



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) (A) stomach	1
	(B) small intestine	
	<i>allow ileum</i>	
	<i>ignore intestine unqualified</i>	1
	(C) liver	1
(b)	soluble	1
	catalyse	1
	denatured	1
	<i>this order only</i>	1
(c)	amino acids	1
(d)	any one from:	
	• for growth	
	<i>allow for enzymes / hormones / antibodies</i>	
	• for repair / replacement (of cells / tissues / organs)	
	<i>allow to strengthen bones</i>	
	<i>ignore for energy</i>	1
(e)	stomach	1



(f) **Level 2:** Scientifically relevant facts, events or processes are identified and given in detail to form an accurate account.

3-4

Level 1: Facts, events or processes are identified and simply stated but their relevance is not clear.

1-2

No relevant content

0

Indicative content

- grinding up the food
- add Biuret reagent (allow CuSO_4 and NaOH) to food (sample)
- protein turns solution (from blue) to purple / lilac
- wear goggles to protect eyes
- clean up spills immediately
- Biuret / NaOH is an irritant / corrosive / poisonous

for **level 2** a reference to Biuret, a positive result and reason for a safety precaution is required

(g) fat

1

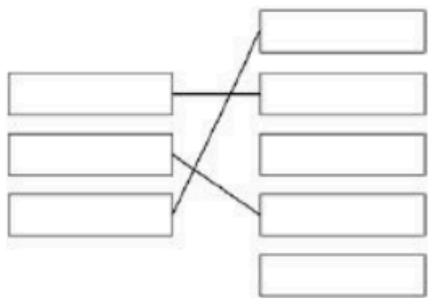
(h) type 2 diabetes

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[15]

2.

(a)



additional line from a blood component negates the mark for that component

1
1
1

(b) C

1



(c) (vessel) B

thick walls **or** thick muscle / elastic tissue

do not accept ref to 'cell walls'

1

or

lumen is small / narrow

allow description of 'lumen'

1

(d) 95

1

(e) (because coronary) arteries / they are narrower

allow (because the coronary) arteries are blocked / clogged (with fat)

1

(f) $250 \times 60 (= 15\,000)$

or

15 000

allow 0.25×60

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1

15

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allow $\frac{\text{answer to marking point 1}}{1000}$

an incorrect conversion to dm^3 in calculation does not negate marking point 1

1

an answer of 15 scores 2 marks



(g) any **two** from:

- no need to stay as long in hospital (after procedure) **or** can go home sooner / same day

allow only need to stay 2–3 hours in hospital (after procedure)

allow less scarring

allow less chance of infection

allow only a small cut needed

- not as / less invasive **or** no need for a major operation **or** no need for general anaesthetic
- shorter recovery time **or** can get back to normal lifestyle quicker **or** less time needed off work

allow only 7 days recovery

- lower risk of a heart attack (during procedure)

ignore reference to cost

ignore idea that it takes less time overall

2

(h) lower chance of failure (within one year)

allow only a 5% chance of failure

1

only need one operation to treat multiple blockages **or** can treat multiple blockages at one time

ignore ref to anaesthetic or CABG being a long-term treatment

1



3.

(a) vena cava

1

(b) 0.5 mm = 0.05 cm

1

$$\text{time} = \frac{10.00 - 0.05}{0.4}$$

allow alternative correct substitution

1

24.875

1

25 (s)

an answer of 25 (s) scores 4 marks

allow 24 for 3 marks (no conversion of mm to cm)

allow 23.8 / 23.75 for 2 marks (no conversion of mm to cm and incorrect sf)

1

(c) (blood) travels through (the) pulmonary vein

1

(blood) enters left atrium

1

(blood) enters (the) left ventricle

1

(blood) leaves the heart via / through (the) aorta

allow blood travels through arterioles

allow blood (travels round the body and) reaches the cells / tissues via / in capillaries

1



(d) **Level 3 (5-6 marks):**

Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.

Level 2 (3-4 marks):

Relevant points (reasons/causes) are identified, and there are attempts at logical linking. The resulting account is not fully clear.

Level 1 (1-2 marks):

Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.

No relevant content (0 marks)

Indicative content

S = structural F = functional

- (S) both have a large surface area
- (S) villi have many microvilli
- (S) alveolar walls are not flat / are folded
- (F) to maximise diffusion (of gases) / absorption of (food) molecules
- (S) both have many capillaries / good blood supply / capillaries near the surface
- (F) to maintain concentration / diffusion gradient
- (S) both have thin walls / walls that are one cell thick / one cell thick surface
- (F) to provide a short diffusion distance (for molecules to travel)
- (S) villi have many mitochondria
- (F) to provide energy for active transport (of food molecules)
- (S) cells of the villi have microvilli / more projections
- (F) to further increase the surface area / increase the number of proteins in the membrane / to allow more active transport to take place

[15]

4.

(a) salivary glands and pancreas

1

(b) starch / substrate fits into active site (of enzyme) 1
shape of active site is unique / complementary to substrate
allow converse

or

substrate is specific to active site / enzyme
allow enzyme has a high specificity for substrate

1

bonds (within starch / substrate
or
between sugar molecules) are broken

1



(c) converted to new carbohydrates / glycogen / named organic compound (e.g. protein / fat) 1

(d) to allow (the starch and amylase / solutions) to equilibrate (to the temperature of the water bath)

or

to get the starch and amylase / solutions to the same temperature / 20 °C

or

to get the starch and amylase / solutions to the (same) temperature of the water bath 1

(e) **40 °C**

all wells contain a symbol

and

must contain at least two crossed (✖) wells at the end

allow final three wells crossed

(✖)

60 °C

all wells contain a symbol

and

must have fewer crossed (✖) wells at the end than at 40 °C

allow all wells ticked (✓)

*for either mp do **not** allow a crossed well followed by a ticked well*

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(f) more accurate

allow (so) closer to (the) true value

(because) it is a quantitative measure

allow (it's) an actual value as opposed to an opinion

or

less / not subjective

allow colour is only qualitative

(g) 0.07 (%) 1

(h) starch is broken down less quickly (at 20 °C)

allow converse

1

because, at 20 °C, substrates / enzymes / molecules have less (kinetic) energy

1

(i) 1.08 (arbitrary units)

at 80 °C, enzyme / amylase has denatured

allow description of denaturation

do not allow enzyme is killed

1

so starch is not broken down (at all)

allow the concentration of starch is still 0.5%

1

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