

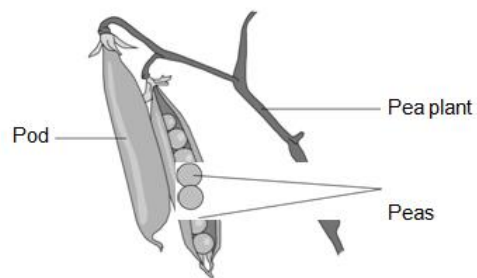
Carbon Cycle

Q:1 The carbon in dead bean plants is returned to the atmosphere via the carbon cycle.

Describe this part of the carbon cycle.

(4 marks)

Q:2 Peas grow in pods on pea plants.



A gardener grew four varieties of pea plants, A, B, C and D, in his garden.

The gardener counted the number of peas in each pod growing on each plant.

The table shows his results.

Variety	Range of number of peas in each pod	Mean number of peas in each pod
A	2 – 6	4
B	3 – 7	5
C	3 – 8	6
D	6 – 8	7

(a) Give one environmental factor and one other factor that might affect the number of peas in a pod.

Environmental factor _____

Other factor _____

(2 marks)

(b) The gardener thinks that he will get the largest mass of peas from his garden if he grows variety D.

Why is the gardener not correct?

Suggest one reason.

(1 mark)

(c) It is important that carbon is cycled through living things.

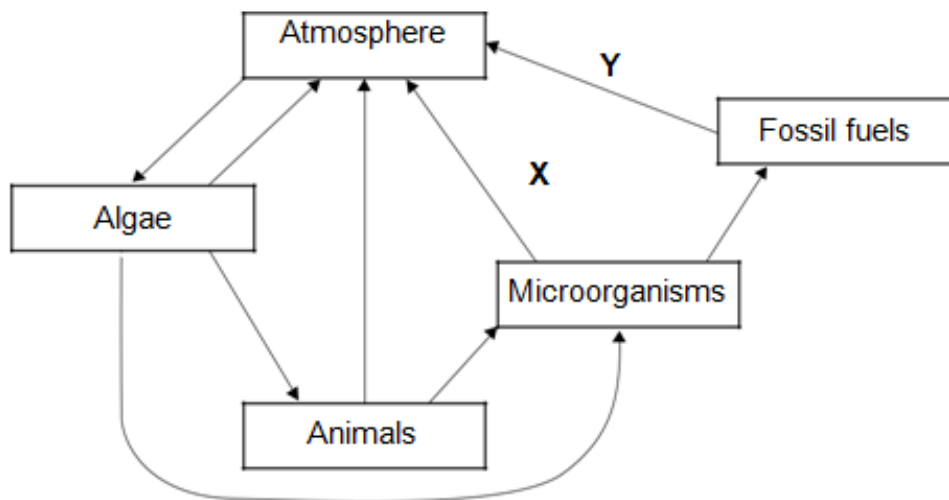
After he has picked the peas, the gardener puts the dead pea plants onto a compost heap.

Over the next few months, the carbon in the carbon compounds from the pea plants is returned to the air.

Describe how.

(4 marks)

Q:3 The diagram shows part of a carbon cycle in a habitat.



(a) Name the processes shown by arrows X and Y.

X _____

Y _____

(2 marks)

(b) Describe the part played by algae in this carbon cycle.

(3 marks)

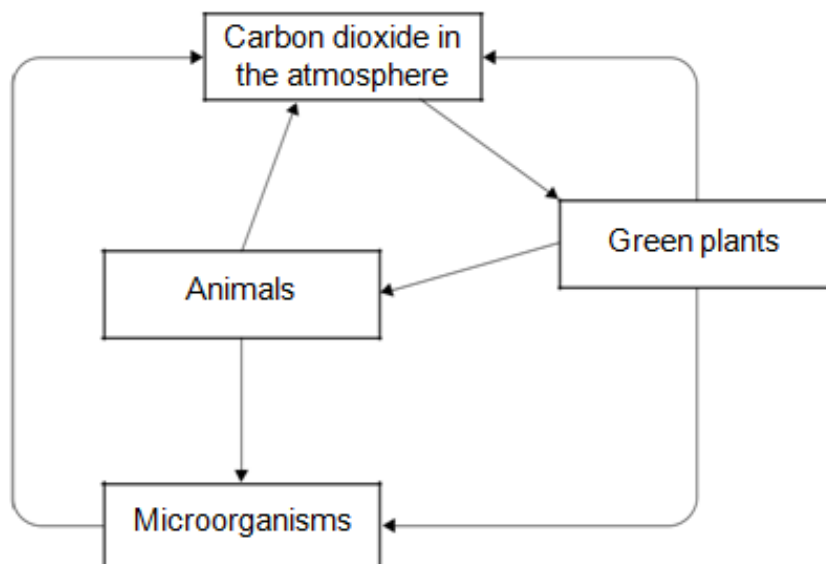
(c) In tropical rainforests process X is much faster than in most other habitats.

Suggest why.

(2 marks)

Q:4 In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.

The diagram shows part of the carbon cycle.

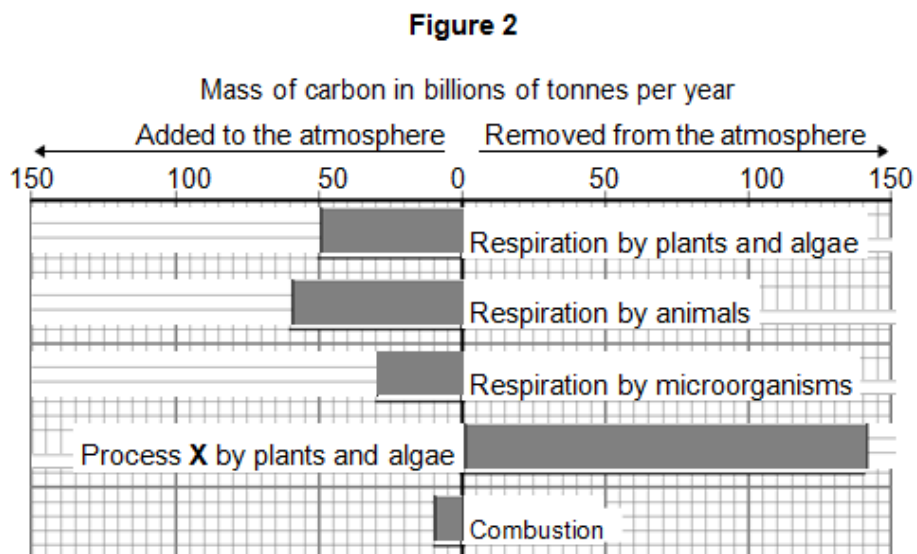


Describe how living things are involved in the constant cycling of carbon.

(6 marks)

Q:5 This question is about carbon.

Figure 2 shows the mass of carbon added to and removed from the atmosphere each year.



(a) Name process X.

[1 mark]

(b) (i) Calculate the mass of carbon added to the atmosphere by respiration per year.

Answer = _____ billion tonnes

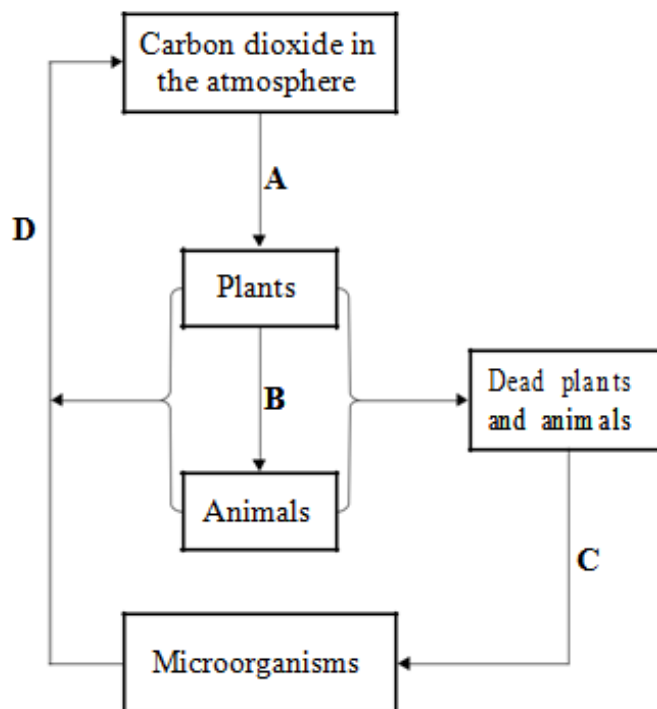
[1 mark]

(b) (ii) Some scientists are concerned that the mass of carbon in the atmosphere is changing.

How does the data in Figure 2 support this idea?

[1 mark]

Q:6 The diagram shows part of the carbon cycle.



(a) Which letter, A, B, C or D, represents:

(i) respiration _____ **(1 mark)**

(ii) photosynthesis? _____ **(1 mark)**

(b) Local authorities are encouraging people to recycle vegetable waste by converting it into compost.

Compost is made by mixing the vegetable waste with soil in a large container.

(i) Decay occurs more quickly if the container has holes in the sides. Explain why.

(2 marks)

(ii) Spreading compost on the soil between plants leads to better growth of the plants. Explain why.

(1 mark)

Q:7 The amount of carbon dioxide in the atmosphere is increasing.

The table shows the estimated mass of carbon dioxide exchanged with the atmosphere in one year.

	Mass of carbon dioxide exchanged with the atmosphere in millions of tonnes	
	Passed out into the atmosphere	Taken in from the atmosphere
Plants	30	64
Animals	10	0
Microorganisms	24	0
Combustion	6	0

(a) (i) Calculate the total mass of carbon dioxide passed out into the atmosphere in one year.

Show clearly how you work out your answer.

Answer _____ million tonnes

(2 marks)

(a) (ii) Calculate the increase in the mass of carbon dioxide in the atmosphere in one year. You should use your answer to part (a)(i) in your calculation.

Show clearly how you work out your answer.

Answer . _____ million tonnes

(2 marks)

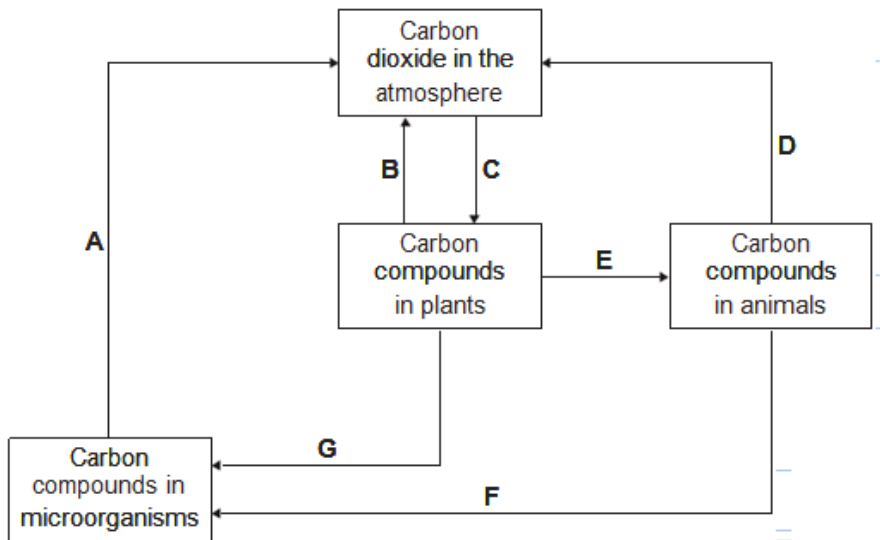
(b) Draw a ring around the correct answer to complete the sentence.

Plants use carbon dioxide in the process of

- decomposition.
- photosynthesis.
- respiration.

(1 mark)

Q:8 The diagram shows part of the carbon cycle.



(a) Letter A represents respiration.

Which two other letters represent respiration?

and

(1 mark)

(b) Other than carbon dioxide name two carbon compounds found in plants.

1 _____

2 _____

(2 marks)

(c) Gardeners use compost heaps to decay dead plants. Decayed compost is then spread onto the soil in a garden.

Explain why gardeners spread decayed compost onto the soil.

(2 marks)

TOTAL MARKS=42