

MARK SCHEME

GCSE

BIOLOGY

AQA - TRIPLE SCIENCE

B 7 - TEST 1

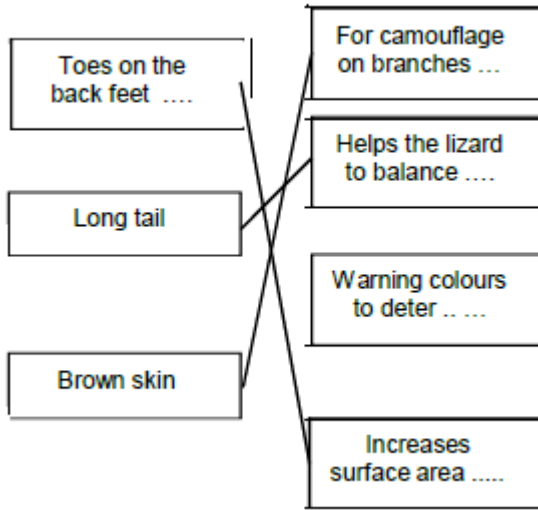
ECOLOGY

Beginner

Mark schemes

1.

(a)



one mark for each line

do **not** award mark for an adaptation if lines are drawn from it to more than one advantage

3

(b) escape (predators)

accept faster than swimming

allow chase prey

allow it stops them from drowning

1

(c) food

1

territory

1

deduct **one** mark for each tick in excess of two

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2.

(a) place all the quadrats randomly on the lawn

1

(b) (i) 1 4

2 2

3 2

4 0

all 4 counts correct

1

Total = 15

total correct for their figures

1

(ii) 1.5

allow ecf from (b)(i)

1

(iii) 180

correct answer with or without working

if answer incorrect, allow 1 mark for $\frac{15}{10} \times 120$ or 15×20

or $\frac{15}{10} \times 12 \times 10$

or $1.5 \times 12 \times 10$ or 1.5×120

allow ecf from (b)(ii)

allow 1 mark if only 1 error

2

(c) use a larger sample size / more quadrats

ignore repeats but allow repeat in different places

ignore 'count them all'

or

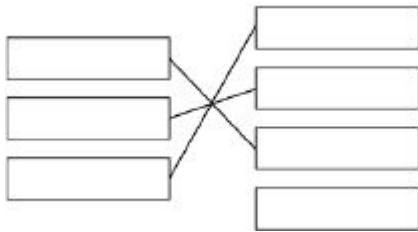
use bigger quadrats

1

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3.

(a)



extra line from a scientific term cancels the mark

1
1
1

(b) $\frac{10}{200} \times 100$

1

5 / 5.0

1

an answer of 5 / 5.0 scores 2 marks

(c) digestion

1

respiration

1

excretion

1

in this order only

- (d) fewer are eaten (by small fish)
allow there are fewer (small) fish eating them
*do **not** accept none are eaten*

1

[9]

4.

- (a) looks like a leaf

1

so predator less likely to / won't see it

allow 'camouflage' as alternative to either point

1

- (b) (i) thorns (of acacia tree) hurt (predators)

*allow idea that fewer animals / predators live in trees **or** ground
living animals can't reach them (in the trees)*

1

- (ii) (giraffe) avoids being bitten by ants

allow ants are poisonous / have unpleasant taste

1

- (c) looks like / mimics a wasp **or** has warning colouration

1

so predators think it has a sting

1

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5.

- (a) any **two** from:

- amount of waste on each heap

allow size of heap

- (type of) materials on each heap

*if neither marking points one or two awarded, allow 1 mark for same
waste*

- put heaps in same (environmental) conditions.

e.g. keep at same (outside) temperature

allow put in same place

2

- (b) microorganisms / microbes / bacteria / fungi / decomposers

ignore detritivores / examples (such as worms, maggots, insects)

ignore pathogens / germs

*do **not** allow viruses*

1

- (c) (i) oxygen / air added (when turning over)

allow idea that decay will be aerobic

allow bacteria / microorganisms need oxygen / air

allow (microorganisms) respire faster

1

- (ii) any **two** from:
- dead leaves / fruit / plants (fall off / onto the ground)
 - (fallen dead leaves / fruit / plants) decay
 - minerals / ions / nutrients are recycled / released.
- ignore references to carbon dioxide*
*allow animal waste **or** dead animals*

2

[6]

6.

- (a) any **one** from:
- increased pollution
 - dumping waste
- allow described consequence e.g. vermin*
accept (increased) landfill
accept (increased) fly tipping.

1

- (b) (i) (mass of SO₂) decreases

1

and then levels off / plateaus

1

- (ii) 2008

clear evidence of calculating 700 (000) = 1 mark

2

- (iii) any **one** from:
- acid rain
 - erosion of statues / buildings
 - destruction of habitats
 - reduction in biodiversity
 - damage to lichen
 - breathing problems
- ignore reference to ozone layer*
allow damage to plants.

1

- (c) Carbon dioxide being absorbed in oceans and lakes

1

Photosynthesis by trees

1

[8]

7.

- (a) (i) any **three** from:
- lights to help guide / attract fish (to the holes)
 - (rigid so) holes stay open
 - (holes) allow small / young fish to escape
 - (so that) they can breed

3

(ii) (fishing) quotas / legislation

1

(b) (i) movement is restricted

1

(in a building **or** close together so) heat is conserved

allow in heated buildings to reduce heat loss

1

(ii) any **two** from:

- it is cruel
allow descriptions of 'cruelty'
- disease spreads faster
- (meat) often has antibiotics in it

2

[8]

8.

(a) any **three** from:

- place 30-m tape measure across field / from one wood to the other
- place quadrat(s) next to the tape
- count / record the number / amount of dandelions / plants in the quadrat

ignore 'record the results'

ignore measures / estimates dandelions

- repeat every 2 metres

allow every metre / at regular intervals

3

(b) (i) low light / it is shady

allow no light

ignore sun / rays

or

not enough water / ions / nutrients

accept correct named ion

ignore no water / ions / nutrients

or

wrong pH of soil

accept competition with trees for light / water / ions

ignore competition for space and competition unqualified

accept soil too acidic / too alkaline

ignore temperature

1

(ii) sensible suggestion for a small area, eg chance variation / anomaly / poisoned by animal waste / wrong pH of soil / eaten (by animals) / cut down / footpath

1

- (c) repeat (transect) / compare with the results of other groups
allow 'do it in two different locations' for 2 marks

1

at different / random location(s) / elsewhere (across the field)
*do **not** allow 'in other fields'*

1

[7]

9.

- (a) a higher concentration would be difficult to stir

1

- (b) (i) methane

1

- (ii) 60

100 - (5 + 35) but incorrect answer allow 1 mark

2

- (c) (i) aerobic respiration

1

- (ii) oxygen

1

[6]

10.

- (a) description of a method to achieve random placement
*examples could include random number generator or
random coordinates
allow throw over the shoulder **or** with eyes shut
ignore throw unqualified*

1

- (b) any **one** from:

- random (location)

allow by chance

- avoid bias
- obtain valid / representative results

allow more accurate / precise mean

ignore fair test / accurate / precise unqualified

1

- (c) as a control / comparison
allow see the difference 1
- or**
 B varies from A in only one factor
do not accept a control variable
 (to) show results (in A) are due to weed killer
allow to see the effect of the weed killer
allow so the results are valid 1
- (d) 11
allow eleven 1
- (e) $\frac{10-2}{10} \times 100$
 80
an answer of 80 scores 2 marks 1
- (f) use more quadrats
allow use larger quadrats
allow repeat 1
- original may not be representative **or** reference to weeds being distributed unevenly
allow mean is more reliable / accurate / precise
ignore more valid 1
- or**
 leave for more than two weeks (1)
 original may not be representative (1)
allow mean is more reliable / accurate / precise
allow weed killer may take longer than two weeks to work (fully)
ignore more valid

[9]