**1.** The diagram below shows a simplified version of the carbon cycle.



What processes are involved in the transfer of carbon at stages I and II?

|  |  |  |
| --- | --- | --- |
|  | **I** | **II** |
| A. | combustion | photosynthesis |
| B. | photosynthesis | respiration |
| C. | combustion | respiration |
| D. | fossilization | respiration |

(Total 1 mark)

**2.** What are the main sources of carbon dioxide on earth?

A. Cellular respiration of consumers, producers and combustion of fossil fuels

B. Photosynthesis and cellular respiration of consumers

C. Cellular respiration of producers and combustion of fossil fuels

D. Photosynthesis and combustion of fossil fuels

(Total 1 mark)

**3.** The diagram below is part of a carbon cycle diagram for an ecosystem in a pond.



(a) State the names of the processes that

(i) convert carbon dioxide into organic compounds in pond weeds and algae

..........................................................................................................................

(1)

(ii) convert organic compounds in pond weeds, algae and primary consumers into carbon dioxide.

..........................................................................................................................

(1)

(b) (i) Draw arrows on the diagram above to show how the saprotrophs obtain carbon.

(1)

(ii) Explain the role of saprotrophs in recycling carbon.

..........................................................................................................................

..........................................................................................................................

..........................................................................................................................

..........................................................................................................................

(2)

(c) Draw a box on the diagram in an appropriate position, labelled organic compounds in secondary consumers. Draw arrows to show the links between secondary consumers and other parts of the carbon cycle.

(2)

There has been a significant increase in the concentration of carbon dioxide in the Earth’s atmosphere during the last fifty years.

(d) (i) Suggest **two** reasons for this increase in atmospheric carbon dioxide concentration.

1. ................................................................................................................

..........................................................................................................................

2. ................................................................................................................

..........................................................................................................................

(2)

(ii) Suggest **one** effect of an increase in carbon dioxide concentration on organisms in a pond. Include in your answer the reason for the effect and the type of organisms that are affected.

..........................................................................................................................

..........................................................................................................................

..........................................................................................................................

(2)

(Total 11 marks)