

1 A researcher investigated the population growth of fish for fish farming. The researcher stocked a farmer's lake with a small number of these fish and recorded the number of fish over the next five years. The researcher's results showed that the population of fish had increased exponentially.

(a) (i) Use the axes to show the **exponential growth** in the population of fish.

Label the axes and draw a suitable curve.



[3]

(ii) Explain why the population of fish increased exponentially.

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Fig. 5.1 shows the total mass of wild fish caught worldwide between 1950 and 2012 and the mass of farmed fish produced worldwide over the same period.

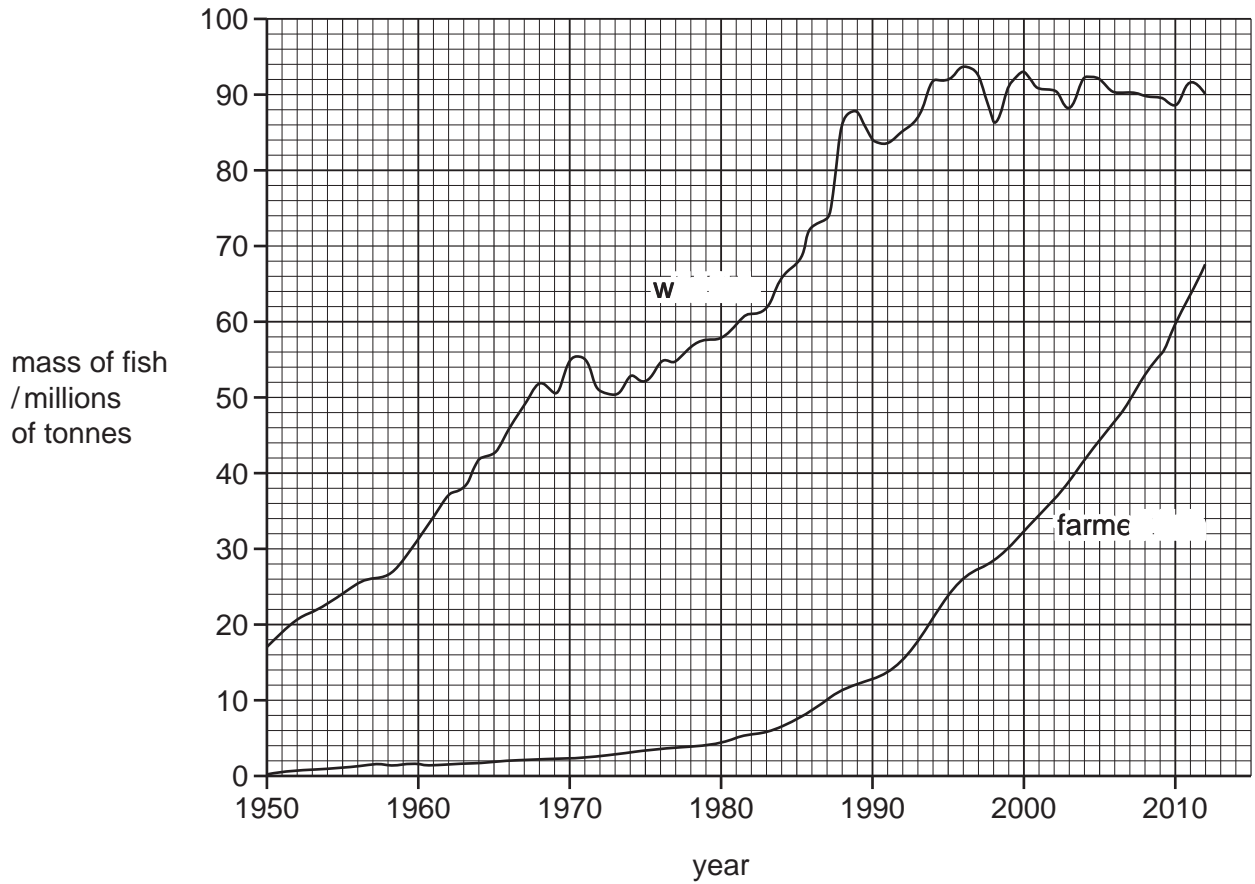


Fig. 5.1

(b) Describe the changes in the mass of **wild fish** caught between 1950 and 2012.

You will gain credit if you use data from Fig. 5.1.

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[3]

2 Fig. 5.1 shows an area of forest where some of the trees have been cut down.



Fig. 5.1

(a) Explain the reasons why forests may be cut down as shown in Fig. 5.1.

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[3]

(iii) Many hectares of natural forest have been cleared in countries such as Malaysia and Indonesia for oil palm plantations. Both countries have also replanted forests to grow timber and other forest products.

Suggest why replanted forests and plantations are **less** useful for conservation than natural forest.

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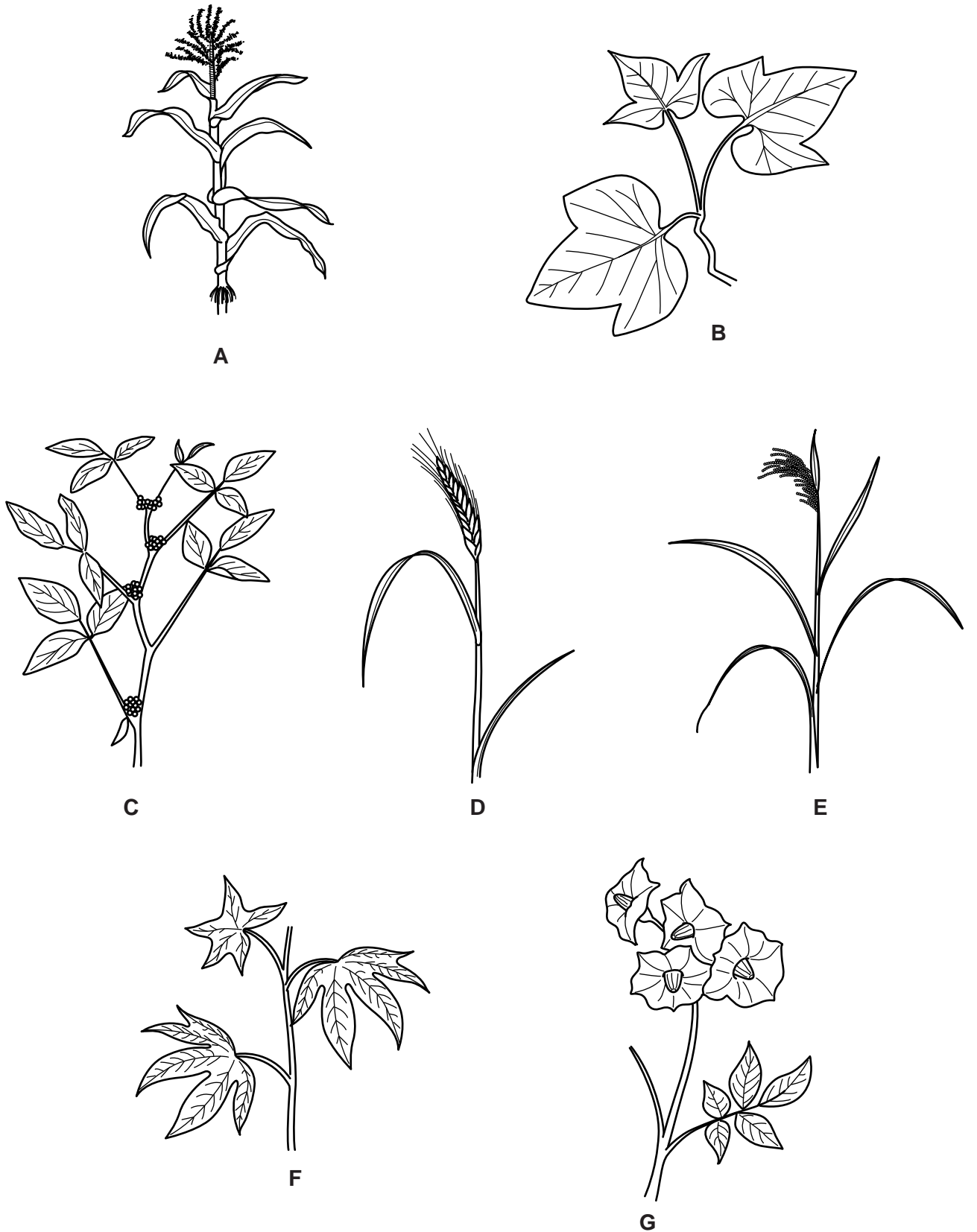
(c) Discuss the effects of deforestation on areas of land.

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3 (a) Fig. 1.1 shows seven plant species that are important crops.



not drawn to scale

Fig. 1.1

Use the key to identify each species. Write the letter of each species (**A** to **G**) in the correct box beside the key. One has been done for you.

Key

1 (a)	branched veins on leaves	go to 2	
(b)	parallel veins (not branched) on leaves	go to 3	
2 (a)	leaves divided into leaflets (look like small individual leaves)	go to 4	
(b)	leaves not divided into leaflets	go to 5	
3 (a)	flowers grouped tightly together at the top of the stalk	<i>Triticum aestivum</i>	
(b)	flowers grouped loosely together at the top of the stalk	go to 6	
4 (a)	large flowers located at top of stem	<i>Solanum tuberosum</i>	
(b)	small flowers located along the stem	<i>Glycine max</i>	
5 (a)	leaves have five lobes	<i>Manihot esculenta</i>	F
(b)	leaves have three lobes	<i>Ipomoea batatas</i>	
6 (a)	flowers above youngest leaf	<i>Zea mays</i>	
(b)	flowers bend down below youngest leaf	<i>Oryza sativa</i>	

[3]

- (b) The pattern of the veins on the leaves was used in the key to separate the monocotyledonous crop plants and eudicotyledonous (dicotyledonous) crop plants shown in Fig. 1.1.

State **one** other feature that could be used to identify monocotyledonous plants from eudicotyledonous plants.

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(c) The leaves of some crop plants are not eaten but are used to make paper. This reduces deforestation because fewer trees are cut down for making paper. Deforestation has negative effects on soil ecosystems.

(i) Describe the negative effects of deforestation on **soil** ecosystems.

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(ii) Paper recycling can reduce deforestation.

Outline how paper can be recycled.

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[Total: 11]