AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.3.1.9

Discovery and development of drugs

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**2**
Available paper years	**2019–2020**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.3.1.9 Discovery and development of drugs

Answer 01 · Mark scheme June 2019 | 8464/B/1F | Original Q6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	**B**		1	AO2 4.2.2.2
06.2	right atrium		1	AO1 4.2.2.2
06.3	foxgloves		1	AO1 4.3.1.9
06.4		an answer of 54 (cm^3) scores 3 marks		AO2 4.2.2.2
	X = 2800 / 52		1	
	53.846153		1	
	54 (cm^3)	allow correct rounding of an incorrectly calculated value of stroke volume	1	

4.3.1.9 Discovery and development of drugs

Answer 01 · Mark scheme

June 2019 | 8464/B/1F | Original Q6

Question	Answers	Mark	AO / Spec. Ref.
06.5	**Level 3:** Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.	5–6	AO3 4.2.2.2 4.2.2.4 4.4.2.1 4.4.2.2
	Level 2: Relevant points (reasons / causes) are identified, and there are attempts at logical linking. The resulting account is not fully clear.	3–4	AO2 AO1
	Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.	1–2	AO1
	No relevant content	0	
	Indicative content effect of exercise • during exercise body needs to transfer (more) energy • energy transferred during respiration • rate of respiration increases during exercise • (so) more oxygen is needed effect of beta blockers • beta blockers reduce (the increase in) heart rate (during exercise) • beta blockers reduce stroke volume (or described) • beta blockers reduce cardiac output • (so) heart cannot supply oxygen fast enough / in sufficient quantity to muscle cells effect on breathing rate • breathing rate increases to increase rate / amount of oxygen absorbed • breathing rate increases to increase rate / amount of carbon dioxide removed from body • (but) increased breathing rate cannot fully compensate for changes in heart function A level 3 response should make links between all three sections of indicative content A level 2 response should attempt to link effect of exercise with oxygen / energy requirement **and** beta blockers to effect on heart function. .		
Total		**12**	

4.3.1.9 Discovery and development of drugs

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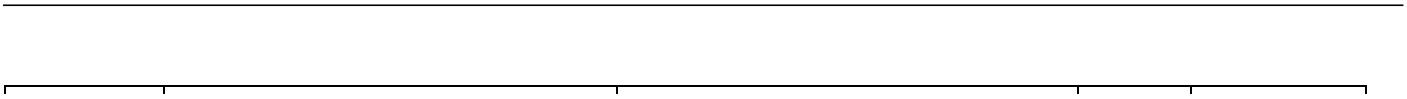
June 2019 | 8464/B/1F | Original Q6



4.3.1.9 Discovery and development of drugs

Answer 02 · Mark scheme November 2020 | 8464/B/1F | Original Q2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	any **one** from: • (live) cells • (live) tissues • (live) animals	allow examples , eg mice / rats	1	AO1 4.3.1.9
02.2	7 / seven (years)		1	AO2 4.3.1.9
02.3	to see if the drug is safe to use		1	AO2 4.3.1.9
02.4	tablet that does not contain the drug / active ingredient	allow a sugar pill allow a fake drug	1	AO1 4.3.1.9
02.5	not the patients or the doctors		1	AO1 4.3.1.9
02.6	any **two** from: • age • gender • body mass • number of children (in group) **or** 100 in group • time (after taking medicine) when temperature was measured	allow all (children had a) high body temperature (at the start) allow dose of drug / medicine ignore temperature unqualified	2	AO2 4.3.1.9

4.3.1.9 Discovery and development of drugs

Answer 02 · Mark scheme

02.7	any **one** from: • unethical not to treat ill children • children were ill so had to be treated • children may become more ill if no drug given		1	AO3 4.3.1.9
02.8	37.4 (°C)		1	AO2 4.3.1.9
02.9	any **two** from: • reduced (body) temperature faster • decreased (body) temperature more • reduced (body) temperature to normal / 37 °C • maintained normal (body) temperature / 37 °C for longer **or** for several hours	allow converse arguments allow paracetamol did **not** reduce (body) temperature to normal	2	AO3 4.3.1.9
Total			**11**	

4.3.1.9 Discovery and development of drugs

Answer 02 · Mark scheme

November 2020 | 8464/B/1F | Original Q2

