

# 19. Organisms and their environment

## 19.2 Food chains and food webs

### Paper 1 and 2

Question Paper

# Paper 1

Questions are applicable for both core and extended candidates

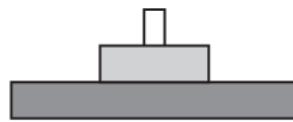
1 Which trophic level describes an organism that only eats herbivores?

- A producer
- B primary consumer
- C secondary consumer
- D tertiary consumer

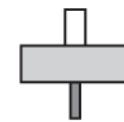
2 Which diagram shows a pyramid of biomass for the food chain shown?

key                    
tree      →      caterpillar      →      bird

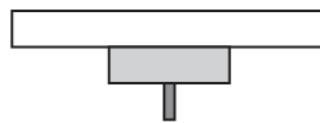
A



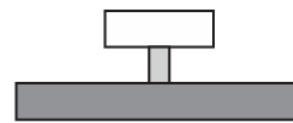
B



C

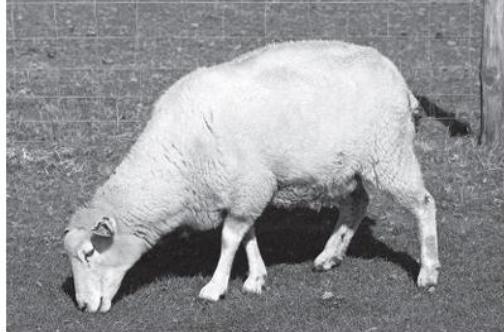


D



3 The images show four animals.

1



sheep

2



eagle

3



tortoise

4



tiger

Which two animals show adaptive features for being secondary consumers?

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

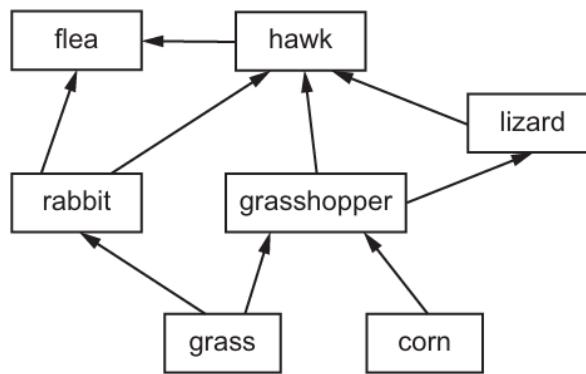
4 The diagram shows a food chain.

plant leaf → slug → frog → fox

Which terms describe the position of the fox in this food chain?

	consumer	trophic level
<b>A</b>	quaternary	fourth
<b>B</b>	tertiary	third
<b>C</b>	quaternary	third
<b>D</b>	tertiary	fourth

5 The diagram shows a food web.



Which food chain shows a correct flow of energy through the web?

- A** corn → grasshopper → hawk → lizard
- B** grass → grasshopper → hawk → rabbit
- C** grass → rabbit → hawk → flea
- D** corn → grass → rabbit → hawk

6 A food chain is shown.

lettuce plant → slug → hedgehog

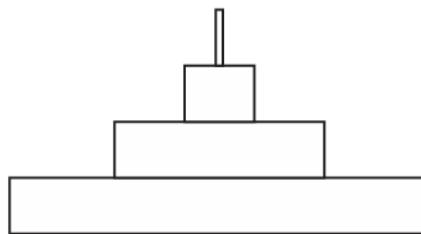
By which process is energy transferred from the lettuce plant to the slug?

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

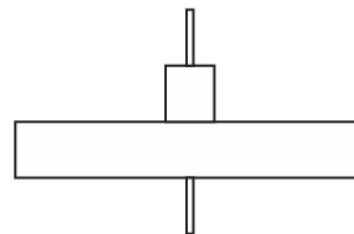
7 A single bush is food for a large population of greenfly. Several ladybirds eat the greenfly. The ladybirds are eaten by a bird.

Which diagram shows the pyramid of numbers for this food chain?

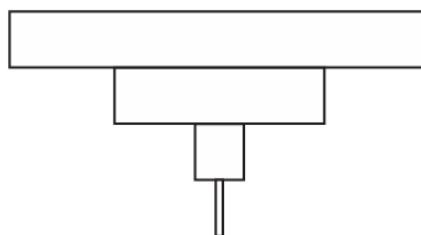
A



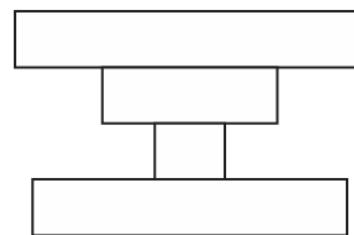
B



C



D



8 In a pyramid of numbers, what does the top of the pyramid represent?

- A carnivores
- B decomposers
- C herbivores
- D Sun

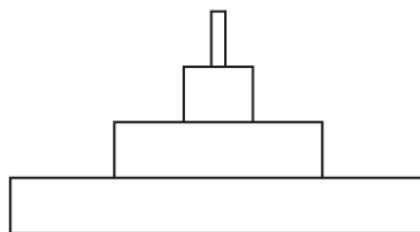
9 Which term is used to describe an organism that makes its own organic nutrients?

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

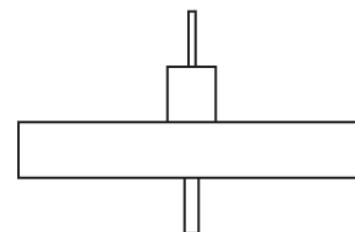
10 A single tree is food for a large population of caterpillars. Several small birds eat the caterpillars. The small birds are eaten by a bird of prey.

Which is the pyramid of biomass?

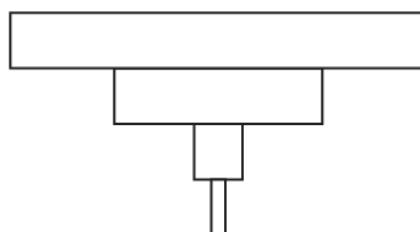
A



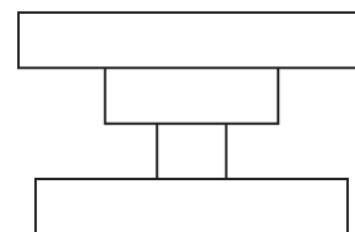
B



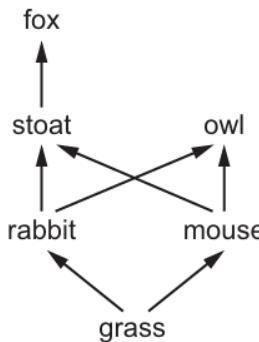
C



D



11 The diagram shows a woodland food web.



Which organisms are secondary consumers?

- A fox and owl
- B fox and stoat
- C mouse and rabbit
- D owl and stoat

12 The diagram shows a food chain.

rose bush → aphids → ladybirds → spiders

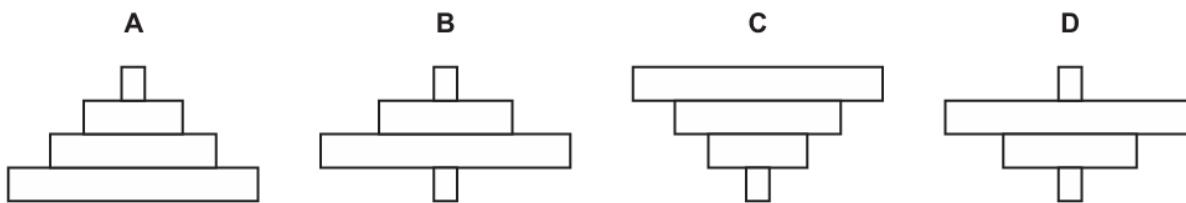
A disease reduced the number of ladybirds.

What would be the likely effect of this on the numbers of aphids and spiders?

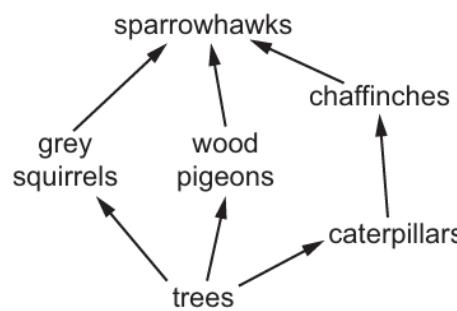
	aphids	spiders
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

13 The block at the base of each pyramid represents the number of producers.

Which pyramid of numbers has more tertiary consumers than secondary consumers?



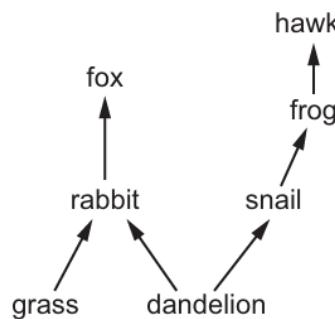
14 The food web shows the feeding relationships in a woodland.



If all the chaffinches in the food web die, which effect would this have?

- A The amount of damage to trees will increase.
- B The food supply for grey squirrels will increase.
- C The number of wood pigeons will increase.
- D The population of caterpillars will decrease.

15 The diagram shows a woodland food web.



Which statement is **not** correct?

- A Dandelions and grass are both producers.
- B The fox and the hawk are both tertiary consumers.
- C The frog is a secondary consumer.
- D The rabbit and the snail are both primary consumers.

16 Which organism makes its own organic nutrients using light energy?

- A producer
- B consumer
- C herbivore
- D carnivore

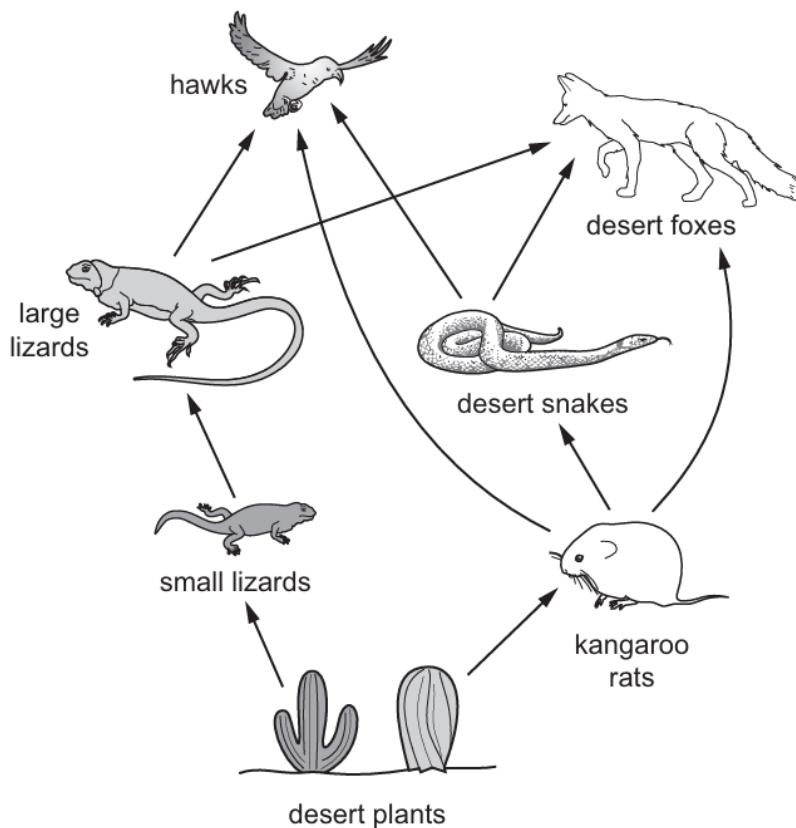
17 The diagram shows a food chain.

grass → grasshopper → frog → snake → hawk

What is the tertiary consumer in this food chain?

- A frog
- B grasshopper
- C hawk
- D snake

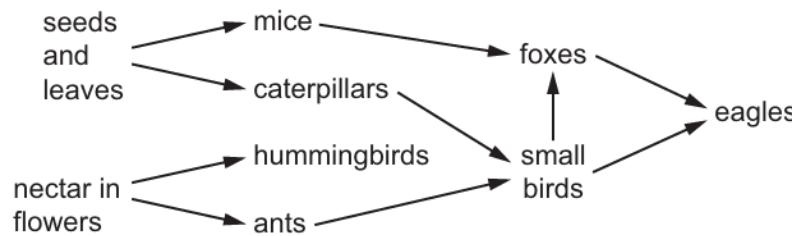
18 The diagram shows a food web in a desert.



Which organisms are **all** secondary consumers?

- A desert foxes, hawks, large lizards and desert snakes
- B desert foxes and hawks only
- C kangaroo rats and small lizards
- D large lizards and desert snakes only

19 The diagram shows a food web.



Which statement is correct?

- A Eagles obtain all their energy by eating foxes.
- B If the hummingbirds all die the caterpillars will have more food.
- C The food chain nectar in flowers → ants → small birds → foxes is part of this food web.
- D The mice and caterpillars are the only examples of herbivores in this food web.

20 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

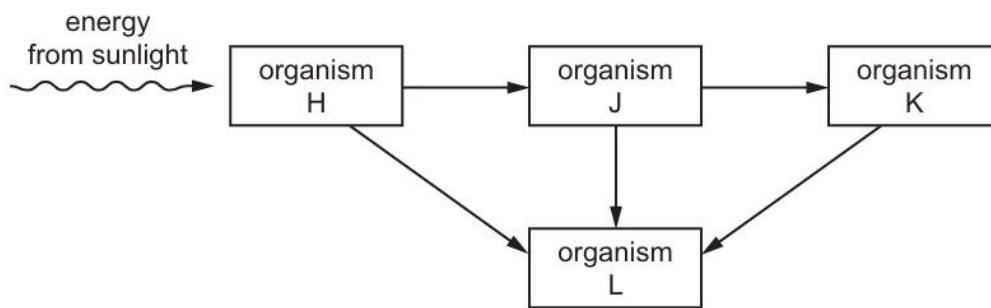
21 A food chain is shown.

potato plant → slug → hedgehog

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

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

22 The diagram shows a food web.



What is organism L?

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

23 The diagram shows a food chain in a rock pool.

seaweed → whelks → crabs → seagulls

What will happen if the number of secondary consumers increases?

There will be

- A fewer crabs.
- B fewer seagulls.
- C fewer whelks.
- D less seaweed.

24 Which diagram shows energy passing along a food chain?

A producer → primary consumer → secondary consumer → tertiary consumer

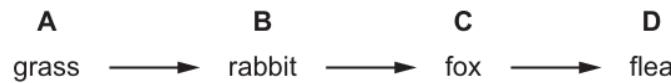
B producer ← primary consumer ← secondary consumer ← tertiary consumer

C producer ← primary consumer ← secondary consumer ← tertiary consumer

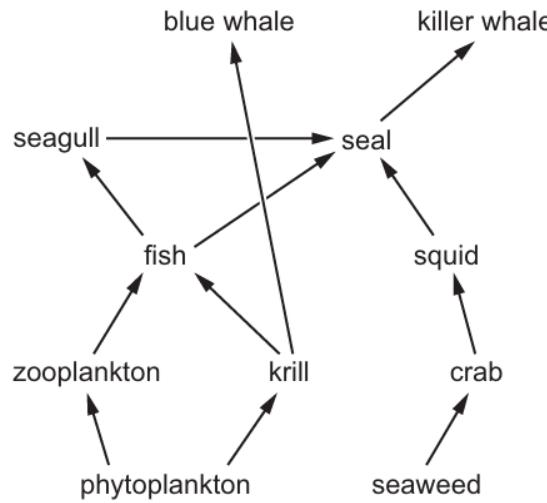
D producer → primary consumer → secondary consumer → tertiary consumer

25 The diagram shows a food chain.

Which organism is the secondary consumer?



26 The diagram shows an aquatic food web.



Which statement is correct?

- A There are two producers and three herbivores.
- B There are two primary consumers and two secondary consumers.
- C There are three producers and two primary consumers.
- D There are two herbivores and two tertiary consumers.

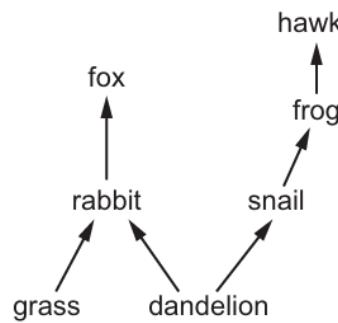
27 The food chain shows how energy is transferred to a human.

lettuce → snails → duck → human

Where did the energy in the lettuce come from?

- A snails
- B soil
- C Sun
- D water

28 The diagram shows a woodland food web.



Which statement is correct?

- A Dandelions and grass are both primary consumers.
- B The fox and the hawk are both secondary consumers.
- C The frog is a tertiary consumer.
- D The rabbit and the snail are both primary consumers.

## Paper 2

**Questions are applicable for both core and extended candidates unless indicated in the question**

29 The diagram shows the amount of energy in  $\text{kJ m}^{-2} \text{yr}^{-1}$  at each trophic level of a food chain.

producers  $\longrightarrow$  primary consumers  $\longrightarrow$  secondary consumers (extended only)

88 000	14 000	2000
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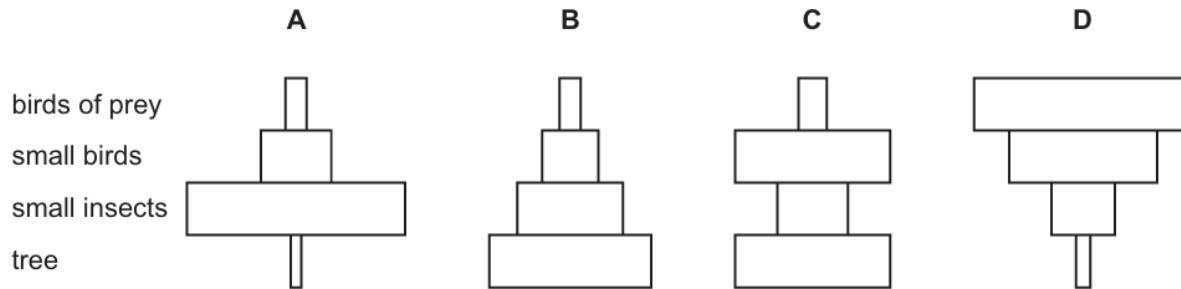
Approximately how much energy is lost between the producers and the secondary consumers?

**A** 0.2%      **B** 2.0%      **C** 84%      **D** 98%

30 The diagram shows a food chain.

tree  $\rightarrow$  small insects  $\rightarrow$  small birds  $\rightarrow$  birds of prey

What is the correct pyramid of numbers for this food chain?



31 The diagram shows a food chain.

tree  $\rightarrow$  insect  $\rightarrow$  blue tit  $\rightarrow$  hawk

Which statement about a pyramid based on this food chain is correct? (extended only)

**A** Drawn as a pyramid of biomass, the hawk would have the largest bar size.

**B** Drawn as a pyramid of energy, the tree would have the largest bar size.

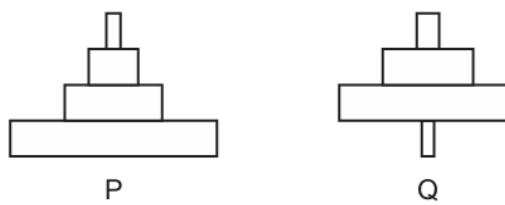
**C** Drawn as a pyramid of energy, the tree would have the smallest bar size.

**D** Drawn as a pyramid of numbers, the hawk would have the largest bar size.

32 Which term is used to describe an organism that makes its own organic nutrients?

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

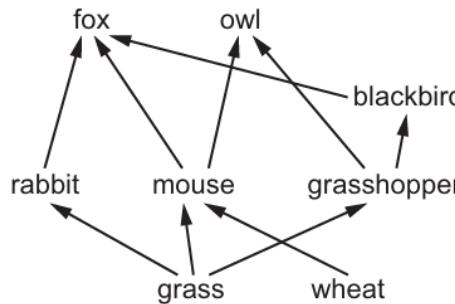
33 The diagram shows two pyramids based on food chains in which the producer is a large tree.



What do the two pyramids represent?

	P	Q
A	biomass	biomass
B	biomass	numbers
C	numbers	biomass
D	numbers	numbers

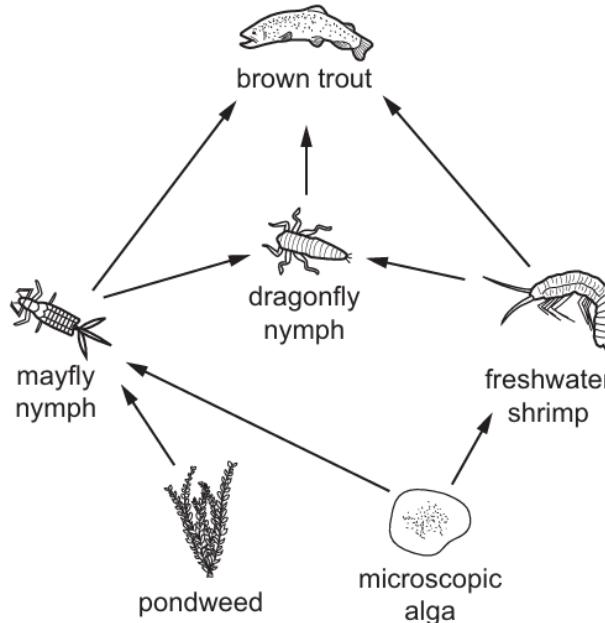
34 The diagram shows the feeding relationships in a food web.



Which organism may feed as both a secondary and a tertiary consumer?

- A fox
- B owl
- C blackbird
- D rabbit

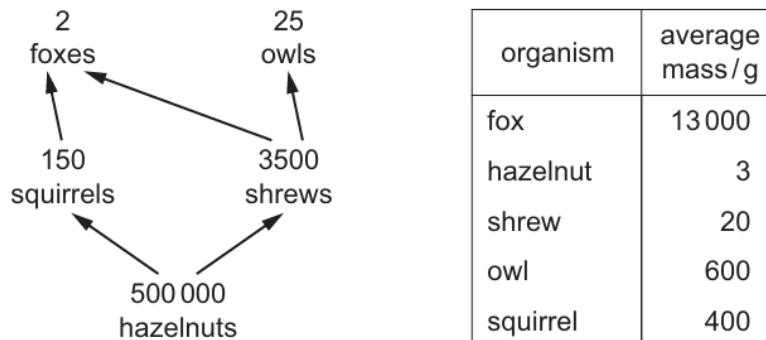
35 The diagram shows a food web.



How many organisms feed at more than one trophic level?

- A 0
- B 1
- C 2
- D 3

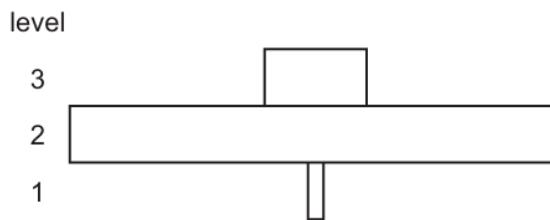
36 The diagram contains information about the number and mass of organisms in a food web.



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

37 The diagram shows a pyramid of numbers.



What is the correct description of the trophic levels?

	trophic level		
	1	2	3
<b>A</b>	producers	primary consumers	secondary consumers
<b>B</b>	producers	secondary consumers	tertiary consumers
<b>C</b>	secondary consumers	primary consumers	producers
<b>D</b>	secondary consumers	tertiary consumers	producers

38 The diagram shows a food chain in a rock pool.

seaweed → whelks → crabs → seagulls

What will happen if the number of secondary consumers increases?

There will be

- A fewer crabs.
- B fewer seagulls.
- C fewer whelks.
- D less seaweed.

39 The diagram shows a food chain.

maize → locusts → lizards → snakes  
10 000 kJ      1000 kJ      100 kJ      10 kJ      (extended only)

What is the efficiency of energy transfer between the maize and the lizards in this food chain?

- A 0.01%
- B 0.1%
- C 1%
- D 10%