9.1 Sexual Selection and Human Reproductive Behaviour

AQA 7182 · about 60 minutes · Write-in edition

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Outline inter-sexual selection as an evolutionary mechanism in human mating, and give one example of a trait a choosing sex might prefer. Refer to the selective advantage such a preference could confer.

(Total for Question 1 is 2 marks)

2 Describe one real-world application or implication of evolutionary accounts of sexual selection and parental investment, and briefly evaluate a potential ethical or social issue arising from that application.

(Total for Question 2 is 6 marks)

3 Describe the 'good genes' model as a specific account within inter-sexual selection, including what is meant by 'good genes' and how a preference for such traits could increase offspring fitness.

(Total for Question 3 is 4 marks)

4 Explain Trivers' parental investment theory and how it accounts for sex differences in mating preferences, specifically short-term versus long-term mating strategies.

(Total for Question 4 is 4 marks)

5 Outline one cultural or temporal validity concern about claiming universal human mating patterns from contemporary preference studies, and suggest one way researchers might address this concern.

(Total for Question 5 is 4 marks)

6 Discuss evolutionary explanations of sexual selection and parental investment as accounts of human reproductive behaviour. In your answer you should: describe the main ideas of anisogamy, inter-sexual and intra-sexual selection, and parental investment theory; evaluate these explanations using empirical evidence and methodological and theoretical criticisms, such as reliance on retrospective self-report and correlational data, cultural and temporal validity of preference studies, and the deterministic or reductionist nature of evolutionary accounts. Refer to specific examples where relevant.

(Total for Question 6 is 16 marks)

7 Describe two pieces of empirical evidence from human preference studies that have been used to support evolutionary accounts of sexual selection or parental investment. For each study, briefly state the finding and how it supports the evolutionary idea.

(Total for Question 7 is 6 marks)

8 Explain three methodological criticisms of many human mate-preference studies that limit strong evolutionary conclusions. Refer to retrospective self-report and correlational designs in your answer.

(Total for Question 8 is 6 marks)

Mark scheme · 9.1 Sexual Selection and Human Reproductive Behaviour

Question 1

states inter-sexual selection involves one sex choosing mates based on desirable traits in the other sex, leading to those traits being favoured over generations oe — **B1**

gives an example trait, e.g. good health/clear skin, indications of resource-holding potential, or signs of genetic quality such as facial symmetry oe — **B1**

Answer: Inter-sexual selection is mate choice by one sex for particular traits in the other, for example females preferring males with indicators of good genes or resource potential such as symmetry, health or status, which could increase offspring survival or access to resources.

Question 2

describes a real-world application or implication, e.g. informing health campaigns about mating-related risk behaviours, or guiding research into reproductive health and mate-choice influences oe — **M1**

explains how the evolutionary account leads to the application, e.g. targeting messages to groups more likely to engage in short-term mating risk behaviours oe — **A1**

identifies an ethical or social issue, e.g. risk of biological determinism being used to justify gender stereotypes or discrimination oe — **M1**

evaluates the issue, e.g. explains that policy based solely on evolutionary claims can stigmatise groups and ignore social solutions, so caution and multi-factorial approaches are needed oe — **A1**

may offer a mitigation or caveat, e.g. combine evolutionary insights with cultural and individual-level approaches so interventions are balanced oe — **M1**

explains briefly how this mitigation reduces the ethical/social risk, e.g. avoids blaming individuals and supports policies that address socio-economic contributors to behaviour oe — **A1**

Answer: Application: evolutionary ideas have been used to design public-health messages about sexual risk taking and to inform research on reproductive health by identifying who may be more likely to pursue short-term mating. Ethical issue: such accounts risk reinforcing gender stereotypes or deterministic explanations that stigmatise individuals. Mitigation: combine evolutionary insights with social and cultural approaches to avoid simplistic policies and to address broader socio-economic factors.

Question 3

states that the 'good genes' model proposes choosers prefer traits that signal genetic quality or health oe — **M1**

defines 'good genes' as alleles or genetic makeup that increase survival or reproductive success, e.g. disease resistance oe — **A1**

explains that offspring of choosy mates will inherit these beneficial genes oe — **M1**

links this to increased offspring fitness, e.g. higher survival or reproductive success in the next generation oe — **A1**

Answer: The good genes model says choosers prefer traits that signal genetic quality such as health or disease resistance. Choosing mates with these traits increases the chance offspring inherit beneficial genes, which raises offspring survival and later reproductive success.

Question 4

states parental investment theory proposes the sex that invests more in offspring will be choosier about mates, while the lower-investing sex competes more for access oe — **M1**

explains that because females typically invest more (pregnancy, lactation), they prioritise long-term mates who provide resources and parental investment oe — **A1**

states that males, with lower obligatory investment, can maximise fitness by mating with multiple females, so they show greater interest in short-term mating opportunities oe — **M1**

links these differences to mating preferences: females favour commitment and resource-provision, males favour fertility indicators and mate quantity in short-term contexts oe — **A1**

Answer: Parental investment theory says the sex investing more in offspring will be choosier. Since females usually have higher obligatory investment, they favour long-term mates who provide resources and care; males, with lower obligatory investment, can increase reproductive success via short-term mating and therefore show more interest in multiple partners and fertility cues.

Question 5

states a validity concern, e.g. that many studies use WEIRD samples (Western, Educated, Industrialised, Rich, Democratic) which may not represent global human populations oe — **M1**

explains why this is a problem, e.g. cultural norms and current socioecological conditions shape preferences so findings may not generalise across cultures or time periods oe — **A1**

suggests a way to address the concern, e.g. cross-cultural research including non-WEIRD populations or longitudinal studies comparing cohorts over time oe — **M1**

explains how this helps, e.g. showing which preferences are consistent across cultures or have changed over time strengthens or challenges claims of universality oe — **A1**

Answer: Concern: many studies use WEIRD samples which may not represent worldwide humans; cultural norms and changing socioecological conditions mean preferences can vary. To address this, researchers can conduct cross-cultural studies including non-WEIRD populations or longitudinal cohort studies, which can reveal whether preferences are universal or culturally and temporally specific.

Question 6

Level 5 Answers show accurate, detailed knowledge of evolutionary explanations and clear, well developed evaluation. Material is used interactively, with strengths and limitations weighed and supported by appropriate evidence. Discussion shows awareness of methodological issues, cultural/temporal validity and theoretical limits. Examples are applied effectively. Specialist terms are used precisely and answer is coherent.	**13-16**
Level 4 Answers show good knowledge of evolutionary explanations with clear evaluation. Material is developed and supported, but may lack depth or range in places. There is some consideration of methodological and theoretical criticisms and some appropriate examples. Specialist terms are used appropriately and answer is generally well organised.	**9-12**
Level 3 Answers show some knowledge of evolutionary explanations and some attempt at evaluation. Points may be descriptive or assertive rather than developed. Limited use of evidence and examples. Discussion of methodological or theoretical issues is present but underdeveloped. Organisation and terminology are adequate.	**5-8**
Level 2 Answers show limited knowledge with little or no evaluation. Material may be fragmentary or inaccurate. Little relevant evidence or examples. Answer is poorly organised and uses limited terminology.	**1-4**
Level 0 No creditable content.	**0**

Indicative content:

- AO1 content: anisogamy defined as difference in gamete size and cost, leading to different parental investment pressures.
- AO1 content: inter-sexual selection (mate choice) described, including good genes model and mate preferences attracting choosers to traits signalling genetic quality or resource potential.
- AO1 content: intra-sexual selection (competition within a sex) described, including male-male competition, dominance displays and traits aiding success in contests.
- AO1 content: Trivers' parental investment theory explained, linking higher obligatory investment to choosiness and lower investment to competition and short-term mating.
- AO3 evaluation: empirical support from preference studies showing sex differences in mate priorities and cross-cultural patterns that sometimes support evolutionary predictions.
- AO3 evaluation: methodological criticisms, including heavy reliance on retrospective self-report, rating tasks and hypothetical scenarios which may not reflect real mate choice behaviour.
- AO3 evaluation: correlational nature of many findings, limiting causal inference about historical selection pressures and allowing confounds such as socio-economic status or cultural norms.
- AO3 evaluation: cultural and temporal validity concerns, including WEIRD sampling and evidence that some preferences change with economic or social conditions, challenging universality claims.
- AO3 evaluation: theoretical criticisms of determinism and reductionism, noting the need to integrate social, cultural and individual-level explanations with biological accounts.
- AO3 evaluation: ethical and applied implications, e.g. risk of stereotyping or justifying social inequalities if evolutionary claims are overextended; suggestions to combine evolutionary insights with multi-disciplinary evidence.
- AO3 evaluation: methodological improvements and future directions, e.g. longitudinal and cross-cultural studies, behavioural and experimental measures, genetic studies that link traits to reproductive outcomes, and careful consideration of proximate mechanisms.

Question 7

describes a relevant study finding, e.g. that males rate youth and physical attractiveness as more important for short-term mates, while females rate resource-related qualities higher for long-term mates oe	**M1**
explains how this supports evolutionary predictions from parental investment theory about sex-differentiated mate preferences oe	**A1**
describes a second relevant finding, e.g. cross-cultural work showing some consistency in female preference for resource-holding potential or male preference for fertility indicators oe	**M1**
explains how this supports inter-sexual selection or good genes ideas by showing consistent preferences that could reflect selection pressures oe	**A1**
may identify a methodological detail of one study, e.g. use of rating scales or hypothetical scenarios, that is relevant to interpreting the finding oe	**M1**
links the methodological detail to the support given, e.g. showing preferences exist in self-report even if not direct reproductive outcomes are measured oe	**A1**

Answer: Examples include findings that men place more weight on youth and physical attractiveness for short-term mates while women prioritise resource-related qualities for long-term mates; this supports parental investment predictions about sex-differentiated preferences. Cross-cultural studies showing consistent female preference for resource-holding potential and male preference for fertility indicators support inter-sexual selection ideas. Note many of these use rating scales or hypothetical scenarios, showing reported preferences but not direct reproductive outcomes.

Question 8

identifies the criticism of reliance on retrospective self-report or hypothetical questionnaires oe	**M1**
explains why this is a problem, e.g. self-report may reflect social desirability, cultural norms or ideal preferences rather than actual mate choice behaviour oe	**A1**
identifies the criticism that many studies are correlational rather than experimental oe	**M1**
explains why this matters, e.g. correlations between traits and reproductive success cannot establish causation and may be confounded by third variables oe	**A1**
identifies an additional methodological point, e.g. hypothetical preferences might not predict real-world mating outcomes oe	**M1**
explains the consequence, e.g. limits on the strength of claims that current preferences are the result of past selection pressures oe	**A1**

Answer: Many mate-preference studies rely on retrospective self-report or hypothetical questionnaires, which can be biased by social desirability and cultural norms and may not reflect actual behaviour. Many studies are correlational, so relationships between traits and outcomes cannot prove causation and may be confounded by other variables. Hypothetical preferences may therefore be poor evidence for historical selection pressures.