

Organisms and their Environment

Question Paper 1

| | |
|------------|--|
| Level | IGCSE |
| Subject | Biology (0610/0970) |
| Exam Board | Cambridge International Examinations (CIE) |
| Topic | Organisms and their Environment |
| Sub-Topic | |
| Booklet | Question Paper 1 |

Time Allowed: 50 minutes

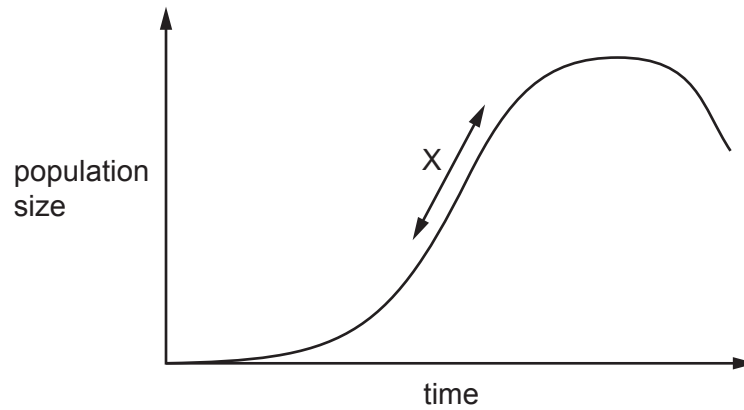
Score: /42

Percentage: /100

Grade Boundaries:

| | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| >85% | 75% | 68% | 60% | 53% | 48% | 40% | 33% | <25% |

1 The graph shows a population growth curve.



Which factors would cause region X on the graph to become steeper?

- A decrease in predation, decrease in food supply
- B increase in food supply, decrease in disease
- C increase in food supply, increase in predation
- D increase in predation, decrease in disease

2 The diagram shows a simple food chain.

green plant → herbivore → carnivore

If a disease causes the number of herbivores to decrease, what will be the effect on the numbers of green plants and carnivores?

| | green plants | carnivores |
|----------|--------------|------------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |

3 In the food chain below, the population of snakes is halved owing to a viral disease.

grass → locusts → snakes → eagles

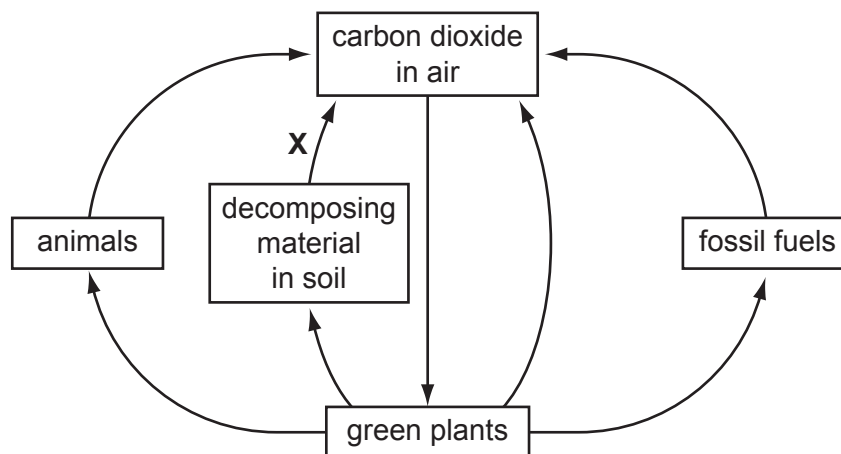
What effect does this have on the other members of the food chain?

| | grass | locusts | eagles |
|----------|----------|----------|----------|
| A | decrease | increase | decrease |
| B | decrease | increase | increase |
| C | increase | decrease | decrease |
| D | increase | increase | decrease |

4 Which is an example of a population?

- A** all the animals and plants living in a pond
- B** all the mahogany trees growing in a forest
- C** all the people born in a country over a period of 100 years
- D** all the species of animals in Africa

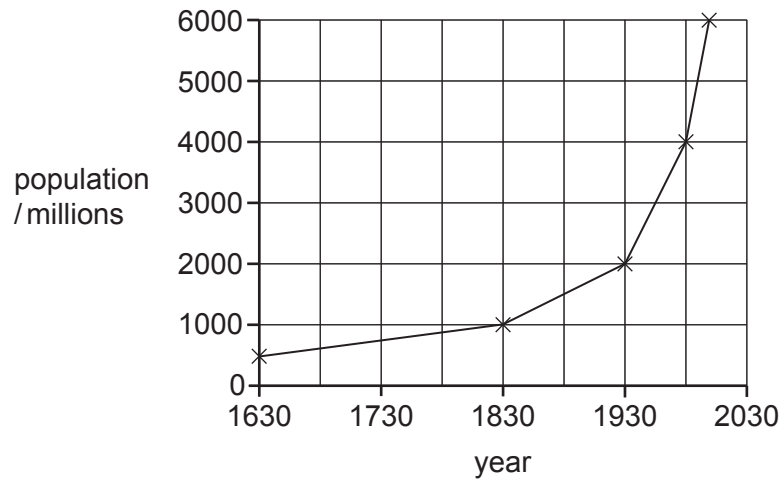
5 The diagram represents the carbon cycle.



Which process is represented by arrow **X**?

- A** combustion
- B** feeding
- C** photosynthesis
- D** respiration

6 The graph shows the increase in the human population of the world since 1630.



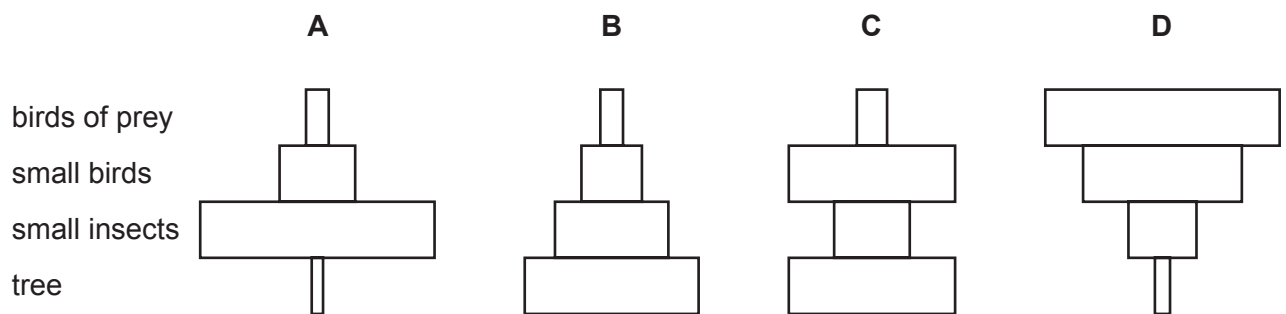
What was the longest time taken for the population to double?

- A** 100 years **B** 200 years **C** 300 years **D** 400 years

7 The diagram shows a food chain.

tree → small insects → small birds → birds of prey

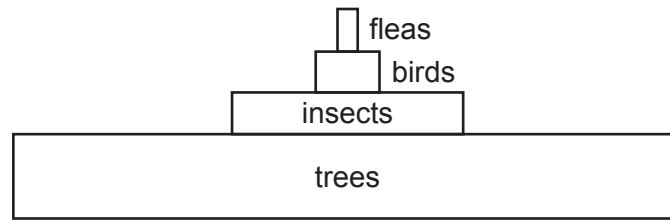
What is the correct pyramid of numbers for this food chain?



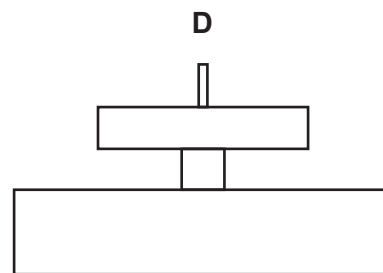
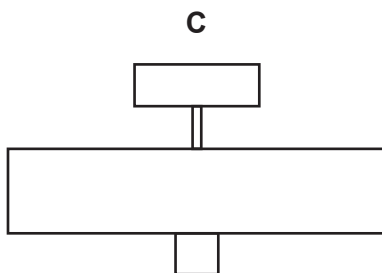
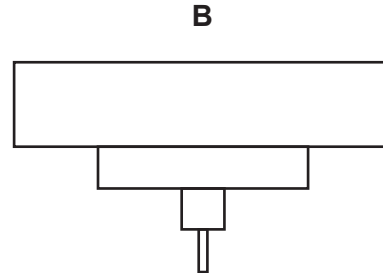
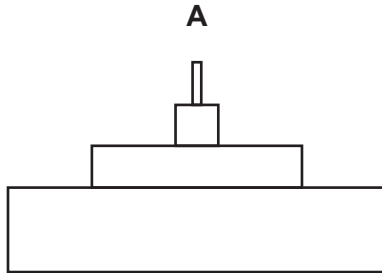
8 Which process is **not** part of the water cycle?

- A** condensation
B fossilisation
C precipitation
D transpiration

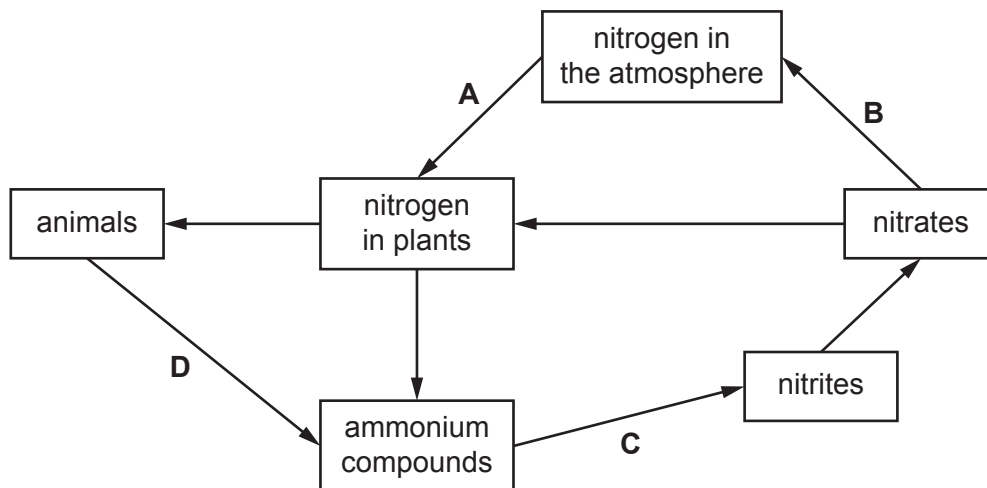
9 The diagram shows a pyramid of biomass for a food chain in a woodland ecosystem.



What is the pyramid of numbers for this food chain?



10 The diagram shows part of the nitrogen cycle. At which stage is denitrification occurring?



11 Which process is carried out by bacteria in the root nodules of leguminous plants?

- A decomposition
- B denitrification
- C nitrification
- D nitrogen fixation

12 Which processes are part of the carbon cycle?

| | decomposition | evaporation | ingestion |
|---|---------------|-------------|-----------|
| A | ✓ | ✓ | x |
| B | ✓ | x | ✓ |
| C | x | ✓ | x |
| D | x | x | ✓ |

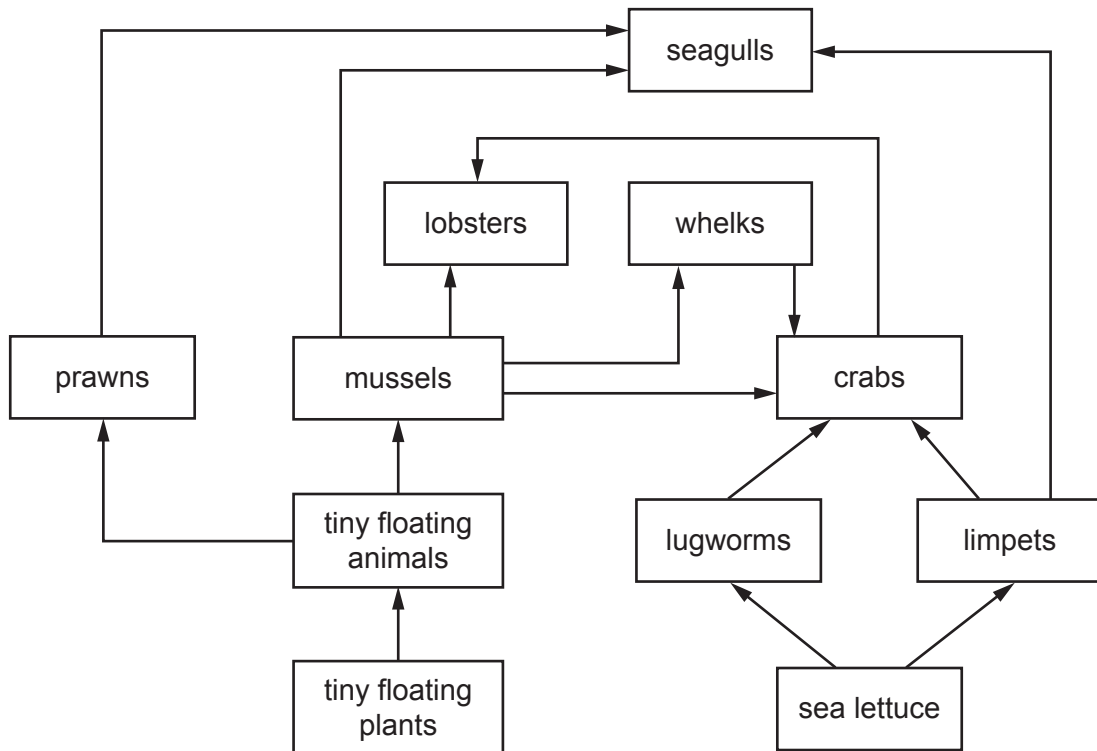
13 The diagram shows organisms feeding on a dead rat and one of the organisms which, in turn, feeds on them.



What is needed to complete the food chain?

- A** carnivore
- B** consumer
- C** predator
- D** producer

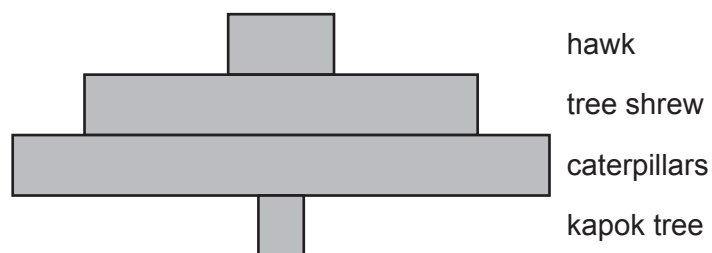
14 The diagram shows a food web.



Which organisms feed on the greatest variety of other organisms, as shown in **this** food web?

- A crabs
- B limpets
- C lobsters
- D mussels

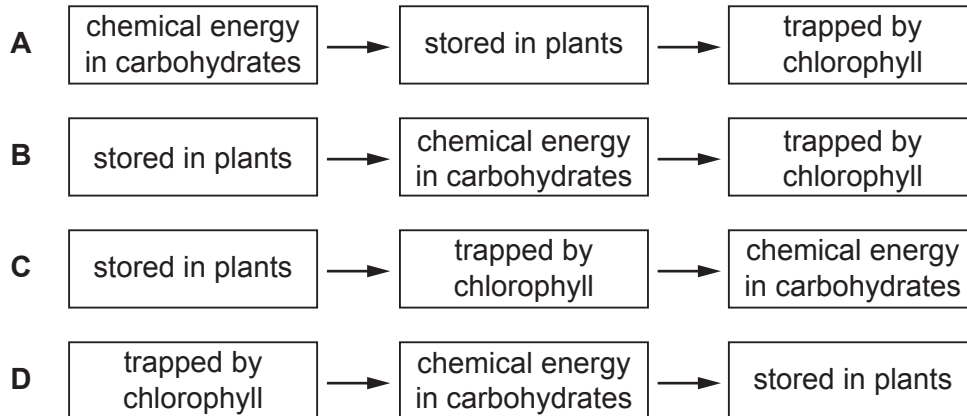
15 The diagram shows a pyramid of numbers in a food chain.



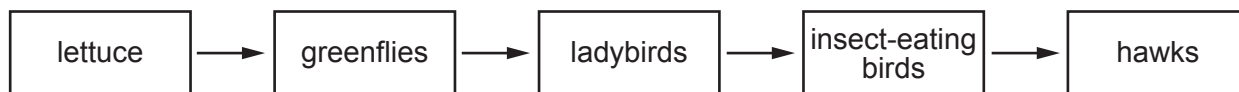
What type of organism is the hawk?

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

16 Which pathway is taken by energy from the Sun?



17 The diagram shows a food chain.

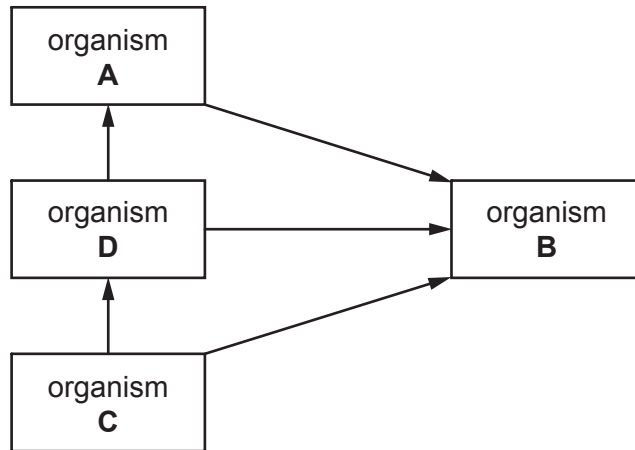


If the hawks are removed from this food chain, what is likely to happen to the numbers of the other organisms in this chain?

| | greenflies | ladybirds | insect-eating birds |
|----------|------------|-----------|---------------------|
| A | decrease | increase | decrease |
| B | decrease | increase | increase |
| C | increase | decrease | decrease |
| D | increase | decrease | increase |

18 The diagram shows a food web including a producer, consumers and a decomposer.

Which organism is the decomposer?



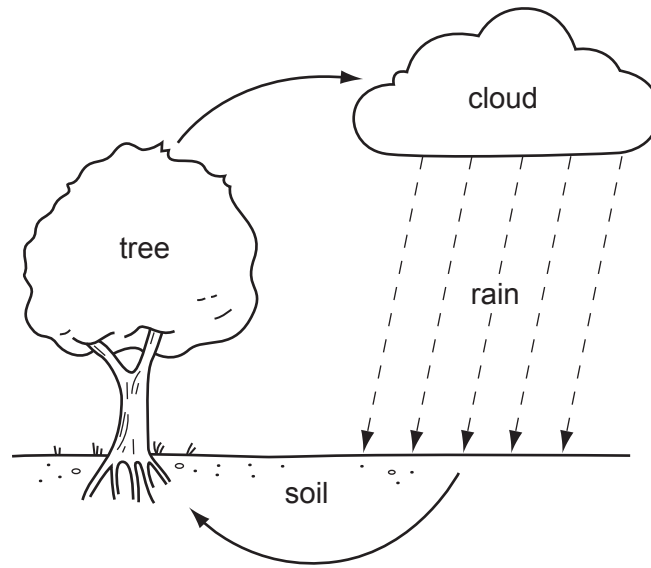
19 Which organisms remove carbon dioxide from the atmosphere?

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

20 Which process is **not** part of the carbon cycle?

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

21 The diagram shows a simple water cycle.

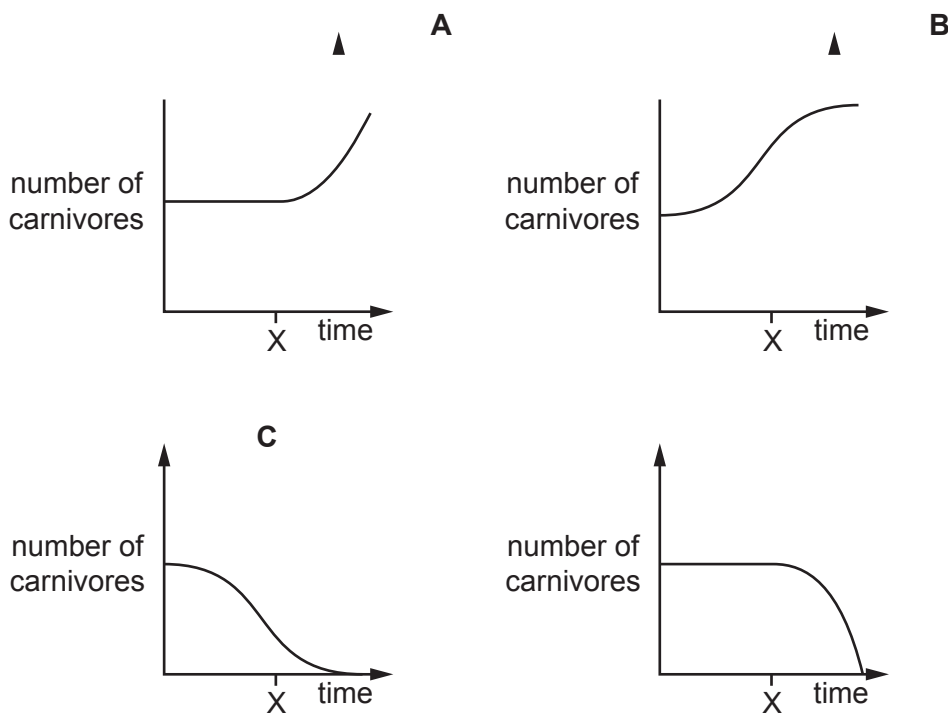


What is responsible for water loss from the tree?

- A evaporation
- B photosynthesis
- C respiration
- D translocation

22 The graphs show the number of carnivores in a habitat over a period of time. At time X the herbivores in their food chain are removed from the habitat.

Which graph shows the effect of this on the number of carnivores?



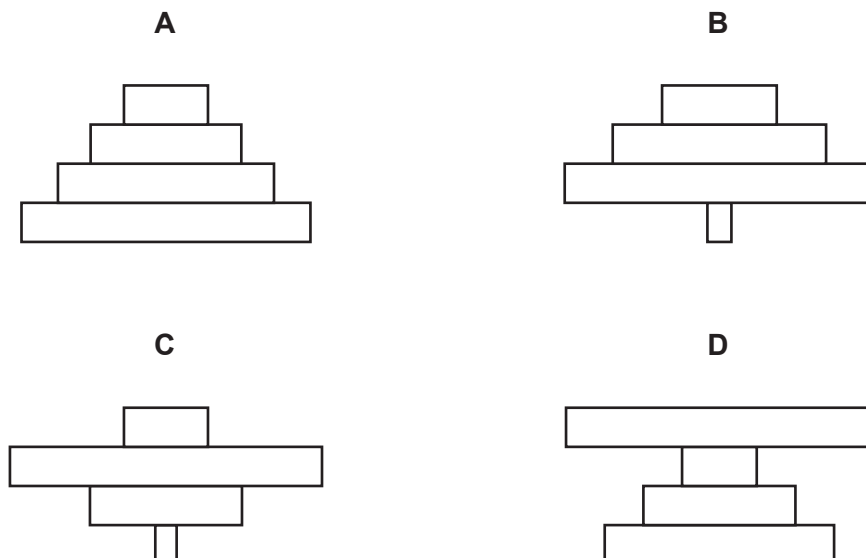
23 Which factors affect the rate of growth of a plant population?

| | disease | grazing by herbivores | light intensity |
|----------|---------|-----------------------|-----------------|
| A | ✓ | ✓ | ✓ |
| B | ✓ | ✓ | x |
| C | ✓ | x | ✓ |
| D | x | ✓ | ✓ |

24 What can be continuously recycled in ecosystems?

| | carbon | energy | water |
|----------|--------|--------|-------|
| A | ✓ | ✓ | x |
| B | ✓ | x | ✓ |
| C | x | x | ✓ |
| D | x | ✓ | x |

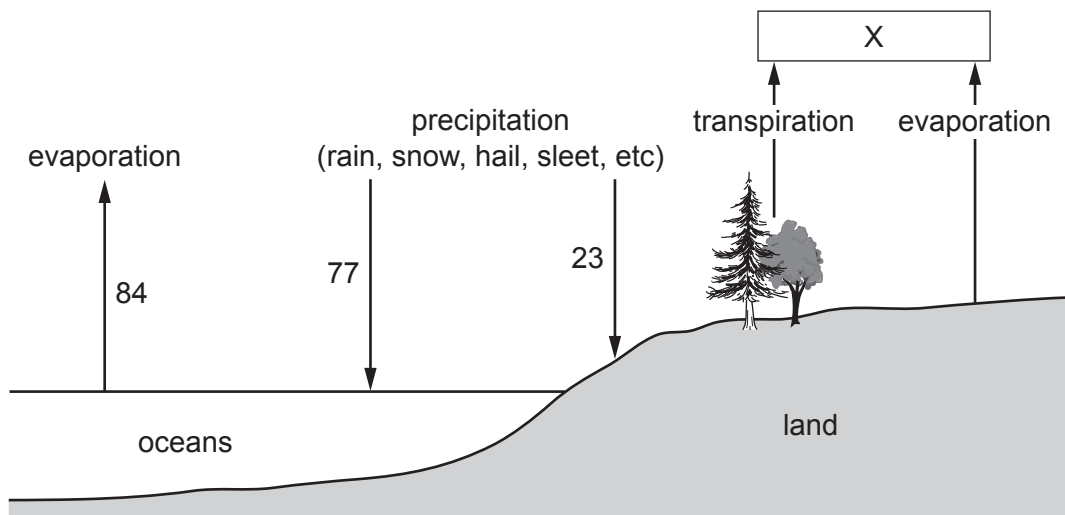
25 Which diagram shows a pyramid of biomass for a woodland?



26 Which of the following is an example of a food chain?

- A carnivore → herbivore → producer
- B flower → fruit → seed
- C grass → antelope → lion
- D starch → maltose → glucose

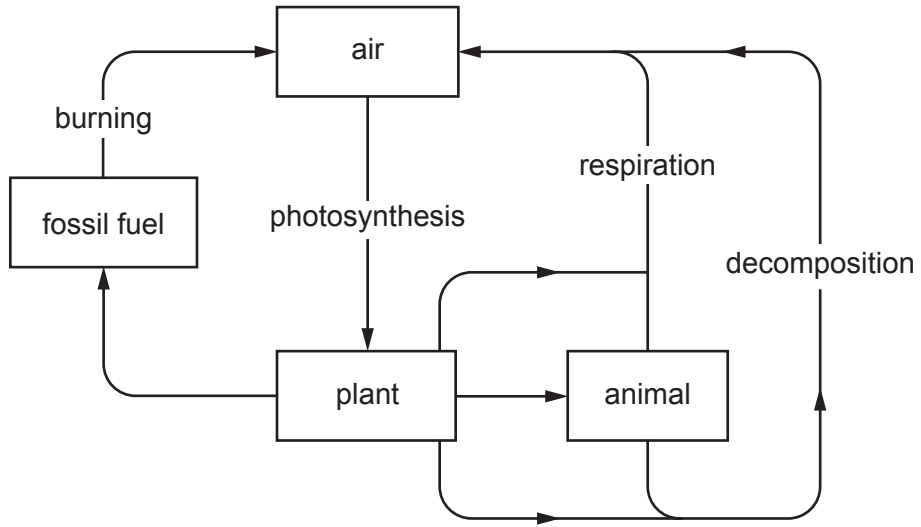
27 The diagram shows the movements of water between oceans, land and the air. The figures are based on an annual mean precipitation of 100 units.



What is the total of evaporation from the land and transpiration from plants at X?

- A 7
- B 13
- C 16
- D 77

28 What is shown in the diagram?

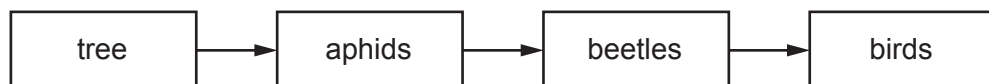


- A** a food web
- B** non-cyclical energy flow
- C** the carbon cycle
- D** the water cycle

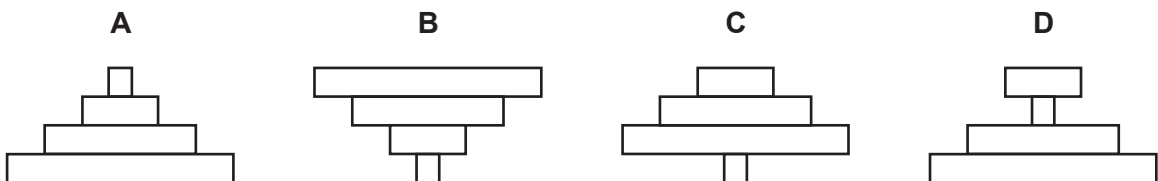
29 Which pair of statements about energy flow in ecosystems is correct?

| | energy entering the ecosystem from the Sun | nature of energy flow |
|----------|--|-----------------------|
| A | light and chemical | cyclical |
| B | light and chemical | non-cyclical |
| C | light and heat | cyclical |
| D | light and heat | non-cyclical |

30 The diagram shows a food chain based on a tree.



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



31 Herbivores take in carbon atoms from plants.

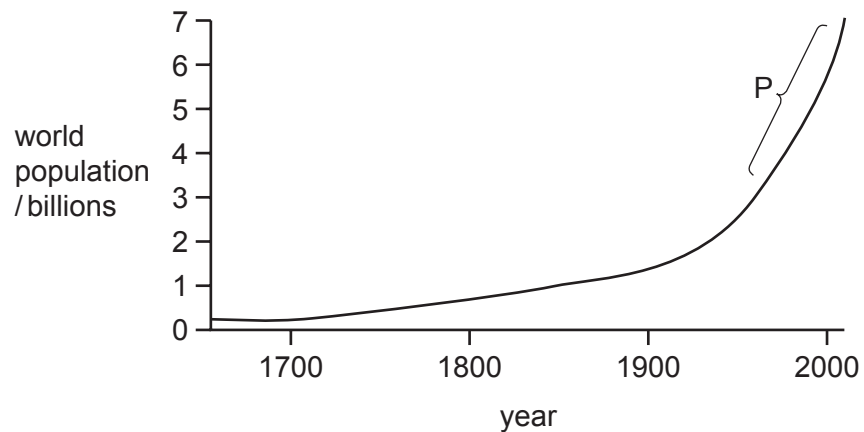
How do carbon atoms leave the herbivores?

| | in faeces | in respiration | through death and decay |
|----------|-----------|----------------|-------------------------|
| A | ✓ | ✓ | ✓ |
| B | ✓ | x | ✓ |
| C | ✓ | x | x |
| D | x | ✓ | ✓ |

32 In which stages in the water cycle is the water in vapour form?

| | absorption by plant roots | movement from sea to clouds | precipitation | transpiration |
|----------|---------------------------|-----------------------------|---------------|---------------|
| A | ✓ | ✓ | x | x |
| B | ✓ | x | ✓ | x |
| C | x | ✓ | x | ✓ |
| D | x | x | ✓ | ✓ |

33 The graph shows how the population of the world has increased from 1650 until the present day.



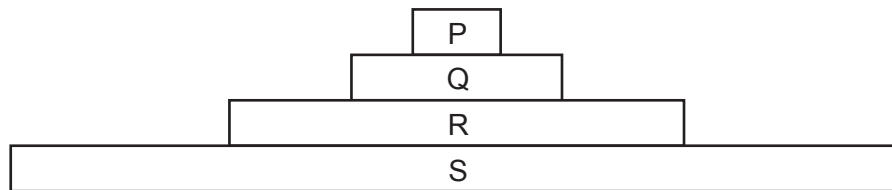
What stage in the sigmoid population growth curve is represented by region P?

- A** death phase
- B** exponential (log) phase
- C** lag phase
- D** stationary phase

34 Which organisms can be sources of energy for decomposers?

| | producers | herbivores | carnivores |
|----------|-----------|------------|------------|
| A | ✓ | ✓ | ✓ |
| B | ✓ | x | x |
| C | x | ✓ | ✓ |
| D | x | x | x |

35 The diagram shows a pyramid of biomass for all organisms in an ecosystem.



Which organisms are carnivores?

- A** P and Q **B** P and R **C** Q and R **D** R and S

36 The diagram shows a food chain.



A disease reduced the numbers of consumer 3.

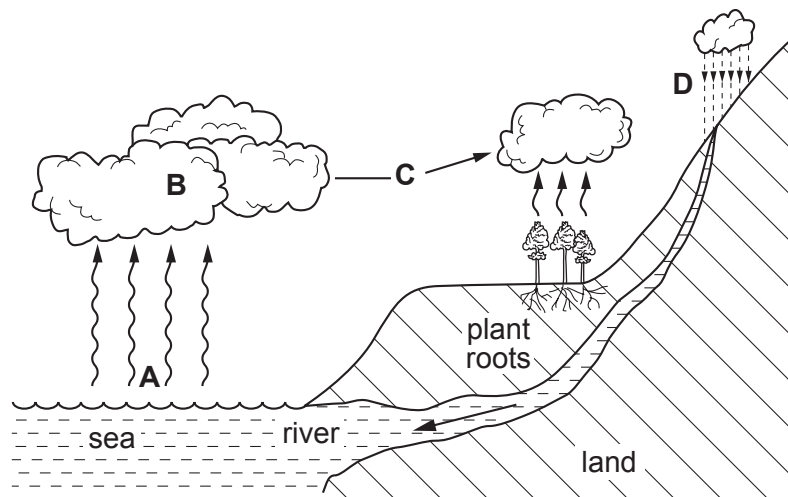
What would be the likely effect of this on the numbers of consumer 1 and consumer 2?

| | consumer 1 | consumer 2 |
|----------|------------|------------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |

37 Which process removes carbon dioxide from the atmosphere?

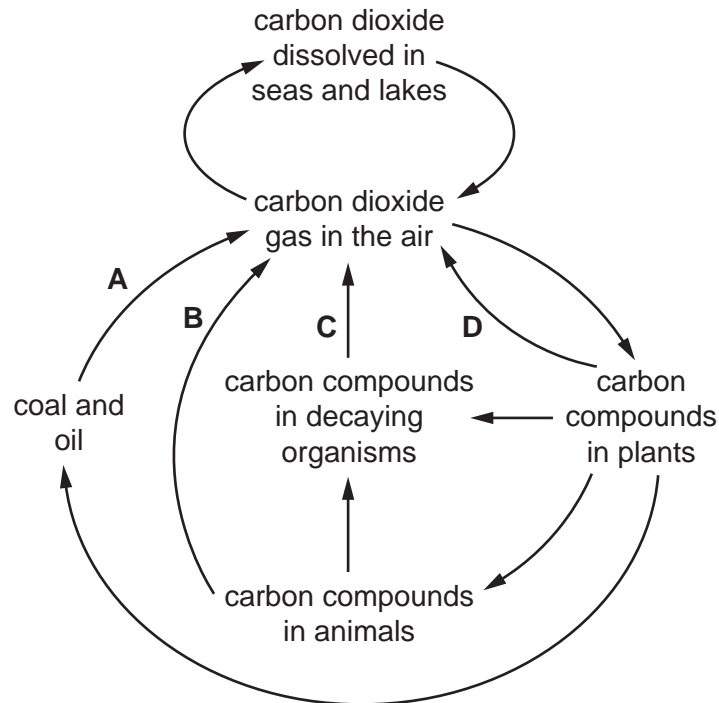
- A combustion
- B decomposition
- C photosynthesis
- D respiration

38 In which labelled stage in the water cycle is the water in vapour form?



39. The diagram shows the carbon cycle.

Which process produces carbon dioxide from substances made by photosynthesis millions of years ago?



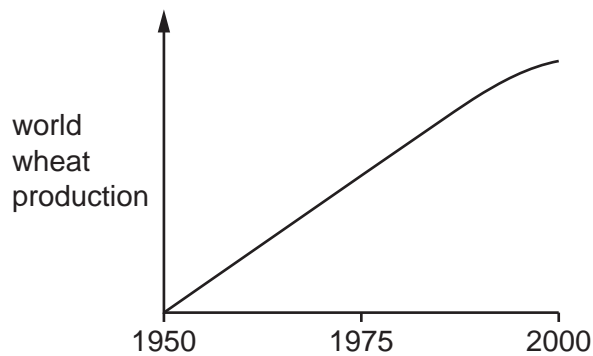
40. Which process does **not** release carbon dioxide to the atmosphere?

- A** decomposition of animals
- B** photosynthesis of plants
- C** respiration of animals
- D** respiration of plants

41 What has **not** increased the world's food production in the last 100 years?

- A** artificial selection
- B** herbicides
- C** natural selection
- D** pesticides

42 The graph shows world wheat production from 1950 to 2000.



What has contributed to the changes shown in wheat production?

- A** not using herbicides
- B** not using insecticides
- C** using selective breeding
- D** using smaller areas of land