2.4 Cold Environments: Test Pack

AQA 8035 · Calculator allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 This question is about how organisms are adapted to survive in cold environments.

(a) Describe TWO ways plants are adapted to survive in a tundra environment. **(4)**

(b) Describe TWO ways animals are adapted to survive in a cold environment. **(4)**

(Total for Question 1 is 8 marks)

2 Explain TWO challenges of developing cold environments.

(Total for Question 2 is 4 marks)

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Mark scheme · 2.4 Cold Environments: Test Pack

Question 1

(a) adaptation 1 named, e.g. shallow roots, oe **B1**

(a) linked function, e.g. permafrost prevents roots growing deep, so plants must spread roots sideways near the surface, oe **B1**

(a) adaptation 2 named, e.g. low, compact growth (e.g. cushion-shaped plants), oe **B1**

(a) linked function, e.g. growing close to the ground reduces exposure to strong, cold winds and helps retain heat, oe **B1**

(a) Answer: For example: shallow roots, since permafrost prevents roots growing deep, so plants spread sideways near the surface; and low, compact (cushion-shaped) growth, which reduces exposure to strong, cold winds and helps retain heat.

(b) adaptation 1 named, e.g. a thick layer of fat (blubber) or fur, oe **B1**

(b) linked function, e.g. this insulates the animal, reducing heat loss in extreme cold, oe **B1**

(b) adaptation 2 named, e.g. small ears/short limbs, or white fur, oe **B1**

(b) linked function, e.g. small extremities reduce the surface area from which heat can be lost, and white fur provides camouflage against snow, oe **B1**

(b) Answer: For example: a thick layer of fat (blubber) or fur, which insulates the animal and reduces heat loss; and small ears or short limbs, which reduce the surface area from which heat can be lost, while white fur provides camouflage against snow.

Question 2

challenge 1 identified, e.g. extreme cold and long, dark winters; remoteness; thawing permafrost; or a fragile ecosystem, oe **B1**

linked explanation of challenge 1, e.g. extreme cold and long, dark winters make outdoor construction and daily life difficult; remote areas have few roads, so transporting goods, workers and equipment is slow and expensive; permafrost can thaw beneath heated buildings and roads, causing the ground to become unstable so structures subside or crack; a fragile ecosystem means development must be carefully managed to avoid long-lasting environmental damage, oe **B1**

challenge 2 identified, a different challenge from challenge 1, oe **B1**

linked explanation of challenge 2, oe **B1**

Answer: For example: extreme cold and long, dark winters make outdoor construction and daily life difficult; and remoteness, with few roads, makes transporting goods, workers and equipment slow and expensive.

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