

Explain how physical factors influence the distribution of biodiversity shown. (10)

- Climate – areas along the equator receive greater levels of solar radiation which encourages growth of plant species e.g. Indonesia.
- Areas lying near the coast generally receive a greater amount of rainfall which will encourage plant life e.g. eastern coast of Australia and Indonesian islands.
- Ocean currents can bring in warmer or colder temperatures e.g. South western Australia
- Mountains e.g. Himalayas contain a wide range of different ecosystems in one area due to the different altitudes allowing conditions for different species of plants.
- Desert biome conditions e.g. in central Australia (high temperatures and low rainfall due to continentality) leads to poor conditions for plant growth.
- East coast of Australia and parts of south eastern Asia affected by the climatic conditions brought by ENSO
- Some areas are isolated and not in competition with other species for growth= leads to endemism
- Antarctica = low levels of solar radiation, areas of high pressure (cold descending air) leading to very dry conditions (a cold desert) = plant life struggle to survive. (similar reasons affect central Russia and Siberia)
- High altitude areas = relief rainfall = surplus water helping growth of plant life
- Near tectonic activity (especially volcanic activity) = fertile soils from the addition of ash to the soil which can encourage growth of plants e.g. in Indonesia
- Areas of high altitude will benefit from Spring / Summer snow melt = surplus of water encouraging growth
- The older the ecosystem/ biome is and the longer it has been undisturbed = the greatest biodiversity.
- Tri Cell Model = areas of low pressure (sinking cold air between the Hadley and Ferrel Cell) leads to greater levels of precipitation = parts of China and central Asia.
- Australia – separation from other continents for a long time which has led to the development of a lot of endemic species.

Explain how human activities have contributed to the condition of ecosystem goods and services.

(10)

- Degraded goods and services:
 - Overfishing has exhausted some fisheries completely e.g. in the North Sea during the 1990s
 - Some animals have been hunted to extinction
 - Deforestation of wood in key biomes/ ecosystems around the world
 - Physical water scarcity due to human induced climate change
 - Chemical and industrial pollution e.g. Yellow River in China reducing fresh water supplies
 - Regulation of climate – degraded by deforestation (destruction of 'carbon sinks') and human induced climate change has led to climate becoming more extreme
 - Due to deforestation soil erosion has increased which has led to greater flash flooding and landslides
 - Exploitation of resources e.g. forests for primary resources e.g. mining within the Amazon rainforest
 - Population growth leading to urban sprawl and the destruction of some ecosystems plus puts pressure on some goods e.g. fish stocks
 - Tourism in some areas leads to some degradation e.g. impact of mass tourism on coral reefs, erosion in some areas
- Improved goods and services:
 - Farming methods and mechanisation has led to an improvement in the yield (amount which is grown) e.g. use of fertilisers, GM crops, use of irrigation techniques. HOWEVER; you could discuss whether this is an improvement to ecosystems or whether it will lead to long term negative impacts.
 - Aquaculture – 'artificial' conditions/ farms used to breed high numbers of species and can use research to enhance conditions and efficiency.