AQA GCSE Biology

Practice answers

OXFORD Revise

Question	Answers	Extra information	Mark	AO / Specification reference
01.1	deforestation		1	AO1 4.7.3.4
01.2	less photosynthesis combustion / burning (to clear land) increased level of decay (of felled trees)		1 1 1	AO2 4.7.3.4
01.3	any **three** from: • rainforest – high biodiversity / agricultural land – low biodiversity • removal of trees removes shelter / habitat for animal species, so fewer species can survive there • removing trees removes a varied food source for animals, so fewer species are able to survive there • removing many types of plant / tree species reduces biodiversity / growing one / few species for agriculture limits biodiversity • smaller populations of animal species are more vulnerable to dying out in an area, reducing biodiversity		3	AO2 4.7.3.4

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01.4	deforestation leads to increased CO_2 levels in the Earth's atmosphere so more (infrared) radiation emitted from the Earth's surface is retained by the atmosphere leading to an increase in the mean temperature in the atmosphere / global warming causing changes to the Earth's / a country's climate		1 1 1 1	AO2 4.7.3.4 4.7.3.5
02.1	any **four** from: • CO_2 concentration has increased over time • rate of increase of CO_2 concentration is increasing / gradient is increasing over time • mean temperature is increasing over time • but small fluctuations exist in the data • correlation exists between CO_2 concentration and mean temperature change		4	AO2 4.7.3.5
02.2	burning more fossil fuels deforestation		1 1	AO1 4.7.3.4 4.7.3.5
02.3	14.1 °C		1	AO2 4.7.3.5 Ms 4a

Question	Answers	Extra information	Mark	AO / Specification reference
02.4	1910: 290; 2000: 370 370–290 = 80 $\frac{80}{90}$ = 0.89 ppm/year		 1 1 1	AO2 4.7.3.5 Ms 4a
02.5	any **three** from: • the data show correlation between CO_2 concentration and mean temperature change • but this does not prove causation • the global mean temperature has small variations • and sometimes decreases slightly (from the previous year) / mean temperature decreases between approx. 1940 and 1950 conclusion: • the data strongly suggests that increasing CO_2 concentrations lead to increasing temperatures • but does not provide evidence to prove it (beyond doubt)	to score 4 or 5 marks, students should reach a conclusion about what the data shows	3 1 1	AO3 4.7.3.5
03.1	breathing difficulties / asthma / lung problems	accept any other appropriate suggestions	1	AO1 4.7.3.2
03.2	mixture of smoke and pollutant chemicals / acidic gases / sulfur dioxide / nitrogen oxide		1	AO1 4.7.3.2

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03.3	car exhausts		1	AO1 4.7.3.2
03.4	nitrogen oxide concentrations are highest during the working week / lowest at the weekends because more people travel (into the city) for work	accept concentrations are lowest on a Sunday accept other reasonable suggestion	1 1	AO3 4.7.3.2
03.5	109 ($\mu g/m^3$)		1	AO2 4.7.3.2 Ms 2b, 2f
03.6	any **two** from: • park and ride / better public transport / cheaper public transport • so fewer cars (entering the city) • lower-emission fuels / more efficient cars / more electric cars • so cars release less nitrogen oxide	to award 2 marks, answers should contain a suggestion and linked explanation	2	AO3 4.7.3.2
04.1	variety of all the different species of organism within an ecosystem / area / on the earth		1	AO1 4.7.3.1
04.2	breeding programmes reintroduction of hedgerows		1 1	AO2 4.7.3.1

Question	Answers	Extra information	Mark	AO / Specification reference
04.3	if the one species of trees is destroyed / killed by a pathogen there is no other food source / shelter to support other organisms in the ecosystem / woodland so their numbers will decrease	accept converse	1 1 1	AO2 4.7.3.1
05.1	any **two** from: glass / tin / aluminium / paper / cardboard / (some plastics)		2	AO1 4.7.3.6
05.2	any **four** from: • less material is placed in landfill • so less contamination of land • fewer raw materials need to be mined / used • to produce new materials / objects • less energy is used to recycle materials (compared to manufacturing from raw materials) • so less energy required / less CO_2 emissions	to award 4 marks, answers should include two benefits and two linked explanations accept other reasonable benefit and explanation for 2 marks	4	AO1 4.7.3.6

Question	Answers	Extra information	Mark	AO / Specification reference
05.3	any **four** from: • recycling rate increasing at approx. 1% per year • six years between last date of data and target date • if previous improvements are maintained target will be met • however, rate of increase not linear • more recent increases have been <1% per year • so possibility target will not be met		4	AO3
06.1	plant material that does not fully decay / decay properly in acidic conditions which lack oxygen		1 1	AO1 4.7.3.3
06.2	improve soil properties / nutrient content as a fuel		1 1	AO1 4.7.3.3
06.3	any **four** from: • peat is a carbon sink / store of carbon • trapping carbon (dioxide) out of the atmosphere • burning peat as a fuel • releases CO_2 leading to global warming • peatlands offer a habitat with high biodiversity • removal of peatlands reduces biodiversity in that area	to award 4 marks, answers should include two suggestions and two linked explanations	4	AO3 4.7.3.3

Question	Answers	Extra information	Mark	AO / Specification reference
06.4	food waste / garden waste		1	AO1 4.7.3.3
07.1	gradual increase in population from 1800 to 1900 rapid increase in rate of population growth from 1900 to 1970 (approximately) constant rate of population growth since 1970	accept 1900 ± 20 years accept 1970 ± 10 years	1 1 1	AO3 4.7.3.2
07.2	any **three** from: • increased use of resources leading to more landfill • increased use of pesticides / fertiliser causing negative effects on surrounding species • burning fuels / deforestation leading to increased CO_2 levels in the atmosphere • particulate / acidic gases / named pollutant released through industry / transport • increased levels of sewage from human / farmed animal waste		3	AO1 4.7.3.2

Question	Answers	Extra information	Mark	AO / Specification reference
07.3	any **two** from: • increased rate of use of resources – which could lead to some materials becoming unavailable in the future • increased rate of change in land use for building / agriculture – has caused a reduction in biodiversity / extinction of some species • increased demand for water – has caused changes in water supply to some areas / lakes / seas changing habitats / extinction of species	award 1 mark for each suggestion and 1 mark for linked explanation accept other reasonable suggestion with linked explanation for 2 marks each	4	AO3 4.7.3.1 4.7.3.2 4.7.3.3 4.7.3.4
08.1	variety of all the different species of organism within an ecosystem / area / on Earth		1	AO1 4.7.3.1
08.2	deforestation / building (cities / roads / industry) which removes animal habitats / food sources / destroys a range of plant organisms land use for agriculture meaning fewer species now occupy the land		1 1	AO1 4.7.3.1

Question	Answers	Extra information	Mark	AO / Specification reference
08.3	any **two** from: • breeding programmes • conservation projects • reintroduction of hedgerows • stopping / reduction in rate of deforestation / afforestation • increasing rates of recycling		2	AO1 4.7.3.1
08.4	many drugs are derived from plants if plant species are lost a potential drug (e.g. antibiotic) could never be discovered so some diseases may not be treatable (wild) animals provide a significant contribution to worldwide food supplies if biodiversity decreases, food chains will be disrupted, decreasing the number of animals that can be supported which could lead to mass starvation	accept other reasonable suggestion, the effect of the suggestion, and the negative effect on the human race for 3 marks	1 1 1 1 1 1	AO3 4.7.3.1
09.1	having enough food to feed a population		1	AO1 4.7.5.1

Question	Answers	Extra information	Mark	AO / Specification reference
09.2	any **two** from: • increasing birth rate – so population size exceeds food supply level • changing diets in developed countries – so scarce resources produced in less developed countries are exported to other countries • new pests / pathogens emerge which destroy crops – and the cost of pesticides may be beyond the reach of farmers • climate change – leading to droughts / flooding • armed conflicts – which can destroy crops / cultivated land	to award 4 marks, answers should include two factors decreasing food security, and two linked explanations	4	AO1 4.7.5.1
09.3	movement is limited / ambient temperature is controlled so less energy is wasted in movement / through respiration to maintain body temperature increasing rate of growth of pigs / higher levels of energy used for growth	accept for 3 marks: high-protein diet fed to pigs which increases growth rate through the building of new cells / cell structures	1 1 1	AO2 4.7.5.2

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09.4	advantages – any **two** from: • higher yields • more efficient – maximise outputs compared to required inputs • lower costs to consumers disadvantages – any **two** from: • some people have ethical objections to keeping animals in confined conditions • widespread use of fertilisers / pesticides can damage surrounding habitats / organisms • chemicals used in food production have been linked to health disorders in humans	do not accept 'increases food security'	2 2	AO3 4.7.5.2
10.1	to maintain the number of (each species of) fish present in the ocean / number of fish caught does not exceed those born each year so fish supplies remain at a level that can support future generations / human population		1 1	AO1 4.7.5.3
10.2	any **one** from: • seasonal bans on fishing • use of nets with large holes • use of quotas • use of ultrasonic shoal detection		1	AO2 4.7.5.3

AQA GCSE Biology

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Question	Answers	Extra information	Mark	AO / Specification reference
10.3	nets with larger holes should be used young / small fish can escape which can then breed to replenish fish stocks	accept converse answer	1 1 1	AO2 4.7.5.3
11.1	any **two** from: • protein-rich • suitable for vegetarians • cheap to produce • growth not weather-dependent • easily stored		2	AO1 4.7.5.4
11.2	any **four** from: • made using *Fusarium* • grows on glucose syrup • in fermenters • under aerobic conditions • fungal biomass is harvested and purified • it is then dried • it can be shaped / flavoured to make many different foods		4	AO1 4.7.5.4

Question	Answers	Extra information	Mark	AO / Specification reference
11.3	any **three** from: • temperature is controlled by a water (cooled) jacket that surrounds the whole fermenter • sterile oxygen is added to make sure that aerobic respiration occurs • mixture inside the fermenter is stirred to make sure all the oxygen and nutrients are equally distributed • pH is constantly monitored and kept at an optimum • fungus provided with ample supply of glucose syrup		3	AO1 4.7.5.4
11.4	12.2%	award 1 mark for 13.6 – 1.4	2	AO2 4.7.5.4 MS 1c
12.1	body mass – both blood group – genetic only presence of tattoos – environmental only	award 2 marks for three correct answers award 1 mark for one or two correct answers	2	AO2 4.6.1.6
12.2	alleles		1	AO1 4.6.1.6
12.3	if a dominant allele is present it will always be displayed	award 2 marks for recessive alleles must be inherited from both parents for a recessive-linked characteristic to be displayed	1 1	AO1 4.6.1.6

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12.4	RR Rr Rr rr		1	AO2 4.6.1.6
12.5	any **three** from: • to be left handed the mother and father must have genotype rr • neither parent carries the dominant allele • so the child can only inherit recessive alleles • because no dominant allele is inherited / because the child inherits two recessive alleles, the recessive-linked phenotype is displayed		3	AO2 4.6.1.6
13.1	maintenance of a constant internal environment		1	AO1 4.5.1
13.2	A – insulin B – glucose C – glycogen D – glucagon		1 1 1 1	AO2 4.5.3.2
13.3	Person A – non-diabetic; Person B – diabetic the maximum blood glucose level for Person B becomes (much) higher after eating breakfast / stays high for a long period of time showing that their body is less able to respond to the internal change / increase in blood glucose level	accept converse	1 1 1	AO2 4.5.3.2

Question	Answers	Extra information	Mark	AO / Specification reference
13.4	4.5 (mg/l minute)	maximum change = 270 mg/l hour rate of change = 270 / 60	3	AO2 45.3.2 MS1c
13.5	3:30 pm	accept answer between 3 pm and 4 pm award 1 mark for rate of decrease = 35 – 40 mg/l hour award 2 marks for correct extrapolation for at least 2 hours beyond 12 pm	2	AO2 4.5.3.2
14.1	flowers – to attract insects to pollinate them sharp spines – so herbivores do not eat the plant small leaves – reduce water loss		1 1 1	AO2 4.7.1.4
14.2	branching shallow roots to gather any rainfall from a wide area **or** long / deep tap root to reach underground water / the water table		1 1 **or** 1 1	AO3 4.7.1.4
14.3	any **two** from: • light • space • mineral ions		2	AO1 4.7.1.1

Question	Answers	Extra information	Mark	AO / Specification reference
14.4	presence of new / increasing number of herbivores so more plants get eaten **or** new pathogen which destroys plants by causing disease		1 1 **or** 1 1	AO2 4.7.1.3