B4.1 Adaptation to environment: data-based questions

What the Cell · DP Biology · data-based questions

Name _____ **Date** _____ **Total** _____ / 12

Read the data carefully before you answer. The number of marks shows how many separate points to make. Show your working in calculations.

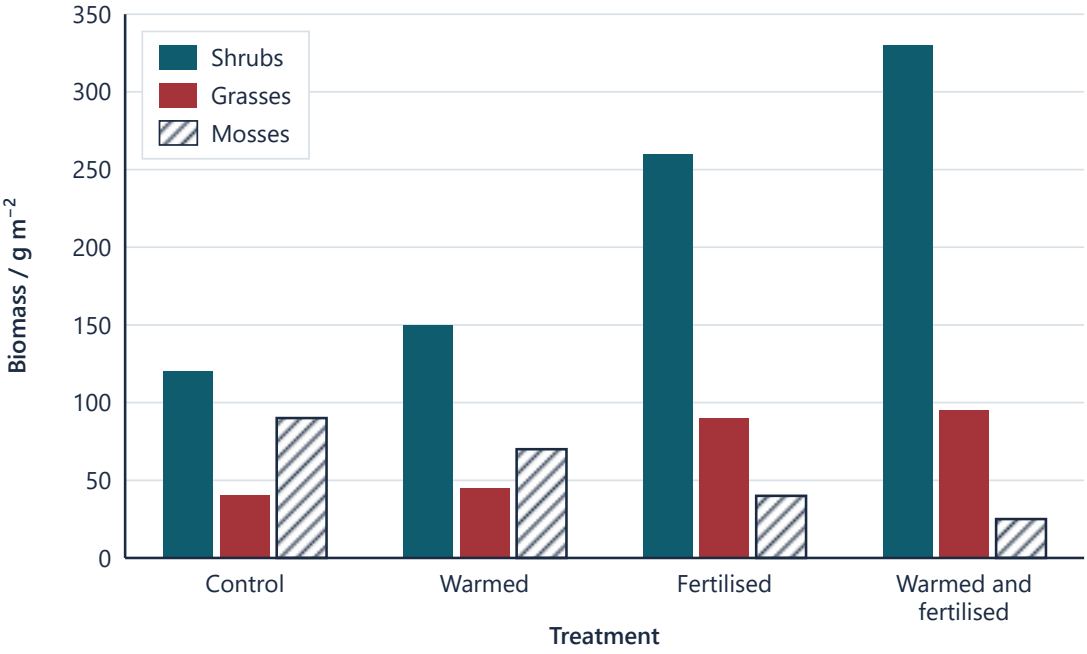
1 Warming and nutrients in the tundra

6 marks



Image: USFWSAlaska, Public domain, Wikimedia Commons.

Plots of Arctic tundra were given one of four treatments for ten years: none (control), warming with small clear greenhouses, added fertiliser (nitrogen and phosphorus), or both. The graph shows the mean biomass of three groups of plants at the end.



a **Calculate** the total biomass of the three groups in the control plots. **[1]**

b **Calculate** the percentage change in shrub biomass in plots that were warmed and fertilised, compared with the control. **[1]**

c **Compare** the effects of the treatments on shrubs and mosses. **[2]**

d **Suggest** reasons for the changes in moss biomass. **[2]**

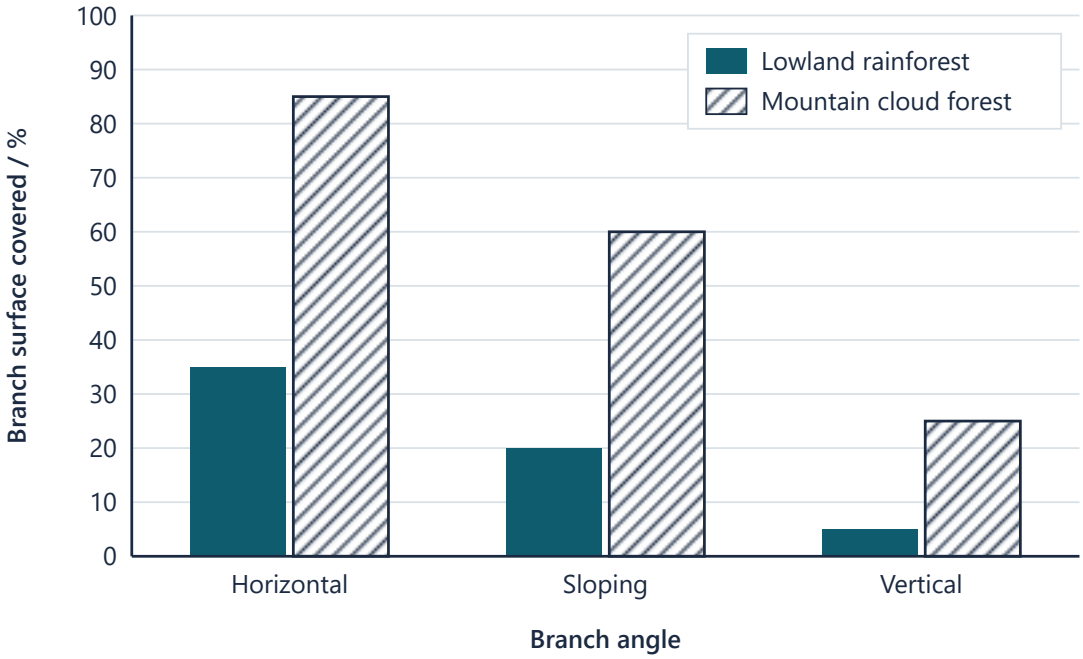
2 Plants that grow on trees

6 marks



Image: James St. John, CC BY 2.0, Wikimedia Commons.

Epiphytes, such as mosses, ferns and orchids, grow on the branches of trees and take water from rain and mist. The percentage of branch surface covered by epiphytes was measured in a lowland rainforest and a mountain cloud forest, on branches at three angles.



a **State** the epiphyte cover of horizontal branches in the cloud forest. **[1]**

b **Compare** epiphyte cover in the two forests. **[2]**

c **Suggest** two reasons why there are more epiphytes in the cloud forest. **[2]**

d **Suggest** why horizontal branches have the most epiphytes. **[1]**

What the Cell. Original questions written for this course, with data based on published patterns.