

Oxford Revise | Geography | Answers

Chapter 35 Tropical rainforests

All exemplar answers given are worth full marks.

1.
 - a)
 - i) Emergent layer
 - ii) They break through the canopy to get more light.
Accept suitable alternative answers.
 - iii) Forest floor
 - iv) The vegetation is limited to ferns, woody plants, and younger trees because of the lack of light.
 - v) The leaves have flexible bases so they can turn and face the sun. Many leaves have a drip tip to allow heavy rain to drip off.
 - vi) The lush vegetation grows very rapidly in the hot wet conditions experienced all the year around, so there is a plentiful supply of food.
 - b) The climate of tropical rainforests has high temperatures throughout the year, averaging 27°C. Precipitation is high, often over 2000 mm, which is fairly evenly distributed through the year with maximum falling in the months with the highest temperatures.
 - c) *Plants:* Trees grow very tall because of the ideal growing conditions in their attempt to reach the most sunlight. The leaves have flexible bases so they can turn and face the sun. Many leaves have a drip tip to allow heavy rain to drip off.
Animals: Many animals are camouflaged so they blend into the vegetation and so protect themselves from predators and to conceal themselves from their prey. Some species have adapted to living in the treetops. Sloths have long arms and curved feet with long claws to help grip tree trunks and branches.
 - d) Rainforests are natural carbon sinks. The plants take in carbon dioxide from the atmosphere and give out oxygen. The taking in of the carbon dioxide and locking it in the plants means that less of the gas is released into the atmosphere. By removing the tree cover there is an enhanced greenhouse effect. The carbon layer in the atmosphere is increased, leading to global warming and climate change. The situation is made worse because most deforestation takes place because of burning down of the trees. This burning adds to the emissions released into the atmosphere.
 - e) Nutrient cycling is the movement of nutrients between the living plants which make up the biomass, the soil, and the litter made up of dead and decaying matter. Most nutrients are stored in the trees and plants of the biomass. When the leaves die, they fall to the ground to become the litter store. Few nutrients are stored as litter, due to the rapid decomposition by fungi and bacteria which thrive in the hot, wet conditions. Also, few nutrients are stored in the soil because of the rapid take-up by plants and leaching. Leaching is the washing away of the nutrients by the heavy rainfall. The hot wet climate means that the nutrients are rapidly recycled through the different stores.

2.

a) C

b)

i) Stores

ii) Transfers

iii) Biomass

iv) Rainfall

v) Weathering

vi) Leaching

c) Forests are cleared for large-scale cattle ranches or for the development of plantations to grow crops like oil palm. There is an increasing use of cleared rainforest land for growing crops like sugar cane which are made into biofuels. Increased population means more land is cleared to produce food and crops to sell. Logging for timber, particularly the valuable hardwoods like teak, is another cause of deforestation. This produces a good income for a developed or emerging country. The exploitation of minerals requires the land to be cleared for the actual mining, but more forest is lost due to the infrastructure that must be built to support the mining companies' activities. This infrastructure includes new roads, settlements, and even new reservoirs to produce hydroelectricity.

3.

a) A biome is a large-scale ecosystem.

b) Temperature, precipitation.