KS3 Biology

Answers

Chapter 6 – Ecosystems and adaptation

Question	Answers	Extra information	Mark
1(a)	desert/hot and dry		1
(b)	swollen stems – store water thorns – stop animals eating it waxy layer – prevents water evaporating from the plant widespread roots – collect water from a large area	2 marks for two correctly matched 1 mark for one correctly matched	3
2(a)	grass		1
(b)	snake/rat		1
(c)	an organism that eats another organism for food		1
3(a)	water/space		1
(b)	food/mates		1
(c)i	light		1
(c)ii	plants need light to make food by photosynthesis OR animals are consumers they do not need to photosynthesise/they eat other organisms to gain energy		1 1
4(a)	the living organisms in a particular area and the habitat in which they live		1
(b)	Any **two** from: • food • shelter • mates		2

KS3 Biology

Answers

Question	Answers	Extra information	Mark
5	Example answers: • green – camouflage • to stay hidden from predators/prey • sticky feet – to climb trees • to reach food/get away from danger • nocturnal – active at night • less chance of being seen by predators • very low body mass – can sit on very small branches • increase chances of catching prey	2 marks for description 2 marks for linked explanation	4
6(a)	to get a more representative sample/to avoid bias		1
(b)	quadrat C – 3 mean – 2	Allow ECF	1 1
(c)	3000 thistles	Award 1 mark for 3 × 1500 Allow ECF	2
7(a)	rabbit/gazelle		1
(b)	population would increase as no organisms eating them		1 1
(c)	population would increase as more mice to eat		1 1
8(a)	all data points correctly plotted curved line of best fit	1 mark if at least three data points are correctly plotted	2 1

KS3 Biology

Answers

Question	Answers	Extra information	Mark
(b)	initially/when plenty of aphids/prey are available, the population of ladybirds increases after 6 months, the population of aphids decreases population of ladybirds decreases after 9 months/as the prey becomes scarce population of aphids increases again after 11/12 months/when the population of ladybirds decreases significantly		1 1 1 1
9(a)	flowers provide bees with nectar bees pollinate flowers/transfer pollen between flowers		1 1
(b)	Any four from: • as energy is transferred along a chain, some is transferred to the surroundings/by heating • some energy is lost in waste products • not all of an organism is eaten • at each level of the food chain, less energy is transferred to the organism in the next level • this means there is not enough energy available to support higher levels within a food chain		4
(c)	Sun provides energy for photosynthesis which plants need to make food which in turn is eaten by consumers		1 1 1
10(a)	chemical that kills insects		1

KS3 Biology

Answers

Question	Answers	Extra information	Mark
(b)	Any six from: • plankton → small fish → tuna → human • insecticide runs into sea • taken up by plankton • mercury accumulates in fish when they eat the plankton • one fish eats lots of plankton, but not enough to cause poisoning • mercury accumulates in tuna when they eat the smaller fish • one tuna eats many fish, but not enough to cause poisoning • human eats many tuna (over a period of time) • mercury level is now so high/concentrated that it causes poisoning	If food chain not drawn, mark out of 5 marks	6
	SPACED LEARNING QUESTIONS		
11(a)	chloroplast		1
(b)	glucose		1
(c)	diffuses from the air through the stomata	Accept a description of diffusion	1 1
12(a)	break large molecules down into smaller molecules		1
(b)	speed up reactions without being used up		1 1

KS3 Biology

Answers

Question	Answers	Extra information	Mark
(c)	Any four from: both are broken down from large molecules into smaller ones both are broken down by enzymes both are broken down in the stomach and small intestine carbohydrates are also broken down/digested in the mouth carbohydrates are broken down by carbohydrase, whereas proteins are broken down by protease carbohydrates are broken down into sugar molecules, whereas proteins are broken down into amino acids	To achieve full marks, at least one similarity and one difference must be stated	4