

Oxford Revise | Geography | Answers

Chapter 33 Global biomes and the biosphere

All exemplar answers given are worth full marks.

1.
 - a)
 - i) A
 - ii) The tropical rainforests are found in a zone on either side of the Equator. They are found in South America, Africa, Asia, and Australia.
 - iii) The biomes' characteristic feature is the natural vegetation. The temperature and precipitation regimes are the main influences on the type of vegetation. Temperatures tend drop with distance from the Equator because of the changes in the angle of the Sun's rays reaching the Earth's surface. At low latitudes the low angle of the Sun's rays means its energy is spread over a larger area. Near the Equator, the high angle means that there is powerful heating of the Earth's surface. Rainfall patterns reflect the atmospheric circulation creating zones of high and low rainfall, so the relationship with latitude is not as close. Latitude is quite important in biome distribution but other factors like distance from the sea and ocean currents also play their part.
 - b) The biosphere is the area containing all the Earth's plants and animals (lying between the lithosphere and the atmosphere),
 - c) Photosynthesis is the process whereby plants get energy from the Sun to produce carbohydrates.
 - d) With increasing altitude, the air gets thinner and temperatures fall. Precipitation usually increases with height. These changes means that there are changes in the ecosystems, reflecting the changes in climatic conditions.
 - e) Plants (biotic) convert energy from the Sun (abiotic) by photosynthesis into carbohydrates for growth. Water (abiotic) is returned to the atmosphere (abiotic) via animal respiration (biotic) and evapotranspiration and transpiration from plants (biotic).
 - f) Soil is weathered rock, so different types of soil will be formed on different rock types. The chemical nature of a soil is determined by the chemistry of the parent rock. Quartz will produce an acidic soil, whereas an alkaline soil is formed on chalk and limestone. The chemistry of the soil will have an influence on which plants will grow. The effect of rock and type will be localised and will not change the latitudinal pattern of biomes on a global scale.