



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) rate of photosynthesis increases
or
number of bubbles produced (in one minute) increases
or
volume of gas / oxygen produced (in one minute) increases
allow decreases / stays the same throughout 1
- (b) light intensity 1
- (c) reduces the effect of heat from the lamp
or
prevents temperature affecting photosynthesis 1
- (d) 52 1
- (e) should be 62
or
is to 3 s.f. / not rounded
allow inconsistent number of significant figures / decimal places 1
- (f) the numbers of bubbles at each distance are similar 1
- (g) x-axis correctly labelled (colour of light) **and** bars identified as correct colour
bars can be identified by labels beneath the x-axis or with a key 1
- bars plotted correctly
all 4 correct = 2 marks 3 correct = 1 mark
if wrong type of graph drawn, max 2 marks 2
- (h) blue light gives highest (rate of) photosynthesis
allow ecf from candidate's graph allow blue light is best 1
- green light gives the lowest (rate of) photosynthesis
allow green light is worst 1



(i) energy

in this order only 1

cell wall(s)

allow cell

do not accept (cell) membrane

1

starch / fat / oil / lipid

1

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2.

(a) $6\text{H}_2\text{O}$

in the correct order

1

$\text{C}_6\text{H}_{12}\text{O}_6$

1

(b) (i) control

do not accept 'control variable'
allow:

to show the effect of the organisms

or

to allow comparison

or

to show the indicator doesn't change on its own

1

(ii) snail respire

1

releases CO_2

1

(iii) turns yellow

1

plant can't photosynthesise so CO_2 not used up

1

but the snail (and plant) still respire so CO_2 produced

1

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3.

- (a) (i) LHS = water
accept H₂O
do not accept H²O / H2O

1

RHS = oxygen
accept O₂
do not accept O / O² / O2

1

- (ii) light / sunlight
ignore solar / sun / sunshine
do not allow thermal / heat

1

- (iii) chloroplasts
allow chlorophyll

1

- (b) (i) 20

1

- (ii) any **one** from:
• light (intensity)
• temperature.

1

- (c) (i) To increase the rate of growth of the tomato plants

1

- (ii) Because it would cost more money than using 0.08%

1

Because it would not increase the rate of photosynthesis of the tomato plants any further

1

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4. (a) LHS = water 1
RHS = glucose 1

(b) any **three** from:

- (measure) temperature
ignore reference to fair test
- to check that the temperature isn't changing
- rate of reaction changes with temperature
- temperature is a variable that needs to be controlled

allow lamp gives out heat

3

(c) (i) 10

correct answer = 2 marks

allow 1 mark for: $\frac{(10+9+11)}{3}$

allow 1 mark for correct calculation without removal of anomalous result ie 15



(ii) graph:

allow ecf from (c)(i)

label on y-axis as 'number of bubbles per minute'

1

three points correct = **1** mark

allow ± 1 mm

four points correct = **2** marks

2

line of best fit = smooth curve

1

(iii) as distance increases, rate decreases – pro

allow yes between 20 – 40

1

but should be a straight line / but line curves – con / not quite pro

allow not between 10 – 20

if line of best fit is straight line, allow idea of poor fit

1

(d) any **four** from:

- make more profit / cost effective
- raising temp. to 25 °C makes very little difference at 0.03% CO₂
- (at 20 °C) with CO₂ at 0.1%, raises rate
- (at 20 °C with CO₂ at 0.1%) → >3x rate / rises from 5 to 17
- although 25 °C → higher rate, cost of heating not economical
- extra light does not increase rate / already max. rate with daylight

accept ref to profits c.f. costs must be favourable

4

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5.

(a) (i) chloroplast

1

(ii) cell wall

1



(b) (i) osmosis

accept diffusion

1

(ii) cell wall (prevents bursting)

1

(c) (i) carbon dioxide

allow correct formula

1

glucose

allow sugar / starch

1

(ii) any **two** from:

- light sensitive spot detects light
- tells flagellum to move towards light
- more light = more photosynthesis

2

(d) (cell has) larger SA:volume ratio

short (diffusion) distance

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allow correct description

1

1

(diffusion) via cell membrane is sufficient / good enough

or

flow of water maintains concentration gradient

1

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