

**Ecosystems**

**Multiple choice knowledge checker**

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| 1. | What is an ecosystem? | |
| ⭘ | A. | A community of plants and animals sharing an environment with non-living things. |
| ⭘ | B. | The flow of energy between living organisms. |
| ⭘ | C. | A global biome such as the tropical rainforest. |
| ⭘ | D. | The pathways through which nutrients are constantly recycled. |

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| 2. | Which of the following statements is true? | |
| ⭘ | A. | The term biotic relates to all living organisms within an ecosystem such as plants and animals. Abiotic elements are the non-living features such as soil, rocks and the climate. |
| ⭘ | B. | The term abiotic relates to all living organisms within an ecosystem such as plants and animals. Biotic elements are the non-living features such as soil, rocks and the climate. |

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| 3. | Which of the following is a characteristic of a producer in an ecosystem? | |
| ⭘ | A. | They are herbivores which means they only eat plants. |
| ⭘ | B. | They are carnivores. |
| ⭘ | C. | They produce their own food through photosynthesis. |
| ⭘ | D. | They break down dead plants and animals |

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| 4. | Which of the following is a characteristic of a primary consumer in an ecosystem? | |
| ⭘ | A. | They are herbivores which means they only eat plants. |
| ⭘ | B. | They are carnivores. |
| ⭘ | C. | They produce their own food through photosynthesis. |
| ⭘ | D. | They break down dead plants and animals |

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| 5. | Which of the following is a characteristic of a secondary consumer in an ecosystem? | |
| ⭘ | A. | They are herbivores which means they only eat plants. |
| ⭘ | B. | They are carnivores. |
| ⭘ | C. | They produce their own food through photosynthesis. |
| ⭘ | D. | They break down dead plants and animals |

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| 6. | Which of the following is a characteristic of decomposers in an ecosystem? | |
| ⭘ | A. | They are herbivores which means they only eat plants. |
| ⭘ | B. | They are carnivores. |
| ⭘ | C. | They produce their own food through photosynthesis. |
| ⭘ | D. | They break down dead plants and animals |

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| 7. | True or false? Decomposers are very important for any ecosystem. If they weren’t in the ecosystem the plants would not get essential nutrients and dead matter and waste would gather. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 8. | What is a food chain? | |
| ⭘ | A. | A community of plants and animals sharing an environment. |
| ⭘ | B. | The transfer of nutrients in an ecosystem. |
| ⭘ | C. | A global scale ecosystem. Also known as a biome. |
| ⭘ | D. | A series of organisms each dependent on the next as a source of food. |

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| 9. | True or false? A food web shows lots of food chains and how they overlap | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 10. | What is the transfer of nutrients through an ecosystem is known as? | |
| ⭘ | A. | Food chain |
| ⭘ | B. | Food web |
| ⭘ | C. | The nutrient cycle |
| ⭘ | D. | A biome |

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| 11. | Identify three stores in the nutrient cycle. | |
| ⭘ | A. | Air, soil and biomass |
| ⭘ | B. | Biomass, abiotic and biotic |
| ⭘ | C. | Biomass, litter and soil. |
| ⭘ | D. | Litter, soil and air |

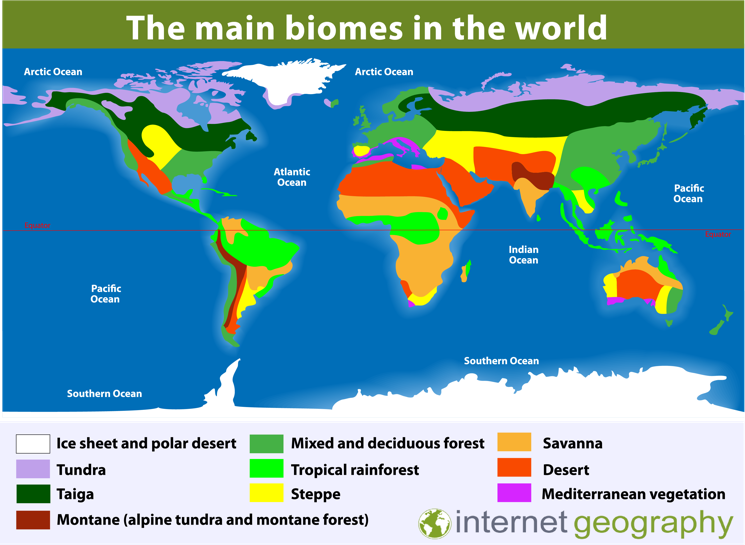
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| 12. | Which of the following is not a flow within the nutrient cycle. | |
| ⭘ | A. | Nutrient uptake by plants. |
| ⭘ | B. | Input dissolved in rain |
| ⭘ | C. | Output dissolved in evaporation |
| ⭘ | D. | Loss in run-off |

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| 13. | Which of the following is not an example of a small-scale ecosystem | |
| ⭘ | A. | A hedgerow |
| ⭘ | B. | A pond |
| ⭘ | C. | A wood |
| ⭘ | D. | An area of tropical rainforest |

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| 14. | What is a biome? | |
| ⭘ | A. | A biome is a very large ecological areas e.g. tropical rainforest. |
| ⭘ | B. | A biome is a small-scale ecosystem e.g. pond. |
| ⭘ | C. | A biome is a store in the nutrient cycle. |
| ⭘ | D. | All of the above |

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| 15. | Which of the following is not an example of a biome? | |
| ⭘ | A. | Tropical rainforest |
| ⭘ | B. | Hot Desert |
| ⭘ | C. | Tundra |
| ⭘ | D. | Hedgerow |

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| 16. | True or false? *Biomes* contain fauna and flora (animals and plants) that have adapted to the environment. | |
| ⭘ | A. | True |
| ⭘ | B. | False |



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| 17. | Look at the map above. Which answer below correctly identifies three biomes? | |
| ⭘ | A. | A = Rainforest, B = Tundra and C = Desert. |
| ⭘ | B. | A = Tundra, B = Rainforest and C = Desert. |
| ⭘ | C. | A = Desert, B = Tundra and C = Rainforest. |
| ⭘ | D. | A = Tundra, B = Desert and C = Rainforest. |

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| 18. | Which biome is mainly found between 15° north – 15° south of the equator | |
| ⭘ | A. | Hot desert |
| ⭘ | B. | Tundra |
| ⭘ | C. | Tropical rainforest |
| ⭘ | D. | Savanna |

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| 19. | Which biome is mainly found between 15-30° north and south of the equator? | |
| ⭘ | A. | Hot desert |
| ⭘ | B. | Tundra |
| ⭘ | C. | Tropical rainforest |
| ⭘ | D. | Savanna |

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| 20. | Which biome is mainly found in the extreme north? | |
| ⭘ | A. | Hot desert |
| ⭘ | B. | Tundra |
| ⭘ | C. | Tropical rainforest |
| ⭘ | D. | Savanna |

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| 21. | What is the tropical rainforest? | |
| ⭘ | A. | The tropical rainforest is a forest occurring in tropical areas of heavy rainfall. |
| ⭘ | B. | The tropical rainforest is a forest occurring in tropical areas of low rainfall. |
| ⭘ | C. | The tropical rainforest is a forest occurring along the tropics of Cancer and Capricorn occurring in areas of high rainfall. |
| ⭘ | D. | The tropical rainforest is a forest occurring along the tropics of Cancer and Capricorn occurring in areas of low rainfall. |

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| 22. | What % of all life forms on our planet are found in tropical rainforests? | |
| ⭘ | A. | 20-40% |
| ⭘ | B. | 30-50% |
| ⭘ | C. | 40-60% |
| ⭘ | D. | 50-70% |

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| 23. | True of false? Rainforests are the most productive and most complex ecosystems on Earth. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 24. | Which of the following best describes climate in the rainforest? | |
| ⭘ | A. | Temperature = 8°C  Rainfall = 1000mm |
| ⭘ | B. | Temperature = 18°C  Rainfall = 1500mm |
| ⭘ | C. | Temperature = 28°C  Rainfall = 2000mm |
| ⭘ | D. | Temperature = 38°C  Rainfall = 3000mm |

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| 25. | True of false? The largest rainforests are in the Amazon in Brazil (South America), Demographic Republic of Congo (Africa) and Indonesia (South East Asia). | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 26. | Where is the greatest area of tropical rainforest found? | |
| ⭘ | A. | Indonesia |
| ⭘ | B. | Democratic Republic of Congo |
| ⭘ | C. | Peru |
| ⭘ | D. | Brazil |

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| 27. | Identify the rainforest’s main layers. | |
| ⭘ | A. | Plant layer, under canopy, canopy and emergent. |
| ⭘ | B. | Shrub layer, under shrub layer, canopy and emergent. |
| ⭘ | C. | Shrub layer, under canopy, canopy and emergent. |
| ⭘ | D. | Ground layer, under canopy, crown layer and emergent. |

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| 28. | True or false? **Emergents** are the tallest trees and are usually under 30 metres tall | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 29. | True or false? The canopy contains over 50% of the rainforest wildlife. | |
| ⭘ | A. | ﻿True |
| ⭘ | B. | False |

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| 30. | Which type of plant climbs trees to reach sunlight in the canopy? | |
| ⭘ | A. | Epiphytes |
| ⭘ | B. | Lianas |
| ⭘ | C. | Air plants |
| ⭘ | D. | Sun plants |

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| 31. | Name an organism that grows on the surface of a plant and gets its moisture and nutrients from the air, rain, water or from debris gathering around it. | |
| ⭘ | A. | Epiphytes |
| ⭘ | B. | Lianas |
| ⭘ | C. | Rain plants |
| ⭘ | D. | Sun plants |

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| 32. | Why do tree trunks in the under canopy tend to be bare? | |
| ⭘ | A. | To allow animals to climb them. |
| ⭘ | B. | To discourage plants from climbing the tree. |
| ⭘ | C. | To discourage animals from climbing the tree. |
| ⭘ | D. | To discourage humans from climbing the tree. |

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| 33. | Which rainforest layer is being described below?  It contains shrubs and ferns and other plants needing less light. Saplings of emergents and canopy trees can also be found here. | |
| ⭘ | A. | Shrub layer, |
| ⭘ | B. | Under canopy, |
| ⭘ | C. | Canopy |
| ⭘ | D. | Emergent. |

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| 34. | What is the layer of rotting leaves and dead animals on the forest floor called? | |
| ⭘ | A. | Rubbish |
| ⭘ | B. | Litter |
| ⭘ | C. | Decaying |
| ⭘ | D. | Rotting |

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| 35. | True or false? Below the rich top soil the soil lacks nutrients. This is because nutrients are rapidly absorbed by vegetation. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 36. | Which of the following is not a way vegetation has adapted to the rainforest environment? | |
| ⭘ | A. | Buttress roots |
| ⭘ | B. | Waxy leaves |
| ⭘ | C. | Rough bark |
| ⭘ | D. | Drip tips |

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| 37. | Why have plants developed a waxy surface and drip tips? | |
| ⭘ | A. | The weight of water doesn’t damage the plant, and there’s standing water for fungi and bacteria to grow in. |
| ⭘ | B. | The weight of water damages the plant, and there’s standing water for fungi and bacteria to grow in. |
| ⭘ | C. | The weight of water doesn’t damage the plant, and there’s no standing water for fungi and bacteria to grow in. |
| ⭘ | D. | To reduce the risk of flooding in the tropical rainforest. |

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| 38. | Why is tree bark thin in the tropical rainforest? | |
| ⭘ | A. | They need protection from the cold at night. |
| ⭘ | B. | They store nutrients in the bark. |
| ⭘ | C. | There are not enough nutrients in the soil. |
| ⭘ | D. | They do not need protection from the cold. |

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| 39. | Why do plants drop their leaves gradually throughout the year? | |
| ⭘ | A. | They can go on growing all year round. |
| ⭘ | B. | Autumn occurs twice. |
| ⭘ | C. | The wind is very strong causing the leaves to be blown off. |
| ⭘ | D. | There are not enough nutrients to sustain the trees throughout the year. |

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| 40. | Why are some leaf stems flexible? | |
| ⭘ | A. | To allow leaves to move with the sun to maximise photosynthesis. |
| ⭘ | B. | To enable plants to disrupt the movement of termites. |
| ⭘ | C. | To allow leaves to avoid heavy rainfall. |
| ⭘ | D. | To capture more rainfall. |

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| 41. | What adaptation has the poison dart frog made to survive in the tropical rainforest? | |
| ⭘ | A. | Bright colours to attract prey. |
| ⭘ | B. | Claws to grip to the waxy surface of leaves. |
| ⭘ | C. | Bright colours to warn predators. |

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| 42. | Why do sloths have long, sharp claws? | |
| ⭘ | A. | To cling onto branches |
| ⭘ | B. | To extract prey from tree bark |
| ⭘ | C. | To itch themselves due to the large number of termites that bury into their fur. |
| ⭘ | D. | To pick their noses. |

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| 43. | The spider monkey has developed a prehensile tail. What does this mean? | |
| ⭘ | A. | A tail that looks like vegetation to help hide from predators. |
| ⭘ | B. | A tail that is a different colour to the rest of the body. |
| ⭘ | C. | A tail used to attract mates. |
| ⭘ | D. | A tail able to grasp or hold objects |

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| 44. | Why have geckos developed large, flattened toe pads that have sticky scales on their undersides? | |
| ⭘ | A. | To hold onto prey. |
| ⭘ | B. | To help them grip onto the smooth tree trunks. |
| ⭘ | C. | To help them swim. |
| ⭘ | D. | To easily detach if they are caught by a predator. |

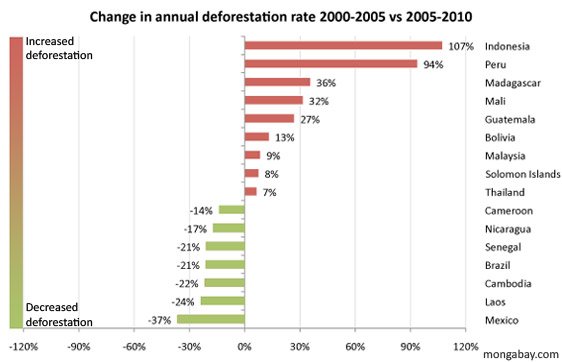


Figure 1 Changes in annual deforestation rate 2000-2005 vs 2005-2010

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| 45. | Look at figure 1. Where is the rate of deforestation increasing? | |
| ⭘ | A. | Mexico, Laos and Cambodia |
| ⭘ | B. | Indonesia, Peru and Brazil |
| ⭘ | C. | Indonesia, Peru and Madagascar |
| ⭘ | D. | Cameroon, Nicaragua and Senegal |

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| 46. | Look at figure 1. Where is the rate of deforestation decreasing? | |
| ⭘ | A. | Mexico, Laos and Cambodia |
| ⭘ | B. | Indonesia, Peru and Brazil |
| ⭘ | C. | Indonesia, Peru and Madagascar |
| ⭘ | D. | Cameroon, Nicaragua and Senegal |

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| 47. | True or false? Over half of the remaining rainforest in Brazil is in some way protected. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 48. | Which of the following is not a cause of deforestation in the tropical rainforest? | |
| ⭘ | A. | Cattle ranching |
| ⭘ | B. | Afforestation |
| ⭘ | C. | Farming |
| ⭘ | D. | Road Building |

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| 49. | Which of the following conditions make the Brazilian rainforest ideal for HEP? | |
| ⭘ | A. | The large number of lakes. |
| ⭘ | B. | The mountainous environment. |
| ⭘ | C. | Unlimited supply of water and ideal river conditions |
| ⭘ | D. | There are few indigenous people living there. |

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| 50. | Which of the following is not a type of agriculture affecting tropical rainforests? | |
| ⭘ | A. | Cattle ranching |
| ⭘ | B. | Palm oil production |
| ⭘ | C. | Soya production |
| ⭘ | D. | Hydroponics |

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| 51. | True or false? Deforestation leads to soil erosion. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 52. | True or false? Deforestation provides a valuable income in many LICs and NEEs. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 53. | Which of the following is not an example of a local impact of deforestation in the tropical rainforest? | |
| ⭘ | A. | ﻿ Elimination of Indian groups and their way of life. |
| ⭘ | B. | Soil erosion |
| ⭘ | C. | An increase in CO2 levels in the atmosphere. |
| ⭘ | D. | Destruction of the nutrient cycle. |

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| 54. | Which of the following are global impacts of rainforest deforestation? | |
| ⭘ | A. | Global climate change |
| ⭘ | B. | Local climate change |
| ⭘ | C. | Loss of biodiversity |
| ⭘ | D. | River pollution |

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| 55. | True or false? ﻿The tropical rainforest is a valuable provider of resources and opportunities. These fall into two different groups:  •  those provided by the rainforest in its natural state  •  those provided by the land once it is cleared of its forest cover. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 56. | True or false? The rainforest is of little use to pharmaceutical companies. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 57. | Which of the following will help reduce the impact of climate change? | |
| ⭘ | A. | Increasing the rate of deforestation |
| ⭘ | B. | Reducing burning fossil fuels |
| ⭘ | C. | Reducing afforestation |
| ⭘ | D. | ﻿Greatly reducing the rate of deforestation to make sure that as much of the Earth as possible is covered by trees to absorb the carbon dioxide in the atmosphere. |

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| 58. | What does it mean to sustainably manage the tropical rainforest? | |
| ⭘ | A. | To use the rainforest in a way that enables local people to benefit from the rainforest today, but ensures the resource is available to future generations. |
| ⭘ | B. | To use the rainforest in a way that enables local people to benefit from the rainforest today but will not be available to future generations. |
| ⭘ | C. | To use the rainforest in a way that local people will not benefit from today, but ensures the resource is available to future generations. |

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| 59. | Which of the following are examples of sustainable management of the rainforest at the local level? | |
| ⭘ | A. | Replanting |
| ⭘ | B. | Selective logging |
| ⭘ | C. | Agroforestry |
| ⭘ | D. | Creating protected areas or reserves. |

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| 60. | Which of the following are examples of sustainable management of the rainforest at the national level? | |
| ⭘ | A. | Creating protected areas or reserves. |
| ⭘ | B. | Education |
| ⭘ | C. | Debt reduction by HICs. |
| ⭘ | D. | Stopping the abuse of the rainforest by developers. |

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| 61. | Which of the following are examples of sustainable management of the rainforest at the international level? | |
| ⭘ | A. | Inter-government agreements on hardwoods and endangered species. |
| ⭘ | B. | Debt reduction by HICs |
| ⭘ | C. | Conservation and education by NGOs |
| ⭘ | D. | Creating protected areas or reserves. |

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| 62. | Which local strategy for managing the tropical rainforest sustainably is described below?  ﻿Felling trees only when they are fully grown, and letting younger trees mature and continue protecting the ground from erosion. | |
| ⭘ | A. | Replanting |
| ⭘ | B. | Selective logging |
| ⭘ | C. | Agroforestry |
| ⭘ | D. | Stopping illegal logging |

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| 63. | Which local strategy for managing the tropical rainforest sustainably is described below?  ﻿This strategy involves combining crops and trees. This avoids destroying the nutrient cycle. | |
| ⭘ | A. | Replanting |
| ⭘ | B. | Selective logging |
| ⭘ | C. | Agroforestry |
| ⭘ | D. | Stopping illegal logging |

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| 64. | Which national strategy for managing the tropical rainforest sustainably is described below?  Stopping deforestation and development in designated areas of rainforest. This often occurs in areas settled by indigenous people. | |
| ⭘ | A. | Creating protected areas or reserves. |
| ⭘ | B. | Education |
| ⭘ | C. | Stopping the abuse of the rainforest by developers. |

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| 65. | Which national strategy for managing the tropical rainforest sustainably is described below?  Making subjects such as environmental studies a compulsory part of the school curriculum. | |
| ⭘ | A. | Creating protected areas or reserves. |
| ⭘ | B. | Education |
| ⭘ | C. | Stopping the abuse of the rainforest by developers. |

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| 66. | Which international strategy for managing the tropical rainforest sustainably is described below?  ﻿An agreement to convert debt to a high-income country into a fund to protect large areas of tropical rainforest. | |
| ⭘ | A. | ﻿Inter-government agreements on hardwoods and endangered species |
| ⭘ | B. | Conservation and education by NGOs |
| ⭘ | C. | Debt reduction by HICs |

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| 67. | Which international strategy for managing the tropical rainforest sustainably is described below?  Agreements between governments aimed at protecting the biodiversity and resources of the rainforest. | |
| ⭘ | A. | ﻿Inter-government agreements on hardwoods and endangered species |
| ⭘ | B. | Conservation and education by NGOs |
| ⭘ | C. | Debt reduction by HICs |

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| 68. | What is the 2006 ﻿International Tropical Timber Agreement an example of? | |
| ⭘ | A. | ﻿Inter-government agreements on hardwoods and endangered species |
| ⭘ | B. | Conservation and education by NGOs |
| ⭘ | C. | Debt reduction by HICs |

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| 69. | Which ﻿international approach involves:  •  promoting the conservation message largely through education programmes in schools and colleges  •  providing training for conservation workers  •  providing practical help to make programmes more sustainable  •  buying up threatened areas and create nature reserves. | |
| ⭘ | A. | ﻿Inter-government agreements on hardwoods and endangered species |
| ⭘ | B. | Conservation and education by NGOs |
| ⭘ | C. | Debt reduction by HICs |

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| 70. | Which of the following is not a challenge that needs to be overcome to achieve a sustainable balance between protection and development in the tropical rainforest? | |
| ⭘ | A. | Some governments are not willing to do anything that risks slowing down the rate of economic development. |
| ⭘ | B. | Some governments are unwilling to enforce monitoring laws aimed at protecting the rainforest. |
| ⭘ | C. | There is a lot of corruption in the way forests are treated, such as bribes to allow illegal logging. |
| ⭘ | D. | ﻿Making subjects, such as ecology or environmental studies, a compulsory part of the school curriculum. |

**Hot Deserts**

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| 71. | Where are hot deserts located? | |
| ⭘ | A. | Between 20° and 30° north and south of the equator. |
| ⭘ | B. | Between 20° north and south of the equator. |
| ⭘ | C. | Between 5° north and south of the equator. |
| ⭘ | D. | Between 5° and 10° north and south of the equator. |

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| 72. | Which of the following characterises the climate in the world’s hot desert regions? | |
| ⭘ | A. | ﻿Hot and dry rising air with less than 250 millimetres of rain annually. |
| ⭘ | B. | ﻿Hot and dry sinking air less than 250 millimetres of rain annually. |
| ⭘ | C. | ﻿Hot and wet rising air less than 250 millimetres of rain annually. |
| ⭘ | D. | ﻿ Hot and wet sinking air less than 250 millimetres of rain annually. |

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| 73. | Which of the following is not an example of hot desert? | |
| ⭘ | A. | Australian |
| ⭘ | B. | Thar |
| ⭘ | C. | Sahara |
| ⭘ | D. | Taklamakan |

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| 74. | What are areas of land found on the borders of hots deserts known as? | |
| ⭘ | A. | Semi-arid |
| ⭘ | B. | Semi-horrid |
| ⭘ | C. | Semi-fringe |
| ⭘ | D. | Semi-detached |

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| 75. | What can the diurnal temperature range in a desert exceed? | |
| ⭘ | A. | 35°C |
| ⭘ | B. | 45°C |
| ⭘ | C. | 55°C |
| ⭘ | D. | 65°C |

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| 76. | What causes the deep deposits of sand and loose material in deserts? | |
| ⭘ | A. | Weathering |
| ⭘ | B. | Erosion |
| ⭘ | C. | Transportation |
| ⭘ | D. | Deposition |

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| 77. | True or false? ﻿Sand dunes should not be classified as soils if there is no organic matter present there at all. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 78. | True or false? ﻿Some desert soils are potentially very fertile because important nutrients for plant growth, such as calcium, have not been leached away over time. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 79. | ﻿What is the collective name given to plants that can survive in very dry conditions? | |
| ⭘ | A. | Cacti |
| ⭘ | B. | Epiphytes |
| ⭘ | C. | Xerofites |
| ⭘ | D. | Xerophytes |

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| 80. | Which of the following are adaptations made by vegetation to survive the desert environment? | |
| ⭘ | A. | ﻿Some plants have the majority of their biomass below the ground surface where temperatures are cooler |
| ⭘ | B. | Some plants have thick, waxy cuticles to reduce water loss through transpiration. |
| ⭘ | C. | ﻿﻿Deserts bloom suddenly after rainfall so to complete their life cycle quickly. |
| ⭘ | D. | Plants have drip tips so water does not accumulate on leaves. |

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| 81. | How have acacia trees adapted to survive in the desert ecosystem? You can select more than one answer. | |
| ⭘ | A. | They are fire resistant |
| ⭘ | B. | Deep roots, up to 50m which also reach out sideways. |
| ⭘ | C. | They have seeds that lie dormant for years between rains. |
| ⭘ | D. | Short, fat trunks that store excess water. |

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| 82. | How have cacti adapted to survive in the desert ecosystem? You can select more than one answer. | |
| ⭘ | A. | They are succulents, storing water in their tissues. |
| ⭘ | B. | Spikes deter consumers. |
| ⭘ | C. | Their small, waxy leaves reduce transpiration loss. |
| ⭘ | D. | They have deep roots to absorb water deep in the soil. |

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| 83. | Which of the following is not an example of interdependence in a hot desert? | |
| ⭘ | A. | Vegetation roots stabilise sandy soils in semi-arid areas at the edges of deserts. |
| ⭘ | B. | Links between different parts of the food web. |
| ⭘ | C. | Soil erosion is reduced by vegetation holding soil together, especially on the edge of deserts. |
| ⭘ | D. | It is home to thousands of other living organisms. |

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| 84. | How is lichen able to survive in the desert ecosystem? | |
| ⭘ | A. | It chemically breaks down rock using organic acids. |
| ⭘ | B. | It chemically breaks down organic material using organic acids. |
| ⭘ | C. | It decomposes organic material. |
| ⭘ | D. | It absorbs water from the atmosphere. |

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| 85. | Which of the following food chains would not be found in the desert ecosystem? | |
| ⭘ | A. | Grass 🡪 Kangaroo rat 🡪 Coyote |
| ⭘ | B. | Cactus 🡪 Grasshopper 🡪 Roadrunner 🡪 Coyote |
| ⭘ | C. | Cactus 🡪 Grasshopper 🡪 Scorpion 🡪 Road runner 🡪 Coyote |
| ⭘ | D. | Cactus 🡪 Grasshopper 🡪 Spider Monkey 🡪 Coyote |

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| 86. | Which of the following is not an animal adaptation to the desert ecosystem? | |
| ⭘ | A. | ﻿Desert foxes have thick fur on the soles of their feet, protecting them from the hot ground. |
| ⭘ | B. | The light-coloured fur on the bodies of Desert foxes reflects sunlight and keeps them cool. |
| ⭘ | C. | ﻿Kangaroo rats do not need to drink water; they get it from food. |
| ⭘ | D. | Kangaroo rats stay in burrows at night due to the low temperatures. |

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| 87. | Which of the following are hot desert development opportunities? You can select more than one. | |
| ⭘ | A. | Agriculture, providing water can be found for irrigation through aquifers or canals. |
| ⭘ | B. | Mineral extraction such as ﻿copper, uranium, lead, zinc and coal. |
| ⭘ | C. | Energy, such as solar. |
| ⭘ | D. | Tourism |

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| 88. | Which of the following is not a reason for uneven development in the desert ecosystem? | |
| ⭘ | A. | It is difficult to adapt to the hot desert environment. |
| ⭘ | B. | Desert environments are very inaccessible. |
| ⭘ | C. | There is a low population density in deserts. |
| ⭘ | D. | Large areas of desert are protected from development. |

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| 89. | How have people adapted to the desert environment? (you can select more than one answer) | |
| ⭘ | A. | Whitewashed buildings help reflect the sun. |
| ⭘ | B. | Water is extracted from aquifers. |
| ⭘ | C. | Slash and burn is a practiced form of farming. |
| ⭘ | D. | Irrigation is used to enable farming. |

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| 90. | What is desertification? | |
| ⭘ | A. | The process of land transforming from desert to fertile land. |
| ⭘ | B. | The process of rock breaking down in situ. |
| ⭘ | C. | The process by which land changes into desert. |
| ⭘ | D. | The process by which land wears away by the action of the sea, sand or river. |

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| 91. | Which is the desert fringe also known as? | |
| ⭘ | A. | Semi-deserts |
| ⭘ | B. | Semi-arid area |
| ⭘ | C. | Drylands |
| ⭘ | D. | All of the above |

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| 92. | True or false? ﻿At the borders of hot deserts, desert fringe areas support greater biodiversity and larger plants. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 93. | True or false? ﻿Despite their higher rainfall, desert fringes are classified, alongside hot deserts, as fragile environments. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 94. | Which of the following statements is true? | |
| ⭘ | A. | We do not know whether global warming caused by humans will create even greater rainfall deficiencies in the Sahel or other desert fringes. |
| ⭘ | B. | Global warming is directly responsible for desertification in the Sahel and other desert fringes. |
| ⭘ | C. | Desertification in the Sahel is only occurring because of natural fluctuations in rainfall. |
| ⭘ | D. | Desertification in the Sahel and other desert fringes because of human action. |

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| 95. | Which of the following statements is not a human cause of desertification? | |
| ⭘ | A. | Population growth |
| ⭘ | B. | Overgrazing by cattle |
| ⭘ | C. | Deforestation for fuel and constructing shelter |
| ⭘ | D. | Cyclical drought bringing lower and less reliable rainfall |

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| 96. | True or false? Bunds are a low-tech solution to reducing soil erosion and desertification. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 97. | Which of the following are techniques that can be used to tackle desertification? | |
| ⭘ | A. | ﻿Tree-planting schemes to bind and protect the soil. |
| ⭘ | B. | Planting grass on slopes to help stabilise the topsoil and building small rock dams to trap rainwater in gullies. |
| ⭘ | C. | Building terraces (flattened sections with a retaining wall) on farmed slopes. |
| ⭘ | D. | All of the above |

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| 98. | Which of the following is an attempt to tackle desertification in the Sahel, Africa? | |
| ⭘ | A. | Green Door |
| ⭘ | B. | Green Wall |
| ⭘ | C. | Green Wing |
| ⭘ | D. | Green Goblin |

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| 99. | Technology that is suited to the needs, skills, knowledge and wealth of local people in the environment where they live which incorporates simple ideas with cheap and available materials is known as what? | |
| ⭘ | A. | Appropriate technology |
| ⭘ | B. | Intermediate technology |
| ⭘ | C. | Both of the above |

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| 100. | True or false? Efficient stoves are an example of appropriate technology. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

**Cold Environments**

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| 71. | Where are cold environments mainly located? | |
| ⭘ | A. | 66.5° north and south of the equator along with mountainous areas such as the Himalayas and the Alps. |
| ⭘ | B. | 66.5° north and south of the equator. |
| ⭘ | C. | Between 66.5° north and south of the equator. |
| ⭘ | D. | Between 5° and 10° north and south of the equator. |

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| 72. | Which of the following characterises the climate in the world’s cold environments? | |
| ⭘ | A. | ﻿Very low temperatures of short periods of time. |
| ⭘ | B. | ﻿Very low temperatures for long periods of time. |
| ⭘ | C. | ﻿Very low temperatures every 2-3 years. |
| ⭘ | D. | Places where temperatures are well below freezing all year. |

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| 73. | Which of the following are examples of cold environments? | |
| ⭘ | A. | Polar and tropical rainforest |
| ⭘ | B. | Polar and tundra |
| ⭘ | C. | Tundra and tropical rainforest |
| ⭘ | D. | Tundra and savannah |

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| 74. | What are extreme cold environments known as? | |
| ⭘ | A. | Polar |
| ⭘ | B. | Tundra |
| ⭘ | C. | Polar tundra |
| ⭘ | D. | Tundra polar |

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| 75. | What is the name of the cold environment that borders the polar region? | |
| ⭘ | A. | Polar |
| ⭘ | B. | Tundra |
| ⭘ | C. | Polar tundra |
| ⭘ | D. | Tundra polar |

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| 76. | Which type of cold environment has the greatest temperature range? | |
| ⭘ | A. | Polar |
| ⭘ | B. | Tundra |
| ⭘ | C. | Neither |
| ⭘ | D. | They are both the same |

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| 77. | True or false? ﻿Some cold environments experience less harsh conditions during summer enabling life to thrive. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 78. | Which of the following statements best describe soil in cold environments? | |
| ⭘ | A. | Tundra soils are almost non-existent unless they were formed under past climatic conditions. Polar soils are typically thin and not particularly fertile. They are often frozen in the winter. |
| ⭘ | B. | Polar soils are almost non-existent unless they were formed under past climatic conditions. Tundra soils are typically thin and not particularly fertile. They are often frozen in the winter. |

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| 79. | ﻿What is permanently frozen land in cold environments known as? | |
| ⭘ | A. | Frost |
| ⭘ | B. | Permafrost |
| ⭘ | C. | Perrofrost |
| ⭘ | D. | Jackfrost |

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| 80. | Which of the following are adaptations made by vegetation to survive cold environments? | |
| ⭘ | A. | ﻿Deep root systems to access water and nutrients deep below the surface in the active layer. Low growing ‘cushion’ plants retain moisture and shelter from strong drying winds. |
| ⭘ | B. | Deep root systems to access water and nutrients deep below the surface in the active layer. High growing ‘cushion’ plants retain moisture and shelter from strong drying winds. |
| ⭘ | C. | ﻿﻿ Shallow root systems to access water and nutrients close to the surface in the active layer. High growing ‘cushion’ plants retain moisture and shelter from strong drying winds. |
| ⭘ | D. | Shallow root systems to access water and nutrients close to the surface in the active layer. Low growing ‘cushion’ plants retain moisture and shelter from strong drying winds. |

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| 81. | How have flowering plants such as the buttercup and Arctic poppy adapted to survive in cold environments? | |
| ⭘ | A. | They have deep roots to reach water. |
| ⭘ | B. | They have a rapid life cycle which means they can flower and seed quickly during the short summers. |
| ⭘ | C. | They have wide buttress roots to store water. |
| ⭘ | D. | Short, fat trunks that store excess water. |

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| 82. | True or false? Mosses are not found in cold environments because they cannot cope with waterlogged conditions in summer. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 83. | Which of the following is not an example of interdependence in a cold environment? | |
| ⭘ | A. | Indigenous people depend on animals such as seals for food, clothing and oil. |
| ⭘ | B. | Plants form dense cushions on the ground to retain moisture and heat. |
| ⭘ | C. | The bearberry has bright red berries to encourage birds such as owls to eat them and disperse the seeds. |
| ⭘ | D. | Vegetation roots stabilise sandy soils |

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| 84. | True or false? In polar regions food chains are short and food webs very basic. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 85. | Which food chain below is typical of a polar region? | |
| ⭘ | A. | Grass 🡪 Kangaroo rat 🡪 Coyote |
| ⭘ | B. | Arctic lichen 🡪 Musk Ox 🡪 Tundra Wolf |
| ⭘ | C. | Krill 🡪 Fish 🡪 Penguin |
| ⭘ | D. | Arctic willow 🡪 Arctic hare 🡪 Artic fox 🡪 Tundra Wolf |

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| 86. | Which food chain below is typical of a tundra region? | |
| ⭘ | A. | Grass 🡪 Kangaroo rat 🡪 Coyote |
| ⭘ | B. | Krill 🡪 Fish 🡪 Seals 🡪 Whale |
| ⭘ | C. | Krill 🡪 Fish 🡪 Penguin |
| ⭘ | D. | Arctic willow 🡪 Arctic hare 🡪 Artic fox 🡪 Tundra Wolf |

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| 87. | Which of the following is not an animal adaptation to a cold environment? | |
| ⭘ | A. | ﻿Arctic foxes have thick fur on their bodies and the soles of their feet, protecting them from the hot ground. |
| ⭘ | B. | Arctic foxes have thick fur on their bodies and the soles of their feet, protecting them from the cold. |
| ⭘ | C. | ﻿Musk oxen have wide hooves to enable them to walk on snow or waterlogged land. |
| ⭘ | D. | Arctic hares have white fur which provides good camouflage. |
| 88. | Which of the following is not a risk to biodiversity in cold environments? | |
| ⭘ | A. | Climate change leading to longer, warmer summers. |
| ⭘ | B. | Melting permafrost releases carbon in the atmosphere enhancing the greenhouse effect. |
| ⭘ | C. | Increased resource exploitation of arctic regions (e.g. oil extraction) may cause pollution and have a negative impact on the ecosystem. |
| ⭘ | D. | Conservation groups such as the WWF supporting governments, businesses and local people in protecting biodiversity. |

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| 89. | Which of the following are hot desert development opportunities? You can select more than one. | |
| ⭘ | A. | Mineral extraction e.g. gold. |
| ⭘ | B. | Energy, through extracting oil and coal. |
| ⭘ | C. | Fishing e.g. salmon in Alaska’s rivers. |
| ⭘ | D. | Tourism, particularly cruises. |

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| 90. | Which of the following is not a reason for uneven development in the desert ecosystem? | |
| ⭘ | A. | It is difficult to adapt to the extreme temperature. |
| ⭘ | B. | Cold environments are often very inaccessible. |
| ⭘ | C. | There is a low population density in cold environments. |
| ⭘ | D. | Constructing and the provision of services is easy to provide in cold environments. |

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| 91. | How have people adapted to cold environments? (you can select more than one answer) | |
| ⭘ | A. | Indigenous people survive as hunter-gatherers as they are unable to grow crops. |
| ⭘ | B. | Water is extracted from aquifers. |
| ⭘ | C. | Slash and burn is a practiced form of farming. |
| ⭘ | D. | They dress warmly, often using animal skins and live in insulated houses. |

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| 92. | What is a wilderness area? | |
| ⭘ | A. | A natural area of land protected from human development. |
| ⭘ | B. | A remote part of the world that has been developed by humans for economic benefits. |
| ⭘ | C. | A remote part of the world that is unspoilt by human development, remaining natural and undisturbed. |
| ⭘ | D. | A remote part of the world that is spoilt by human development. |

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| 93. | True or false? ﻿Many of the world’s cold environments can be considered wilderness areas. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 94. | Which of the following are reasons for protecting cold environment wilderness areas? (you can select more than one) | |
| ⭘ | A. | They are fragile environments and take a significant amount of time to recover from damage. |
| ⭘ | B. | Some areas are inhabited by indigenous people whose culture and survival depend on protecting the natural world. |
| ⭘ | C. | Cold environments provide important habitats for many living organisms. |
| ⭘ | D. | There is a moral duty to protect these environments. |

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| 95. | Which of the following is not an example of how technology been used to solve some of the challenges of oil extraction in Alaska? | |
| ⭘ | A. | The trans-Alaskan pipeline has been insulated to retain the heat of oil and avoid melting permafrost. |
| ⭘ | B. | The pipeline is raised above the ground to avoid disturbing natural migration routes of animals such as caribou. |
| ⭘ | C. | Special slides allow the pipeline to move during earthquakes. |
| ⭘ | D. | The pipeline has been constructed in a way that oil flows freely without the need for pumping stations. |

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| 96. | Which of the following is an example of an International agreement to protect Antarctica, the world’s last great wilderness? | |
| ⭘ | A. | The Antarctic Treaty |
| ⭘ | B. | The Arctic Treaty |
| ⭘ | C. | The Antarctic International Agreement |
| ⭘ | D. | The Antarctic International Protection Agreement |

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| 97. | Which of the following is not included in the treaty that protects Antarctica? | |
| ⭘ | A. | ﻿All military activities are banned |
| ⭘ | B. | The disposal of nuclear waste is banned |
| ⭘ | C. | The promotion of International cooperation in scientific research |
| ⭘ | D. | The total ban of tourism in Antarctica. |

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| 98. | True or false? The US government has been involved in the protection of Alaska since oil was found in the 1960s. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

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| 99. | What is the name of the protected area of land in northern Alaska that protects the area from oil and gas developments? | |
| ⭘ | A. | Northern Arctic Reserve |
| ⭘ | B. | Western Arctic Reserve |
| ⭘ | C. | Eastern Arctic Reserve |
| ⭘ | C. | Southern Arctic Reserve |

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| 100. | True or false? Conservation groups are actively involved in developing strategies for maintaining cold environments. | |
| ⭘ | A. | True |
| ⭘ | B. | False |

**Answers**

1 - A

2 - A

3 - C

4 - A

5 - B

6 - D

7 - A

8 - D

9 - A

10 - C

11 - C

12 - C

13 - D

14 - A

15 - D

16 - A

17 - B

18 - C

19 - A

20 - B

21 - A

22 - D

23 - A

24 - C

25 - A

26 - D

27 - C

28 – B - **Emergents** are the tallest trees and are usually over 50 metres tall

29 - A

30 - B

31 - A

32 - B

33 - A

34 - B

35 - A

36 - C

37 - C

38 - D

39 - A

40 - A

41 - A

42 - A

43 - D

44 - B

45 - C

46 - A

47 - A

48 - B

49 - C

50 - D

51 - A

52 - A

53 - C

54 – A & C

55 - A

56 - B

57 – B & D

58 - A

59 – A, B & C

60 - A, B and D

61 - D  
62 - B

63 - C

64 - A

65 - B  
66 - C

67 - A

68 - A

69 - B

70 - D

**Hot Deserts**

71 - A

72 - B

73 - D

74 - A

75 - A

76 – A

77 - A

78 - A

79 - D

80 – A, B and C

81 – A, B and D

82 – A, B, C

83 - C

84 - A

85 - D

86 - D

87 – A, B, C and D

88 - D

89 – A, B and D

90 - C

91 - D

92 - A

93 - A

94 - A

95 – D

96 - A

97 - B

98 - B

99 - C

100 - A

**Cold Environments**

71 - A

72 - B

73 - B

74 - A

75 - B

76 – B

77 - A

78 - B

79 - B

80 – D

81 – B

82 – B

83 - D

84 - A

85 - C

86 - D

87 – A

88 - D

89 – A, B, C and D

90 – D

91 – A & D

92 - C

93 - A

94 - A - D

95 – D

96 - A

97 - D

98 - A

99 - B

100 - A