



EXAM PAPERS PRACTICE

Boost your performance and confidence with these topic-based exam questions

Practice questions created by actual examiners and assessment experts

Detailed mark scheme

Suitable for all boards

Designed to test your ability and thoroughly prepare you

Level: IGCSE Oxford AQA Biology (9201)

Subject: Biology

Topic: IGCSE AQA Biology

Type: Mark Schemes

2002



1583

To be used by all students preparing for IGCSE Oxford AQA Biology (9201)
Students of other Boards may also find this useful

Biology

IGCSE AQA

Key skills



Mark schemes

1. (a) $0.03 = \frac{\text{output}}{5950 + 50} \times 10$
an answer of 1.8 scores 3 marks

$$\text{output} = \frac{0.03 \times (590 + 50)}{100}$$

1.8

(b) indoor % efficiency = $\frac{40}{10000 + 6000} \times 100$

or
 $\frac{40}{16000} \times 100$

0.25(%)

*an answer of 8.33 scores 3 marks
allow 8 / 8.3 / 8.333...*

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$$\left(\frac{0.25}{0.03} = 8.33 \text{ (times)} \right)$$

(c) any **two** from:

- in faeces / egestion
- **or**
- not all food is absorbed
- not all food is ingested
- in urine / excretion
- in respiration
- keeping warm
- movement

*do **not** accept 'for respiration'*

allow as 'heat'

1

1

1

1

1

1

2



- (d) warmer indoors so less energy wasted in keeping warm
allow less energy lost as 'heat'

1

less movement indoors so less energy wasted

if no other mark awarded, allow it is warmer and there is less movement indoors for 1 mark

1

[10]

2.

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

- diseases spread more rapidly
 - antibiotics can build up in the food chain
- or**
- over use of antibiotics
 - increased use of fossil fuels (to heat the barn)

2

- (b) **Level 2 (3–4 marks):**

Clear statements made identifying the farming methods which are linked to relevant explanations of how this increases the efficiency of food production.

Level 1 (1–2 marks):

Simple statements made identifying the farming methods used, but no attempt to link to explanations of how this increases the efficiency of food production.

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0 marks:

No relevant content.

Indicative content

statements:

- kept inside or in a temperature controlled environment
- kept enclosed or in a restricted environment

explanations:

- less energy / heat is lost in controlling body temperature
- less energy required for movement
- so more energy is available for growth
- less energy / heat is transferred to the environment

4



(c) $(362 - 67 = 295) / 362 \times 100$

1

81 / 81.49 / 81.5

allow 81 / 81.49 / 81.5 with no working shown for 2 marks

1

(d) aboriginal people can eat other foods (so they may not be in food insecurity)

1

we do not know if other (traditional) food sources have declined

1

[10]

3.

(a) (i) fewer cows

1

any **one** from:

- less methane

do not allow CH⁴

- less CO₂ in the atmosphere because of less deforestation **or** less plants consumed.

*allow less CO₂ released into the atmosphere because less fuel used e.g. to heat cowsheds **or** to transport meat*

do not allow CO²

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1

(ii) any **two** from:

- could be mass produced to feed an increasing population
- disease free meat
- no / low fat
- no harm to animals or less intensive farming

allow (may be) suitable for vegetarians

- antibiotic free meat
- more land available for farming crops

allow no energy loss along a food chain

2



- (b) fungus / Fusarium 1
- with glucose (syrup) 1
- in aerobic conditions **or** in presence of oxygen
ignore air 1
- mycoprotein is harvested / purified
allow ammonia added (as source of nitrogen)
ignore stirring / mixing and temperature 1

[8]

4.

- (a) (i) fungus 1
- (ii) oxygen / O₂
accept air
accept O₂
do not allow O² / O / O₂ 1
- (iii) glucose (syrup)
allow carbohydrate / sugar
ignore food / starch
allow oxygen if oxygen / air not given in (a)(ii) 1

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(b) any two from:

- quick er
- suitable for vegetarians
- cheap er
- more efficient or less land / methane

ignore high in protein

ignore sustainability unqualified

ignore less pollution unqualified

allow less animals harmed / killed

allow food chain is shorter or has less trophic levels

allow less energy lost (from the food chain)

do not allow no energy lost

allow low(er) in calories (than some meat)

allow low(er) in fat / healthier (than some meat)

allow source of fibre / prevent constipation

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2

[5]

5.

(a) any **one** from:

- increase / give light
- increase temperature / make warmer

award marks if the method by which these could be done is given
eg leave lights on all night **or** use a heater

- increase / give CO₂
- add fertiliser / nutrients / minerals / named
allow nitrogen
ignore 'food'

1



(b) (i) any **two** from:

- cheaper
allow grow faster / more grown
- better quality / flavour
ignore size
- available all year
accept converse if clear that answer refers to use of British tomatoes
allow 'Fair Trade'

2

(ii) any **two** from:

- greater distance or more food
miles or more transport

idea of more needed only once

- transport needs (more) energy / fuel
- reference to eg greenhouse effect / global

warming / pollution / CO2 release / carbon footprint

ignore ozone

2

[5]



6.

- (a) kills microorganisms / bacteria / fungi / viruses / microbes
allow to remove microorganisms / bacteria / fungi / viruses / microbes
ignore germs
allow so mycoprotein is not contaminated

1

(which) compete for food / oxygen

or

which make toxins

allow so mycoprotein is safe to eat

or

which are pathogens

or

which might kill the fungus / *Fusarium*

1

- (b) 30 °C

1

- (c) for (aerobic) respiration

do not accept anaerobic

1

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(which) releases energy (for growth)

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do not accept produces energy

allow glucose is used to make other organic substances

e.g. protein

1



(d) any **two** from:

so *Fusarium* can

- grow faster / better
- get sufficient food / glucose / minerals
allow more / enough
- get sufficient oxygen
allow more / enough
- get rid of sufficient carbon dioxide
allow more / enough
allow waste
- be kept at a (suitable) temperature
allow to avoid 'clumping'

(e) 200 grams

2

1

[8]