]

(a) Fig. 3.1 is a photograph of a butterfly.

Butterflies are arthropods.



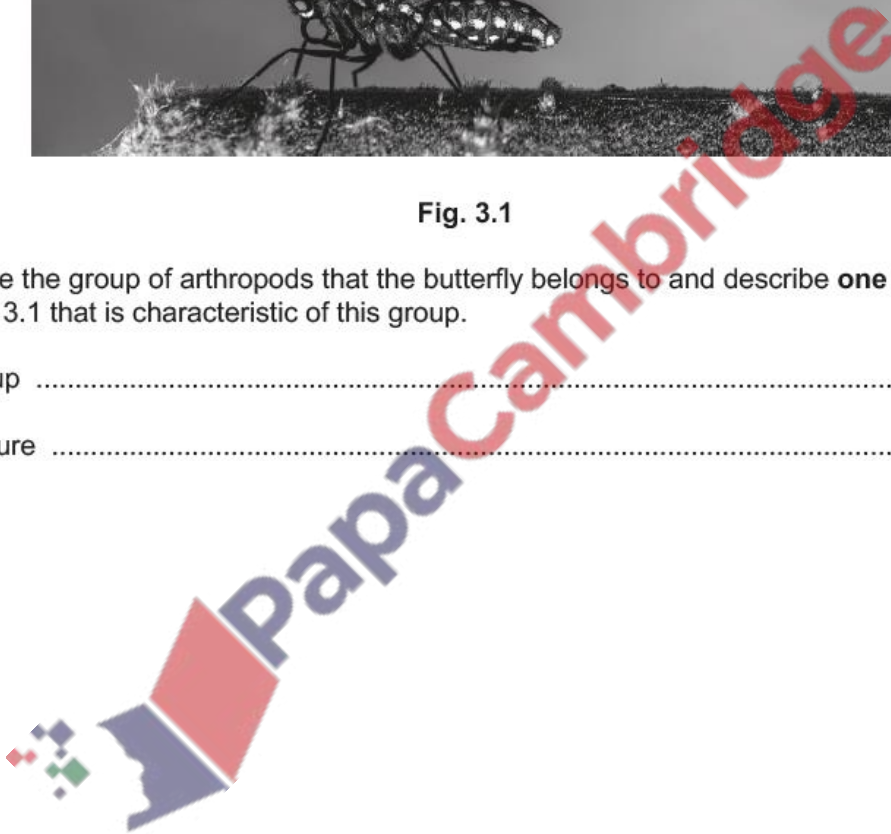
Fig. 3.1

State the group of arthropods that the butterfly belongs to and describe **one** feature visible in Fig. 3.1 that is characteristic of this group.

group

feature

[2]



(b) Many butterfly species are endangered.

Fig. 3.2 shows the size of the area in which five species of butterfly were found in 1992 and 2017.

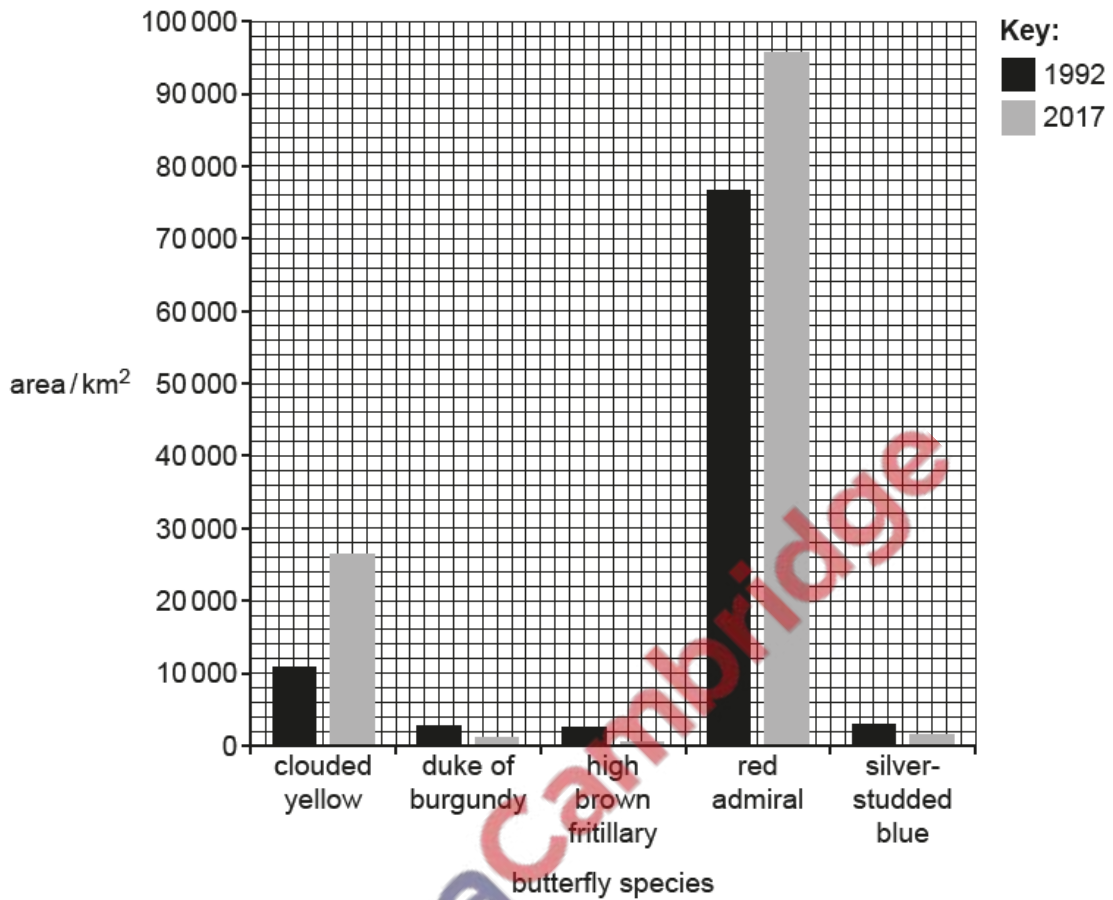


Fig. 3.2

(i) State the name of **one** species that was found in a larger area in 2017 than in 1992.
..... [1]

(ii) Use the information in Fig. 3.2 to suggest the name of the butterfly species that is the most endangered.

Give a reason for your choice.

name

reason

.....

[2]

Fig. 3.1 is a food web for a forested area in Central America.

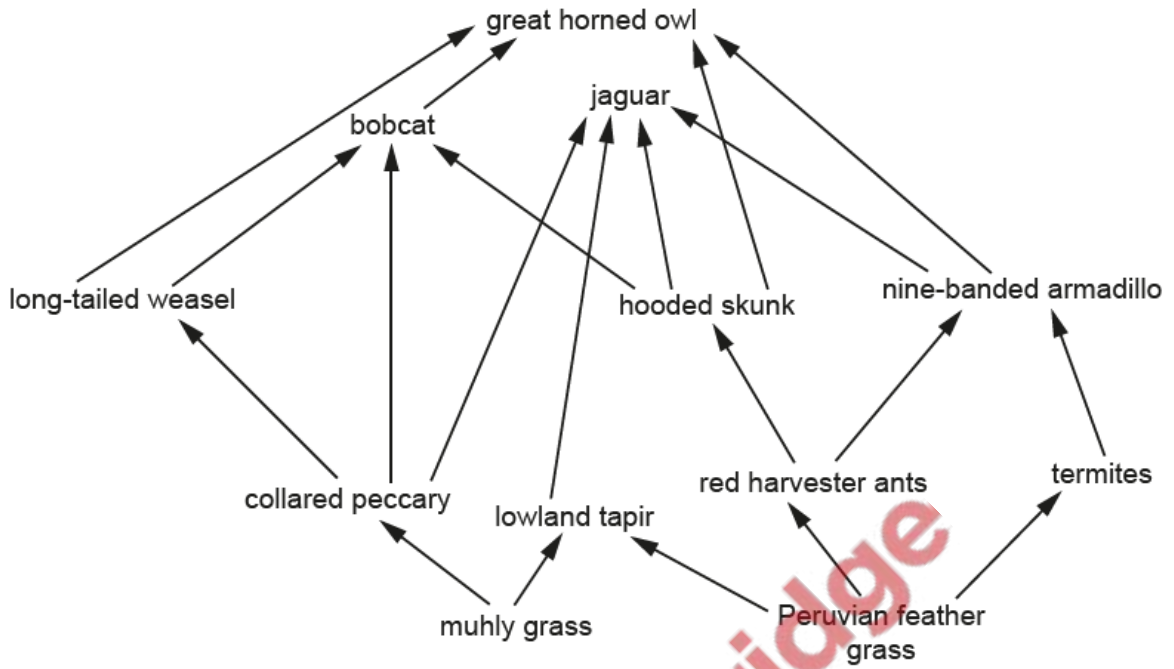


Fig. 3.1

(a) Complete Table 3.1 using information from Fig. 3.1.

Table 3.1

trophic level	description	example from Fig. 3.1
herbivore		
producer		
	feeds on tertiary consumers	
secondary consumer		

[4]

(ii) Forests are cleared for farmland. Deforestation can lead to a loss of soil (soil erosion).

Explain the effects of soil erosion on ecosystems.

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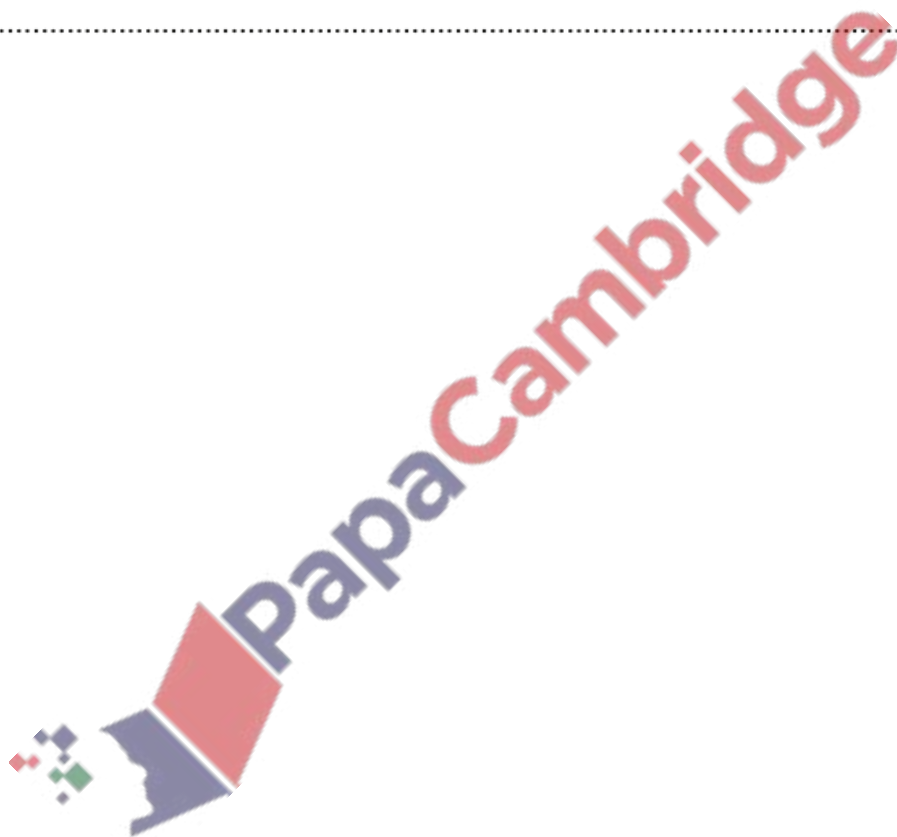
.....

.....

.....

[3]

[Total: 15]



(a) A person ate a meal containing starch and fat.

Fig. 2.1 shows some events that occurred after ingesting this meal.

P	absorption of nutrients in the villi
Q	assimilation of fatty acids in the liver
R	breakdown of large food particles by the teeth
S	movement of small food particles through the oesophagus
T	secretion of amylase from the salivary glands

Fig. 2.1

Put the events in Fig. 2.1 into the correct sequence. One has been done for you.

R				
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[2]

(b) The stomach lining contains cells that secrete proteins.

(i) State the names of **two** cell structures that are involved in making or secreting proteins.

1

2

[2]

(ii) State the name of **one** component of gastric juice **and** describe its functions.

.....

.....

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.....

.....

.....

.....

[3]

(iii) There are goblet cells in many parts of the alimentary canal.

State the substance that goblet cells secrete.

..... [1]

(c) Emulsification of fats occurs in the alimentary canal.

(i) Describe the process of emulsification of fats.

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

(ii) State the name of the organ in the alimentary canal where fats are emulsified.

..... [1]

(iii) State the name of the structure in the villi where digested fats are absorbed.

..... [1]

[Total: 12]

