AQA GCSE BIOLOGY (HIGHER) · 8461

BIOLOGY



MARK SCHEME

4.7.3 BIODIVERSITY AND THE EFFECT OF HUMAN INTERACTION ON ECOSYSTEMS (PACK 3)

SCORE	PERCENTAGE
/35	%

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Q1.

(a) *idea:*
more (fossil) fuel burned (do not credit simply more people/cars/industry)
deforestation = less photosynthesis
deforestation = more respiration/burning
each for 1 mark

3

(b) *idea*:
climate change
for 1 mark

warmer/colder/drier/wetter
food production affected/starvation
mayor ecosystems destroyed/damaged
any two for 1 mark each

6

<u>sea level rise</u>
for 1 mark

low land flooded
less food grown/starvation
homes/factories flooded
any two for 1 mark each

Allow
polar ice caps melt
sea water expands

[9]

Q2.

idea that

- acid rain
- pollutes lakes/rivers and kills fish
- corrodes buildings
- kills trees and plants
- adds carbon dioxide to atmosphere
- increases greenhouse effect
- changes climate
- raises sea levels
- affects wildlife/cities/farmers

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- smoke/soot makes surroundings dirtier
- other suitable examples

any three for 1 mark each

Credit any reference to pollution for 1 mark if above answers not given

Mark the first correct/incorrect answer on each line (some may be neutral) unless some lines not used

[3]

Q3.

Factor and effect needed.
idea

- killed by poachers (for tusks/ivory)
- not enough food for elephants because humans cut down trees
- not enough space because more used by people/agriculture
- food/space destroyed by humans
- killed for food

any three for 1 mark each

[3]

Q4.

ideas for

- more food produced/increased yield
- cheaper food
- bigger income for farmer (allow profit)
- less loss/damage/spoilage of crop
- allow less wasted growth (of straw due to drawing)

any three for 1 mark each

3

ideas against

- chemicals harm people (do not accept "affect flavour")
- fertiliser costly
- fewer worms (in soil)
- weedkillers kill valued/useful wild plants
- insecticides/pesticides kill useful insects/other animals

(general idea that chemicals harm plants/animals gets only 1 of these)

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- (weedkillers insecticides/pesticides/fungicides/hormones/chemicals) contaminate water
- (increased risk) pesticide resistance over production/food mountains
- possible eutrophication/nitrate in river/extra plant growth/
- explanation of eutrophication

for 1 mark each to a maximum of 4 marks

4

[7]

Q5.

- roads
- factories / industries
- airports
- railways
- housing estates / towns / cities
- farms / farming / crops
- quarries / mines
- theme parks
- play areas
- rubbish dumps

'Buildings' as an only answer award one mark

any sensible answers which refer to land being covered
[Do <u>not</u> allow deforestation, pollution, golf courses, parks]

any three for 1 mark each

[3]

Q6.

- methane is given off from rice fields
- industry / burning fossil fuels which increases CO_2 in the atmosphere
- deforestation increases CO_2 due to burning / rotting trees
- deforestation means less CO_2 used (in photosynthesis) / less carbon locked up in wood
- methane / carbon dioxide a greenhouse gas
- greenhouse gases increase Earth's temperature / cause global warming
- reduce radiated energy or 'reflect back' radiation

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any five for 1 mark each
(do <u>not</u> credit references to cattle producing methane or to effects of global warming)

[NB

- *claims that SO_2 a greenhouse gas and/or referring to acid rain*
- *referring to ozone layer[deduct 1 mark for each]*

[5]

Q7.

(a) carbon dioxide / methane / natural gas / North Sea gas
(credit CO_2 / CH_4)

for 1 mark

1

(b)
- reduce energy / heat radiated by / lost by Earth (into space)
(*not* heat / energy trapped)
- heat / energy radiated back to Earth
(*not* reflected)
- keep the Earth warmer (than it would otherwise be)
or cause of global warming (*not* greenhouse effect)
- causes seawater to expand
- causes ice (caps) / glaciers to melt
- cause a rise in sea level
- cause changes in the Earth's climate

(*credit* named climatic change but not drought)

(NB. Deduct 1 mark for any reference to ozone layer)

any four for 1 mark each

4

[5]

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