



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

<p>1. (a) releasing saliva when food enters the mouth</p>	<p>1</p>
<p>withdrawing the hand from a sharp object</p>	<p>1</p>
<p>(b) bright light</p> <p><i>allow described method of increasing light</i> <i>ignore light unqualified</i> <i>allow correctly named drug e.g. morphine / heroin</i></p>	<p>1</p>
<p>(c) iris</p>	<p>1</p>
<p>(d) muscle contraction</p> <p><i>allow muscles shorten</i> <i>ignore radial / circular</i> <i>ignore muscles relax / constrict</i> <i>do not accept muscles expand</i> <i>do not accept ciliary muscle contracts</i></p>	<p>1</p>
<p>(e) Level 2: Scientifically relevant facts, events or processes are identified and given in detail to form an accurate account.</p>	<p>4-6</p>
<p>Level 1: Facts, events or processes are identified and simply stated but their relevance is not clear.</p>	<p>1-3</p>
<p>No relevant content</p>	<p>0</p>

Indicative content

- receptor detects stimulus
 - e.g. receptor detects pressure
- receptor generates impulses / electrical signals
- neurones conduct impulses / electrical signals
- neurone A conducts impulses to spinal cord
- neurone A = sensory neurone
- synapse between neurones
- chemical (/ neurotransmitter) crosses synapse
- chemical stimulates impulse(s) in neurone B
- neurone B = relay neurone
- neurone C = motor neurone
- effector carries out response
 - e.g. muscles of the arm / leg contract
 - muscles contract or gland secretes chemicals

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to access level 2, candidates need to consider, in terms of the indicative content, the receptor, the neurones and the effector in the correct sequence

[11]



2. (a) any **two** from:
- drop the ruler from the same height
 - use the same / dominant hand each time
 - thumb same distance from ruler at the start
 - use same type / weight of ruler
 - drop the ruler without any force each time
 - keep arm resting on the edge of the table
- (b) 8
allow 8.0
- (c) 2 (in test number 2)
- (d) 12
- (e) $(12 + 13 + 13 + 9 + 8 / 5 =) 11$
- (f) $0.15 - 0.12$ (s)

0.03 (s)
allow 0.03 (s) with no working shown for 2 marks
- (g) carry out more repeats
- (h) caffeine speeds up reflex actions

Or

reduces reaction time

2

1

1

1

1

1

1

1

1

[10]



3.

- (a) receptors detect / sense stimuli / change in surroundings **or** convert stimulus into an impulse

ignore send impulses to brain / spinal cord

1

example of a receptor

allow any appropriate organ or part of an organ, eg eye / retina or named type of receptor eg light receptor

1

effectors allow / make response **or** convert an impulse to an action

ignore receive impulses from brain / spinal cord

1

(effector) muscle / gland

allow an example

ignore eg arm / leg

1

- (b) (i) junction

allow idea of a (small) gap / space

*do **not** allow if implication is that the neurones move*

1

between neuron(e)s

allow named types of neurones

1

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- (ii) chemical

allow answers in terms of specific types of neurone

allow neurotransmitter / named neurotransmitter released

1

any **one** from:

- (chemical released) from one neurone
ignore produced
- (chemical) passes (across synapse) to next neurone to stimulate / cause (electrical) impulse
allow diffuses for passes (across)

1

- (c) (i) skin

ignore hand / leg

1

(ii) 1.6 (cm per millisecond)

allow 2 if evidence of rounding up of 1.6

1

(iii) any **two** from:

ignore length of neurones

- synapses slow down transmission / impulse

allow idea of movement of chemical being slower than electrical

impulse

- fewer synapses (via brain)

allow one synapse compared to two or only one synapse

- (therefore) fewer delays

allow impulse travels more slowly in relay neurones

2

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[12]

4.

(a) (i) stimulus

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1

(ii) cytoplasm

1

(b) (i) ear(s)

in this order only

1

eye(s)

accept retina

1

skin

ignore extra detail

1

(ii) A muscle

1

[6]



5. (a) (i) sensory neurone 1
a synapse 1
(ii) contract 1
(iii) not connected to brain / coordinated only by spinal cord 1
(iv) automatic / rapid (response)
allow no thinking / faster / less time 1
protects body from danger / from damage / from burning 1
- (b) (i) caffeine decreases reaction time
accept caffeine speeds up / quicker reactions 1
- (ii) the two sets of results overlap (considerably)
allow use of appropriate numbers – eg 5 of the ‘after’ results overlap with the ‘before’ results
allow ‘wide spread of results’
allow ‘it was just one person’ or ‘it was a small sample’
accept use of one pair of results only – if meaning is clear
accept use of one pair of overlapping results 1
- (iii) any **two** sensible suggestions: eg
- more repetitions
 - perform investigation on several other people
 - use other (measured) amounts of coffee
 - use different / more time intervals
 - other suggested measure of reaction time – eg computer-generated light flash + time measurement
 - use pure caffeine or caffeine tablets
- 2

[10]