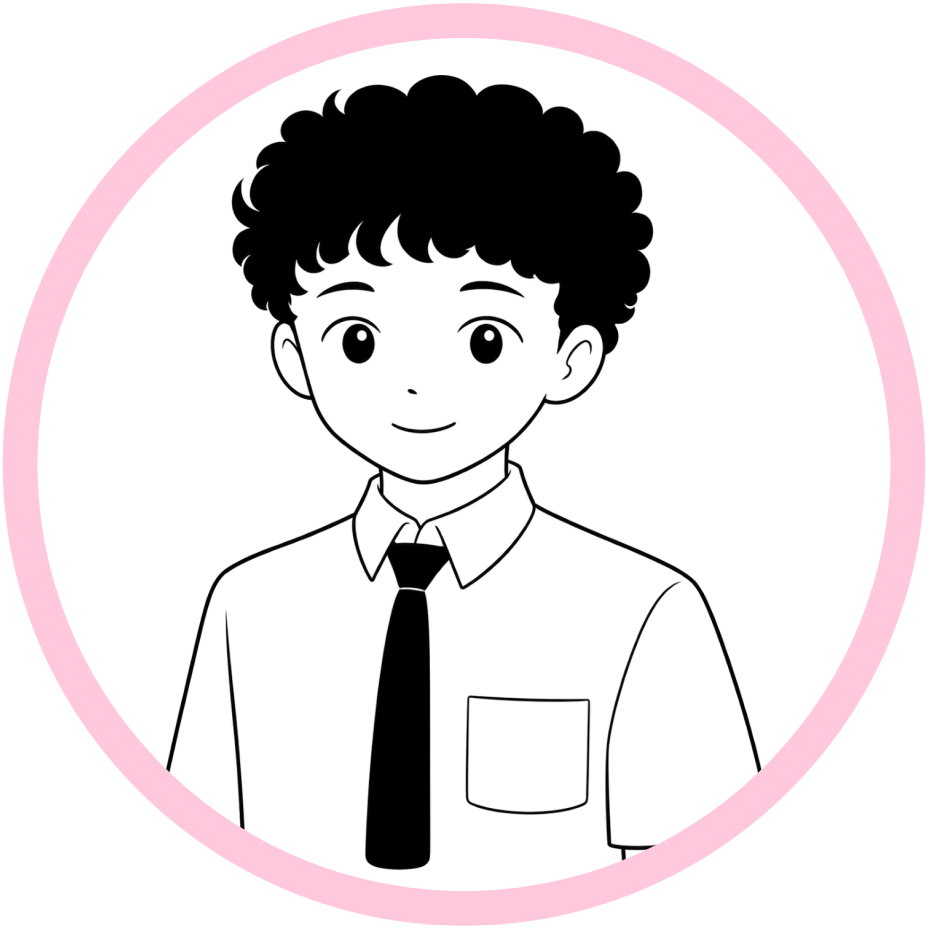
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.3.3 CHROMOSOMES AND HORMONES

SCORE	PERCENTAGE
/44	%

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Q1.

[AO2 = 4]

Level	Marks	Description
2	3 – 4	Outline of Klinefelter's syndrome and Turner's syndrome is mostly clear and accurate. The knowledge is applied appropriately to both cases. The answer is generally coherent with effective use of terminology. For 4 marks the sex chromosome patterns for both syndromes should be correct.
1	1 – 2	There is limited/partial knowledge of Klinefelter's syndrome and/or Turner's syndrome. There is some appropriate application. The answer may lack coherence. Use of terminology may be either absent or inappropriate. OR one syndrome at Level 2.
	0	No relevant content.

Application to Ben

- Ben is male – Klinefelter's syndrome is a chromosomal disorder occurring in males with an extra X chromosome (XXY pattern)
- school problems mentioned by Ben's mum might include: problems reading and writing; a tendency to get upset/depressed easily; passivity compared to other boys
- physical differences referred to by Ben's mum might include: extra height/long legs, small testes, lacking facial hair.

Application to Dido

- Dido is female – Turner's syndrome is a chromosomal disorder occurring in females with a missing X chromosome (XO pattern)
- effects at school mentioned by Dido's mum might include: good language skills/reading
- physical effects referred to by Dido's mum might include: short stature, no breast development, short neck, later infertility

Credit other characteristics found in Klinefelter's and Turner's that are relevant to the scenario/stem.

Q2.

[AO1 = 3]

1 mark for a correctly named syndrome (Klinefelter's or Turner's)

Plus

2 marks for clear and coherent outline of the syndrome

OR

1 mark for a vague or muddled outline of the syndrome

0 marks for an outline that does not match the named syndrome

Possible content:

- Klinefelter's – sex chromosome pattern of XXY, associated with cognitive difficulties eg dyslexia and behavioural passivity.
- Turner's – sex chromosome pattern of XO, associated with high level of verbal skill.

Credit other relevant psychological or physical characteristics.

Q3.

Marks for this question: AO1 = 6, AO3 = 10

Level	Marks	Description
4	13 – 16	Knowledge is accurate and generally well detailed. Discussion / evaluation / application is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge is evident. There are occasional inaccuracies. Discussion / evaluation / application is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology is mostly used effectively. Lacks focus in places.
2	5 – 8	Some knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions. One explanation at Level 4
1	1 – 4	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used. One explanation at Level 3
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list.

AO1

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Marks for accurate description of the explanations of gender development provided by biological theory and social learning theory (SLT).

Biological: Students may focus on some of the following: how genetic factors cause gender-appropriate behaviour – gender and sex are interrelated; hormones, eg the influence of androgens and testosterone Dabbs et al (1995), Tricker et al (1996) or oestrogen and progesterone Van Goozen et al (1995), Hampson and Kimura (1988); atypical sex chromosomes, eg XXY – Klinefelter's syndrome; XO – Turner's syndrome – in terms of the effect these syndromes have on gender development. Students may choose to focus on non-human research, eg Gorski et al (1980) found male rats' sexually dimorphic nucleus (SDN) to be larger in anatomical structure compared to female rats' SDN which might account for differences in behaviour, or on case studies such as Imperato-McGinley et al (1978) or Money and Erhardt (1972), Diamond (1997).
SLT: the idea that gender behaviour is learned via observation in social contexts; the influence on gender development of cognitive processes – including some of the following, attention, retention and motivation, reproduction; modelling, Perry and Bussey (1979) and identification; imitation, Masters et al (1979) and reinforcement, Fagot (1978), Dweck et al (1978), Smith and Lloyd (1978) / Baby X studies.

AO3

Marks for discussion of the two explanations.
Students are required to refer to evidence in their response. This may be in support / conflict for either approach. For example, Money (1975) suggested that nurture was responsible for gender development thereby rejecting nature / biology. However, in a follow-up study Diamond (1997), Brenda had never felt happy as a girl and resumed her masculine identity (nature), thereby supporting biological explanations. Students may raise methodological issues associated with the extrapolation of findings from animal research to explain human gender development. They may reflect on the value of unusual case study evidence in a universal explanation of gender development; the issue of cause and effect in testosterone research and the possible impact of environmental factors on biological state. Similarly for SLT weaknesses in the evidence as well as strengths might be considered – the artificiality of laboratory-based research; weaknesses in the explanation of age-related changes or differences in gender behaviours, despite the same environment, and discussion of how these issues might be explained as due to cognitive factors mediating the responses / chosen behaviours.

Credit comparisons with other approaches only if the comparison makes clear the way in which the value of the biological or SLT approach is evident or how either approach is weakened by such comparison.
Credit reference to debates when it is made clear how these impact on strengths or limitations of each explanation.
Credit use of evidence.

Q4.

Marks for this question: AO1 = 6, AO3 = 10

Level	Marks	Description
4	13 – 16	Knowledge is accurate and generally well detailed. Evidence is clear. Discussion / evaluation / application is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor

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		detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge is evident. Evidence is presented. There are occasional inaccuracies. Discussion / evaluation / application is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology is mostly used effectively. Lacks focus in places.
2	5 – 8	Some knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 4	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

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AO1

Marks for description of the features of biological explanations of gender development. Students may focus on how genetic factors cause gender-appropriate behaviour – gender and sex are interrelated. Any differences in gender behaviour are due to physiology. Students may choose to focus on hormones, eg the influence of androgens and testosterone or oestrogen and progesterone. Atypical sex chromosomes, eg XXY – Klinefelter's syndrome; XO – Turner's syndrome; in terms of the effect these syndromes have on gender development. Students may choose to focus on non-human research, eg Gorski et al (1980) found male rats' sexually dimorphic nucleus (SDN) to be larger inanatomical structure compared to female rats' SDN which might account for differences in behaviour.

AO3

Marks for an evaluation of biological explanations of gender development. Students may choose to contrast biological explanations of gender development with social learning theorists who state that gender is learnt as a result of socialisation (nurture). The cognitive explanation can be used to criticise biological explanations of gender as being too deterministic – children think about their own and other people's gender and how they behave as a result. Students are required to refer to evidence in their response. This may be in support / conflict for biological explanations. For example, Money (1975), in the case of the penectomised twin, suggested that nurture was responsible for gender development thereby rejecting nature / biology. However, in a follow-up study by Diamond (1998), Brenda had never felt happy as a girl and resumed her masculine identity (nature) thereby supporting biological explanations. Students may raise methodological issues associated with the extrapolation of findings from animal research to explain human gender development. Students may focus on general limitations of biological explanations, eg reductionism.

Credit comparison such as reference to cultural variations in gender related behaviour. Credit use of relevant evidence.

Q5.

(a) **[AO1 = 1]**

One mark for knowledge of a relevant difference.

Likely differences: chromosomal make up; size of genitalia; limb length; differences in timings of language development, temperament, passivity, shyness etc.

Accept other valid differences.

(b) **[AO3 = 2]**

One mark – for comparison with individuals with typical sex chromosome patterns.
One mark – inferences may be made of a chromosomal / biological basis / nature-nurture regarding gender development should there be differences found between atypical and typical sex chromosome individuals.

Credit answers that focus on therapeutic value.

Q6.

[AO1 = 1, AO2 = 1]

AO1

One mark for a relevant limitation.

AO2

One mark for how / why it is a limitation.

Likely limitations: reductionist; crude to suggest differences in complexity of gender are a result of chromosomes; underemphasises nurture / role of the environment; comparison with other explanations may receive credit eg social learning theory only if **used** to elaborate or explain the limitation etc.

Accept reasoned argument of limitation of the use of animals for testing influences on gender development such as difficulty of generalising results.

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Q1.

This question was generally well answered, with many students gaining full marks. As it was an application question, students needed to refer to the stem to gain credit. This was usually achieved by simply stating that the ‘physical differences would be... .’ or Dido did ‘better at school because she...’. Some students confused Turner’s syndrome and Klinefelter’s syndrome completely. It was fairly common to see confusion about which of the two conditions involved better language skills, mathematical skills and spatial ability. Just occasionally, an otherwise very good answer did not receive full credit because the relevant sex chromosome patterns were omitted.

Q3.

The main answers to this question were disappointing. Students seemed to forget that the question was focused on gender development and did not select and shape their knowledge to the question requirements. There were many references to key terms but often these were not applied to the development of gender. Overall, there was a basic lack of appreciation of the fact that biological explanations do accept the impact of environment on the expression of genetic coding. It seems that students are locked into a simplistic understanding that there can be no overlap or complementarity of explanations and instead phrases such as, ‘the X approach ignores / rejects the Y approach,’ were often used in answers, when, in reality, this is just not the case.

Q4.

In this question there were some good examples of descriptive skills but some students did lose focus and much of their description became biological explanations of behaviour rather than biological explanations of gender development. References to evidence were generally good, but students did not use the evidence presented well. Students usually resorted to stating only that the research was support for a biological explanation but failed to elaborate how or why the evidence cited could be considered to support the explanation. Again, evaluative points often simply listed differences between biological and psychological explanations. It was rare that such simplistic comparisons were creditworthy as often they were undeveloped. For example, *’the biological approach ignores the unconscious which Freud says is important’* or *‘it ignores the mediating processes of the cognitive explanation’.*

Q5.

(a) The majority of students gave a correct response to this question.

(b) Many students were unable to explain why people with atypical chromosome patterns would be studied by psychologists. In particular, they did not always focus on the comparisons in behaviour that would be made and how it might be possible to attribute differences found to the presence of an extra X chromosome.

Q6.

This was a reasonably well-answered question although some students were not able to develop their answer and make it clear why the limitation identified was a limitation.