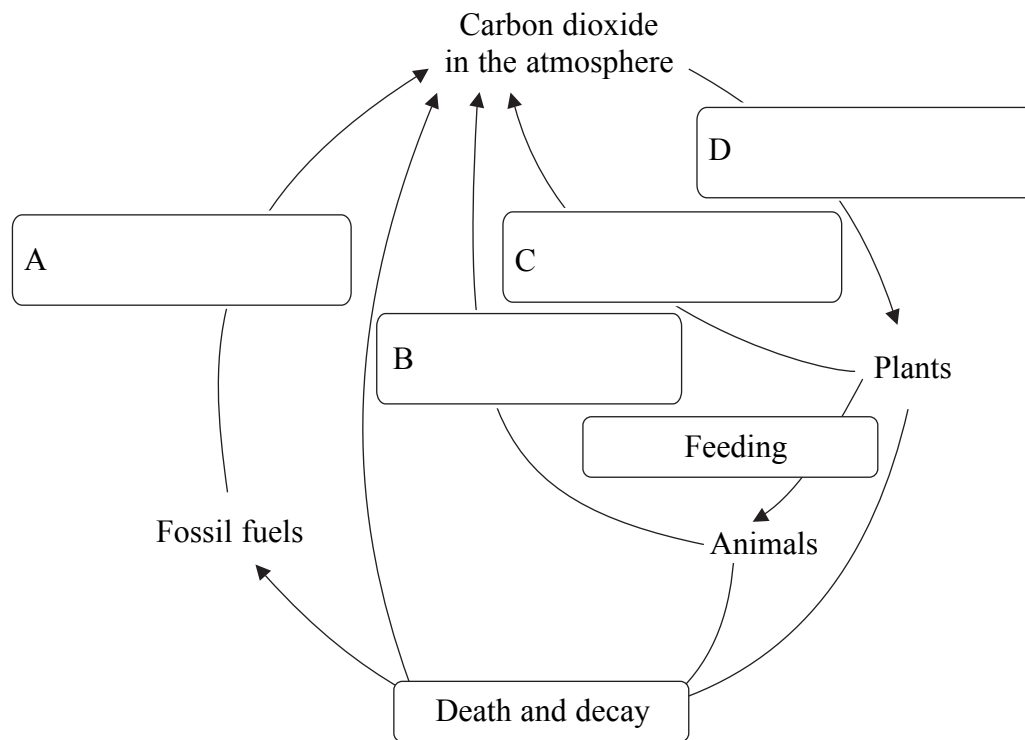


Answer ALL of the questions in the spaces provided.

1. The diagram below shows a simplified carbon cycle.



(a) Each box represents a process. Write the name of the process in each of the boxes A, B, C and D.

(2)

(b) With reference to an example, explain what is meant by the term **carbon sink**.

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

(2)



Leave
blank

(c) (i) The increase in the concentration of carbon dioxide in the atmosphere has been linked to global warming. Explain what is meant by the term **global warming**.

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

(2)

(ii) Name **two** gases, other than carbon dioxide, which are thought to contribute to global warming.

1.

2.

(2)

Q1

(Total 8 marks)

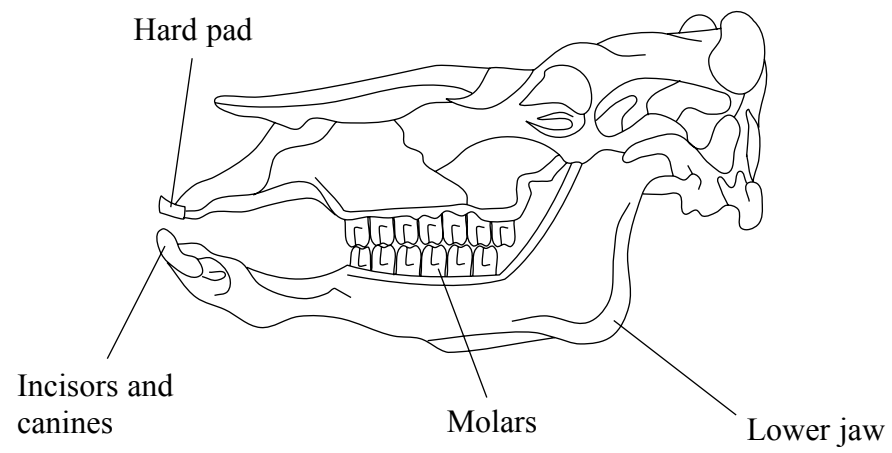


BLANK PAGE



Leave blank

(d) The diagram below shows the skull of a cow showing the tooth and jaw structure.



Suggest how the structures labelled in the diagram would be used by a cow grazing on grassland.

.....

.....

.....

.....

.....

.....

.....

.....

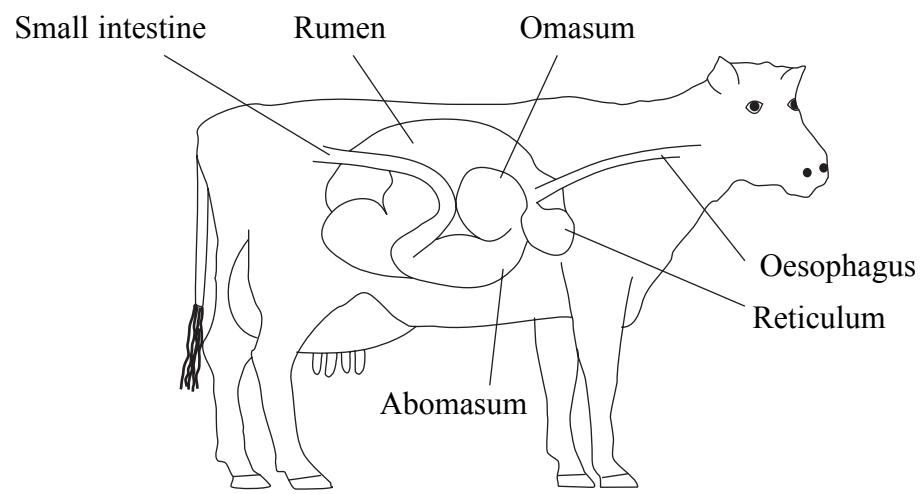
.....

(3)



Leave blank

(e) The diagram below shows some of the parts of the digestive system of a cow.



With reference to the diagram suggest why cattle are more efficient at obtaining energy from plants than many other mammals.

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

(3)

(Total 12 marks)

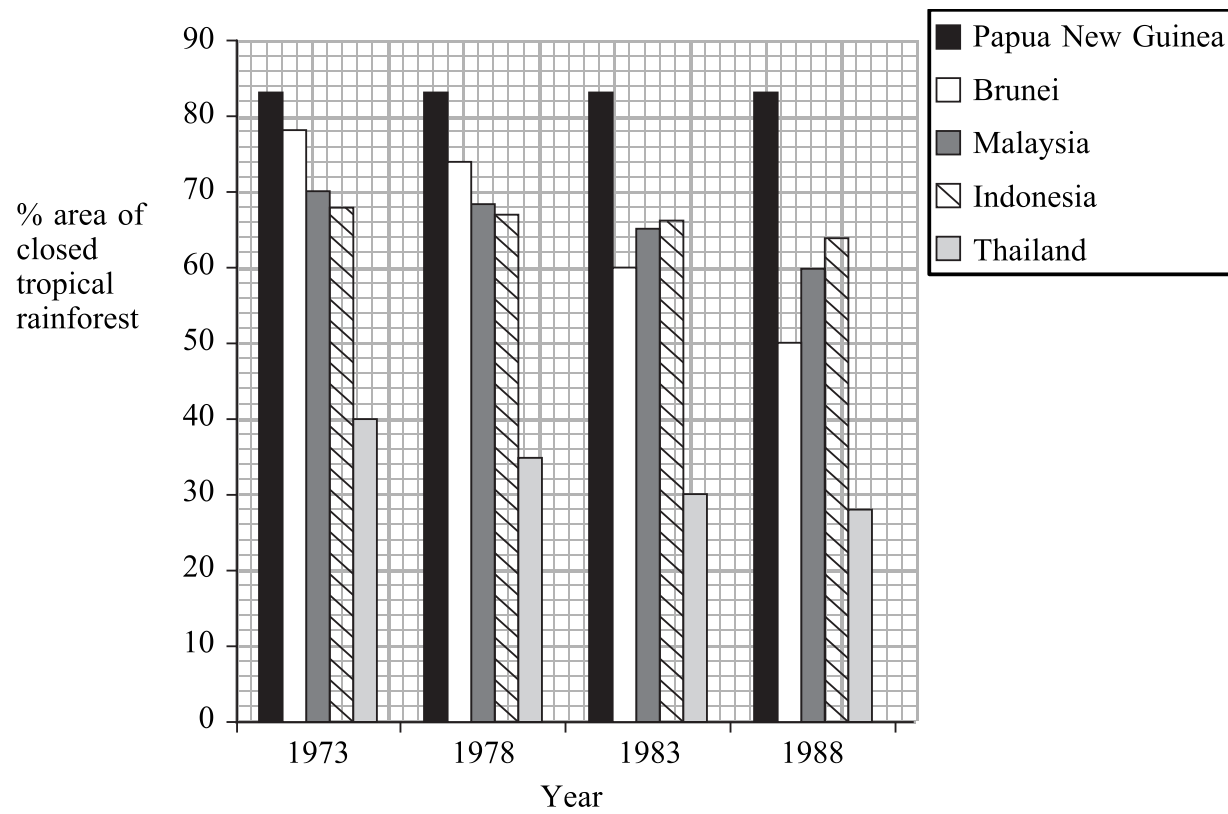
Q2



3. South East Asia is one of the Earth's most important biodiversity "hotspots". Much of the land is covered by tropical rainforest. The tall, dense forest contains valuable timber trees such as teak and dipterocarps. Dipterocarps are hardwood trees with large, straight trunks, which reach heights of 70 m and are much desired by timber companies. As a consequence, the rainforests have been exploited at an increasing rate over the last 50 years.

Figure 1 shows the area covered by closed tropical rainforest as a percentage of the total land area in five countries from 1973 to 1988. This type of forest has trees growing close together. The crowns of the trees form a dense canopy with few gaps. There is no continuous grass cover on the forest floor. Closed tropical rainforest has not been cleared for agriculture in the past 20 to 30 years.

Figure 1. Bar chart showing the area of closed tropical rainforest in five countries as a percentage of the total land area from 1973 to 1988.



In Malaysia, large areas of rainforest are selectively logged. This means that only the high value timber trees are removed, leaving the rest of the forest intact. Figure 2 shows the effect of selective logging on the density of groups of gibbons and two species of langur. A gibbon is a type of ape and langurs are monkeys. Figure 3 is a photograph of a white-handed gibbon in the canopy of a tropical rainforest.

Figure 2. Table showing the density of gibbons, maroon langurs and white-fronted langurs found within a rainforest before and after selective logging.

| Time of sampling | Density of gibbons and langurs/groups km ⁻² | | |
|---------------------------|--|---------------|------------------------------------|
| | Gibbon | Maroon langur | White-fronted langur |
| Before logging | 4.73 | 0.38 | 0.87 |
| Immediately after logging | 1.36 | 0.21 | 0.57 |
| 2 years after logging | 2.08 | 1.25 | Present but not seen during survey |
| 4 years after logging | 2.00 | 0.05 | 1.50 |

Figure 3. White-handed gibbon swinging through the canopy of a closed tropical rainforest.



Ecoscene/Papilio Robert Pickett



BLANK PAGE



Leave
blank

(a) Using the information in Figure 1, compare the changes in the area of closed tropical rainforest in Papua New Guinea, Brunei and Thailand.

.....

.....

.....

.....

.....

.....

.....

.....

.....

(3)

(b) One reason for the loss of tropical rainforest is the harvesting of the timber trees. Give **two** other reasons for the loss of tropical rainforests.

.....

.....

.....

.....

(2)



BLANK PAGE



Leave
blank

(c) Explain how the removal of rainforest trees can lead to soil erosion.

.....

.....

.....

.....

.....

.....

.....

.....

.....

(3)

(d) Suggest how deforestation can affect the water cycle.

.....

.....

.....

.....

.....

.....

.....

.....

.....

(3)



BLANK PAGE



Leave
blank

(e) Suggest how selective logging will change the rainforest habitat.

.....

.....

.....

.....

.....

.....

.....

.....

(3)



BLANK PAGE



Leave blank

(f) (i) Using the data in Figure 2, describe the effects of selective logging on the density of gibbons and the two species of langur.

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

(2)

(ii) Suggest reasons for the differences you described in (f)(i).

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

(2)

Q3

(Total 18 marks)

TOTAL FOR PAPER: 38 MARKS

END



BLANK PAGE



BLANK PAGE



N 2 1 4 2 7 A 0 1 9 2 0

BLANK PAGE

