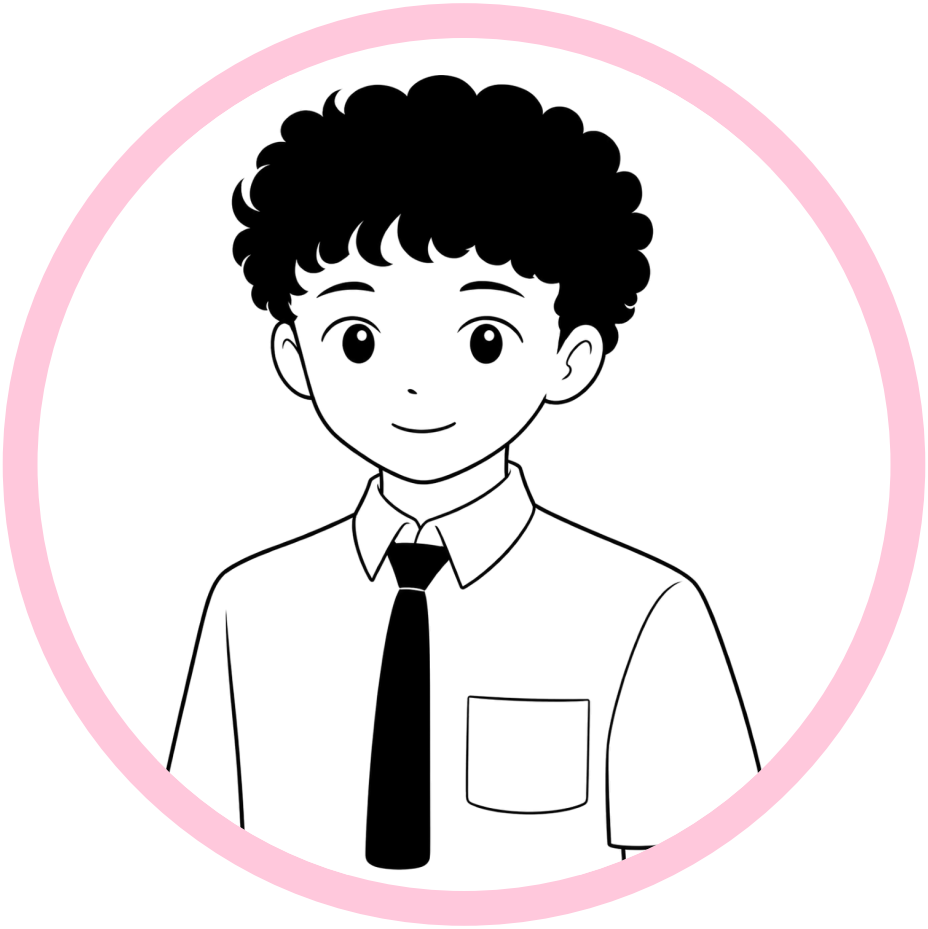
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.2.2 THE FIGHT OR FLIGHT RESPONSE

SCORE	PERCENTAGE
/32	%

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Q1.

[AO2 = 4]

Level	Mark	Description
2	3-4	Knowledge of the fight or flight response is clear and mostly accurate. The material is applied appropriately. The answer is generally coherent with effective use of terminology.
1	1-2	Some knowledge of the fight or flight response is evident. Application is not always effective. The answer lacks accuracy and detail. Use of terminology is either absent or inappropriate. Or knowledge only, at level 2.
	0	No relevant content.

Possible content:

- the fight or flight response causes adrenaline to be released which can cause an increased production of sweat and faster heart and breathing rate which could be off putting and unhelpful during a driving test (e.g. sweaty hands may make it harder to grip the steering wheel).
- the fight or flight response enables a quick reaction to fight the threat or run away from it but neither of these options would be helpful in a driving test as if you ran away or attacked the instructor you would fail the test.

Credit other relevant material.

[4]

Q2.

[AO1 = 3]

Award **1 mark** for any three of the following bullet points.

Possible Content:

- hypothalamus prepares the body for action/emergency response
- involves the release of adrenaline (from the adrenal gland/medulla).
- Triggers/activates/switches from parasympathetic to sympathetic activity and back again.
- direct effects of adrenaline, eg increase heart rate – constricts blood vessels, increasing rate of blood flow and raising blood pressure – diverts blood away from the skin, kidneys and digestive system – increases blood to brain and skeletal muscle – increases respiration and sweating.

Q3.

[AO1 = 2]

B and C

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Q4.

[AO1 = 4]

Level	Marks	Description
2	3 – 4	Knowledge of the role of adrenaline in the fight or flight response is clear and mostly accurate.
1	1 – 2	Knowledge of the role of adrenaline in the fight or flight response is incomplete/partly accurate. For 1 mark there may be some detail of direct or general effects but not explicitly linked to fight or flight.
	0	No relevant content.

Possible content:

- Adrenaline is released from the adrenal medulla in response to activation of the sympathomedullary pathway.
- Adrenaline has a range of effects on the body
- Direct effects of adrenaline
  – increase heart rate
  – constricts blood vessels, increasing rate of blood flow and raising blood pressure
  – diverts blood away from the skin, kidneys and digestive system
  – increases blood to brain and skeletal muscle
  – increases respiration and sweating
- The general effects of adrenaline
  – prepare the body for action, fight or flight,
  – increase blood supply/oxygen, to skeletal muscle for physical action
  – increase oxygen to brain for rapid response planning

Up to 2 marks for accurate detail of the effects of adrenaline on the body eg outline of two different effects, or detailed account of one effect. 2 further marks for an account of the role of adrenaline in the fight or flight response ie providing a context for the various effects of adrenaline on the body (eg last two bullets).

Q5.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

AO2 = 4

The stem refers to the body responding to a short-term stressor, the release of

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adrenaline is responsible for increased heart rate and faster breathing and the dry mouth is linked to the digestive system “shutting down”. Students can refer to the pituitary adrenal system and/or the sympathomedullary pathway. They can also refer to the fight-or-flight response. For full marks there must be explicit engagement with the stem.

AO2 Mark bands
4 marks Effective analysis of unfamiliar situation Effective explanation that demonstrates sound knowledge of the body’s response to stress. There is explicit engagement, which relates to either at least two of the specific changes identified in the stem or the car as the stressor.
3 marks Reasonable analysis of unfamiliar situation Reasonable explanation that demonstrates knowledge of the body’s response to stress with reference to one or more of the changes identified in the stem.
2 marks Basic analysis of unfamiliar situation Basic explanation of the body’s response to stress.
1 mark Rudimentary analysis of unfamiliar situation Rudimentary, muddled, explanation of the body’s response to stress demonstrating very limited knowledge.
0 marks No creditworthy material.

Q6.

[AO1 = 2, AO2 = 2]

AO1

Up to 2 marks for description of the actions of the autonomic nervous system.
Likely points: one section of the autonomic nervous system (sympathetic nervous system) responds to a perceived threat / it produces physiological changes that prepare the body for fight or flight (the alarm response) (1), and the other section (parasympathetic nervous system) restores normal physiological functioning when the threat has passed (1).
If candidates simply state *flight or flight* and *rest and digest* with no further explanation 1 mark only.

AO2

Up to 2 marks for application to the description. One mark for application to sympathetic activity – breathing quickens, mouth dries, heart pounds. One mark for application to parasympathetic – breathing slows down / becoming calm.

Maximum of 2 marks if ‘sympathetic’ and ‘parasympathetic’ sections are mislabelled in AO1 description

Q7.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

[AO1 = 2, AO2 = 2]

AO1

Up to two marks for outlining the role of the CNS and the ANS in behaviour. One mark for each. This will probably be embedded in the application to Martha.
For CNS, possible points might include brain and role in life functions / psychological processes / higher mental functions and spinal cord and its role in transmitting information to and from the brain. Controls reflex behaviours.
For ANS, possible points might cover that it controls life-maintaining processes such as heart rate; transmits information to and from internal organs; sympathetic division of ANS prepares body for action; parasympathetic division conserves / stores energy.

AO2

Up to two marks for application of the role of the CNS and the ANS to Martha. One mark for each.

Likely answers for CNS:
Brain / cerebral cortex in higher mental functions / conscious awareness (I realised that...); decision making (...I decided to run.); auditory cortex / temporal lobe in processing auditory information (... I heard footsteps behind me...); visual cortex / occipital lobe in processing visual information (I saw a bus...).

Less likely but accept:
Cerebellum in regulating movement and sense of balance - 'walking' and '...leapt on the bus'.

Likely answers for ANS will relate to the sympathetic division of ANS and to fight / flight response: increased heart rate in emergency action (...my heart was beating so fast...);
increased action of adrenal glands and energising effect (...moved with such speed / shaking); blood vessels to limbs dilate (... sweating).

Q8.

[AO1 = 3]

One mark for reference to perceived threatening / stressful situation (could be through definition or example).
One mark for reference to physiological change.
One mark for example of response / action.

Q9.

(a) **AO2 = 2**

- Sympathetic-adrenal system is activated.
- Hormones are released for the fight-flight response.
- Digestive system "shuts down".

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For example, the pituitary-adrenal system is activated (1 mark). This causes several things to happen such as adrenaline released, which increases heart rate (elaboration for 2nd mark).

(b) **AO2 = 2**

One mark for explanation and further mark for elaboration.

- After a few minutes the parasympathetic NS will start to restore the body's response.

For example, after a few minutes the parasympathetic branch of the ANS will start to work (1 mark). This will reduce the "flight or fight" response and bring the body back to normal (2 marks).

Q1.

Generally, students seemed to have secured a good knowledge of how the body responds during the fight or flight response but struggled to apply it to the real world. The explanations of the response were generally accurate and often well detailed, although frequently included or were muddled, with reactions to chronic stress. Overall, the application was less successful, with a lot of general comments such as, ‘raised heartbeat would make you nervous / panic’. Many focussed on potential cognitive impairments which were more challenging to link to the way the body responds during fight or flight. Occasionally, students described why the body response would be helpful. Where application was done well, students generally referred to the problems of sweaty palms gripping the wheel, issues of feeling sick due to blood being diverted away from your digestive system and erratic movements.

Q2.

There were some very good responses to this question in which students displayed a good understanding of the fight or flight response. A minority wrote more than sufficient content for full marks. Weaker responses lacked detail and only included a limited amount of information about the processes involved. Some students provided a long list of the physiological effects of the fight or flight response with little else, which limited the mark awarded. A small minority of answers had no focus on biology and simply described the behavioural characteristics of ‘fight’ and ‘flight’, which could not gain any credit.

Q5.

This is an applied question where students have to demonstrate their ability to use the relevant material and apply it to the scenario. The pitfall for many students was that they simply did not engage with the stem, but merely described (often in excellent detail) the sympathomedullary pathway. Better answers were able to make reference to some of the physiological changes mentioned in the question and explain why they occurred.

Q6.

Many answers to this question were quite good, although some did muddle the sympathetic and parasympathetic sections of the ANS.

Q7.

Students were familiar with the role of the Autonomic Nervous System (ANS) and most were able to apply this to the source material. Few students, however, accessed full marks for this question due to limited knowledge of the role of the Central Nervous System (CNS), often referring to the structure of the CNS (the brain and spinal cord) rather than the role of the CNS and consequently were unable to link Martha’s experience to the CNS. Several students unnecessarily provided two links to the ANS (parasympathetic and sympathetic nervous systems). Examiners also noted that a substantial number of students believed that ‘... the CNS is part of the brain...’; others did not separate the ANS from the CNS.

Q8.

Although many students were able to describe the actions of the sympathetic division accurately referring to the perceived ‘threat,’ the physiological change and the alternative

behaviours available, the choice of examples was not always sensible.
Students who described ‘going on a roller coaster / taking an examination,’ found it difficult to describe fight or flight behaviours in these situations. Some students stated that ‘fight is sympathetic and flight is parasympathetic.’

Q9.

While almost all candidates answered this question, those who read the scenario carefully and thought about it, were much more likely to gain maximum marks. Other candidates simply wrote about the stress response, without making it at all relevant and the weakest answers were those who attempted to use the GAS as an explanation. In part (b) few candidates realised that the question was asking for the activation of the parasympathetic nervous system; they referred inaccurately to the activation of the HPA axis and the release of corticoids, implying that the stressor was still present. As with all such questions, candidates should be advised to read the scenario very carefully before they attempt to answer the question.

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