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Critical Thinking CRIT3

(Specification 2770)

Unit 3: Beliefs, Claims and Arguments

Final

Mark Scheme

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Unit 3 Beliefs, Claims and Arguments

Section A

No.	Question AO:	1	2	3
Section A	**Beliefs and Claims**			
1	**What prehistoric event or development is the savannah theory supposed to explain?** **(2 marks)** The emergence of the human species (or features) as distinct from the apes; OR the divergence of the ape and human species; OR why humans have the distinctive features that they have – e.g. limited body hair, upright posture. For vague / imprecise articulation, e.g. 'It explains human features' – [1] mark.	**2**		
2	**(a) In paragraph 1 the author considers a prediction which the savannah theory should support. Identify the prediction.** **(2 marks)** The prediction is that some of the adaptations seen in the emerging human species should be paralleled in some other savannah mammals [2]. For vague / imprecise articulation, e.g. 'Savannah animals should have the same characteristics as humans' – [1] mark.	**2**		
	(b) How does the author use the prediction to challenge the savannah theory, and is it an effective challenge? **(5 marks)** The author argues that the prediction is not borne out; that there are no instances of parallel adaptations in other savannah animals, casting some doubt on the savannah theory. The lack of parallels is an 'awkward fact' for the savannah theory, and leaves certain unanswered questions as to why humans were different; e.g. why they lost their hair and began to walk upright. If it is true that there are no observed parallels in other animals this does mean that the prediction is not confirmed / has no confirming instances. To that extent the challenge is arguably effective. However, it is itself questionable whether the prediction itself is correct. Species do diverge and become very different from each other even when they share the same environment: human ancestors and other apes may have gone in different directions for all kinds of reasons.	**2**	**3**	

No.	Question AO:	1	2	3
	Also it is possible that other animals did develop in parallel ways to humans but were less successful and became extinct, leaving only humans with those particular characteristics. Allocate marks as follows: For recognising how it works (i.e. that what the theory predicts is not borne out, and that this goes against the theory) award 1–2. Merely emphasising that this weakens the theory with no further analysis / evaluation [+1] Candidates who explain that this is a strong challenge / explain that as falsifying evidence it is potentially decisive/ the theory is (potentially) seriously undermined can be awarded 3–4 (possibly 5 if they really develop this, showing detailed understanding of rules of hypothesis testing relevant to situation) Candidates who recognise that in this instance the apparently falsifying instances may not be decisive / who go on to explain why should be credited with a mark of 4–5. Note that the initial two marks for explaining how the reasoning is working can be implicit in the second, evaluative part of the response.			

No.	Question AO:	1	2	3
3	**With reference to paragraphs 2 and 3, what general advantage does the author claim for the Aquatic Ape scenario over the savannah hypothesis?** **(2 marks)** The unusual differences / uniqueness of human compared to other land mammals are *easier to explain* with the AA hypothesis. / Questions unanswered / problems unexplained by the Savannah Hypothesis are answered / explained by the AA hypothesis [2]. For inaccurate paraphrasings / overstatements e.g. 'AAT can explain everything about humans whereas SH cannot' [1]. For citing a specific advantage (such as ability to explain a specific feature of human physiology); or for the point that our more enigmatic features are shared with/ more common in aquatic mammals than land ones [1].	**2**		
4	**Referring to paragraphs 4-8, assess the author's use of *explanation* to support the Aquatic Ape Theory over the Savannah Hypothesis?** **(10 marks)** Candidates should be credited for recognising where explanations are being offered, and the role they play in the author's reasoning. The paragraphs deal with two main features that humans have and other primates do not: less hair and more fat. Both of these features are presented as being (better) explained by the AAT (than by the SH.) Whereas a life spent largely in water, swimming wading etc., would explain the loss of hair and gain in fat, a life spent hunting on the plains would not – according to the author. Regarding hairlessness, as she says, land based animals need to keep cool in the day and warm at night, and fur is a protection against both. Those mammals that have lost hair are the aquatic ones; or the wallowers, which also have traces of a watery past. Furthermore, if animals lack hair, and babies have no fur to hold on to when females are foraging and need their hands. Fat on the other hand is a better insulation in water, but a hindrance on land. It also aids buoyancy. As EM says, no land based predator can afford to get fat: it slows the male hunter down. Candidates could also talk about the *type* of fat found in land versus aquatic mammals.		**10**	

No.	Question AO:	1	2	3
	Well prepared candidates should identify the author's reasoning as a form of *argument (or inference) to the best explanation* (or abduction). They may also refer to some of the criteria for judging explanations – scope, simplicity, plausibility – and try to assess how well each theory performs in some or all of these respects. For example, SH is simpler, in the sense that it does not require there to be a whole new (watery) phase in human development, for which there is no real evidence *other* than explanatory usefulness. However, if the author is right, it does not explain as much and appears to leave a lot of human adaptations unexplained. By contrast the scope of the AAT explanation is extensive: it purports to explain the loss of hair; *and* the different levels, composition and distribution of fat. Both are presented as a problem for SH, but well explained by AAT. It might be commented that the author is (likely to be) guilty of bias / selectivity in her treatment of the SH (a *straw man* fallacy, perhaps) – which could mean that her abductive argument is more convincing than perhaps a more neutral assessment of the evidence would suggest. Award marks as follows: 1 – 3 general critical / evaluative comment that is not directly relevant to question and / or some awareness of explanations taking place, or of the author's attempt to use explanation to support AAT. 4 – 7 some (critical) focus on specific explanations given and / or the role played by explanation in general in supporting AAT. Candidates towards the higher end of this band should be able to show clearly why AAT is favoured in the passage in that it gives *better* explanations (i.e. for the problem facts). Candidates in the middle of the band may just summarise some of the explanations offered (i.e. how AAT explained problem facts) without making it clear that the explanations are better than those given by the other theory on offer / that the other theory can't do this). Critical comment at the lower end of this band may also just focus on selectivity and possible one-sidedness. 8 – 10 as above plus more abstract / refined discussion about e.g. scope / explanatory power when judging the success of hypotheses.			

No.	Question AO:	1	2	3
5	**Paragraph 14 makes the following strong claim:** **'AAT is the only theory which logically connects all these and other enigmatic features and relates them to a single well attested historical event.'** **Explain why it is correct to call this a 'strong' claim, and why its strength is relevant when evaluating the author's argument.** **(4 marks)** Words which help to make this a strong claim are 'only', 'all' and 'single' [1]; OR (more specifically) that it claims a '*single* well attested' event connects *all* the features, and is the *only* theory which does so [2]. This is relevant because it requires proportionately strong grounds to support it [1]. Instead of just a providing a plausible explanation, it must explain everything, and there must be no better explanation. [+1]	**2**	**2**	

No.	Question AO:	1	2	3
6	**What point is the author making in paragraph 11 on the strength of the observation that humans have learnt to speak?** **Does our ability to speak support the AAT, and if so how strongly?** **(6 marks)**	**3**	**3**	
	In terms of the point, it could be that the learning to speak bit is just illustration of the fact we have voluntary breath control (which is the main point). The voluntary breath control (VBC) is evidence of an aquatic past as the only other mammals that have it are aquatic mammals. However, the other interpretation (truer to the thrust of the passage) is that AAT goes some way towards explaining yet another singular feature of humans: our ability to speak. Without the aquatic past, our ability to hold our breath would be inexplicable; so too, therefore, would be our ability to speak. Either way, whether it's the VBC required for our ability to speak which is the focus, or our ability to speak itself, these are better explained by AAT, and thus, by abduction, give grounds for accepting AAT as a theory. Critical comment: If it's true that you need VBC to speak, and if it's true that VBC is only found in aquatic mammals, then our ability to speak gives good confirmation to the AAT, and perhaps almost falsification of the theory that we did not have an aquatic past. However, it has not been established that being aquatic is a necessary condition for obtaining ability. While it's clear why it might arise in aquatic mammals (holding their breath under water), it could arise for other reasons. In fact, it could be that it was the developments in speech that gave rise to VBC (i.e. the direction of causation could be reversed.) These are merely example responses. Candidates ought to be credited for any relevant line of assessment, for example reference to difficulties associated with reasoning from cause and effect (e.g. necessary and sufficient conditions; direction of causation; cause and correlation).			

No.	Question AO:	1	2	3
	Award as follows 1 – 2 Candidates are aware of the main thrust of the reasoning (i.e. in support of AAT) yet show misunderstanding of central points of the way the reasoning works; critical comments are largely unclear or irrelevant. 3 – 4 Imperfections evident in terms of understanding of the author's reasoning; critical comments are one-sided or lack development, clarity or bite. 5 – 6 Candidates' responses indicate complete understanding of the significance of our ability to speak and / or hold our breath for the author's argument / for AAT as presented, and make relevant, perceptive and balanced criticisms of their actual significance.			

No.	Question AO:	1	2	3
7	**The author begins by claiming that the savannah theory leaves some awkward questions unanswered. Suggest one 'awkward' question which could be aimed instead at the Aquatic Ape hypothesis, and explain briefly why your question would be 'awkward'.** **(4 marks)** E.g. • Why do we not have any visible / vestigial signs of having been swimmers or waders – fins for example? Why have none been found in the fossil remains? • Why did humans not return to all-fours when they came out of the water? (Likewise why did we not re-grow hair?) • Why have other aquatic animals like hippos not become two legged? • How would slow swimming apes have coped with aquatic predators: crocodiles, sharks, etc? These are suggestions only. Credit to be given to any relevant and plausible objections to the ATT. Award as follows: 4 – a clear objection is given and its potential impact on the theory also made clear. 3 – potentially good objection but some doubt remaining about either the objection itself or the impact it would have on the theory. 2 – reasonably good objection but its significance left unclear / implied; OR: weak objection but some attempt to give it significance for the theory. 1 – signs of the case for an objection forming but nothing fully materialising.			**4**

No.	Question AO:	1	2	3
Section B: Arguments				
8	**Consider the last section of the article – paragraphs 15-18 – in the light of the following critical comment:** **'There is nothing here but speculation. The only support the author can find for her hypothesis is a lack of contrary evidence.'** **Is this fair criticism?** **(6 marks)**		**3**	**3**
	There is some justification for this critical comment, though it is too strong / sweeping / extreme to say that there is *nothing* but speculation and lack of contrary evidence. Consequently, while a case can be made either way, the best responses are likely to judge that the criticism is (a little) unfair. Support for the criticism re speculation is the author's use of phrases like 'may have been marooned…', 'would have found themselves…', 'AAT suggests that…'. Here there is circumstantial evidence – e.g. the record of flooding – but none that this forced the humanoids to move into an aquatic habitat. Support for the lack of contrary evidence is in par 17: 'nothing in the fossil record to invalidate…' and, in 18: 'It's not surprising that traces of aquatic adaptation have become partially obliterated…' There is an element of ad hoc reasoning here, against the anticipated objection that we haven't much in the way of visible aquatic features. But there is some positive evidence too which arguably makes the criticism unfair: most notably in par. 17 it is observed that Lucy's remains were beside water and surrounded by other remains of aquatic species. Moreover, given the context of the theory (i.e. events in the distant past), candidates will probably recognise that a degree of speculation is inevitable (and even healthy, given the way scientific theories arise), and it is arguably *unfair* to use this in the pejorative way it is used in the comment. Award as follows: 1 – 2 for some evaluative comment on the criticism; 3 – 4 for giving some examples that support and / or challenge the criticism, and drawing an appropriate evaluative conclusion; 5 – 6 for giving examples and reasons to give **qualified** support for the criticism **on both counts** (speculation and lack of contrary evidence), and drawing an appropriate conclusion (e.g. that there are some grounds for this, but that it is perhaps a little unfair); OR for making a strong case for the criticism being unfair.			

No.	Question AO:	1	2	3
9	**Questions 9(a) and 9(b) refer to the following counter-argument.** **'Beaches, lakeside and riverside properties are some of the most expensive and sought-after in the world. They are also favourite destinations for holidays. Proponents of AAT claim that this indicates that humans evolved in the sea. But suppose that were right. We would then have to accept the contradictory indication that we evolved on the savannah – open grasslands punctuated with trees – since we value such land just as highly and we build replicas of it wherever we go. We call them parks. We can't have evolved in both places at once, so the AAT claim must be wrong."** **(a) Carefully explain the reasoning that the author uses in the above passage.** **(6 marks)**	**6**		

The conclusion is that the AAT claim (i.e. that our fondness for living by water indicates an aquatic past / supports the AAT) must be wrong.

The reasoning is suppositional in form. The author argues that if we accept the fondness humans show for beaches etc. indicates an aquatic past, then our fondness for parks should indicate a past spent in open grasslands. The next step is we cannot have evolved in both places at once, so the supposition must be false / questionable.

(The argument could also be classified as a *reductio ad absurdum*, since if we accept the supposition we also have to accept a puzzling or contradictory conclusion as well. It is not necessary to use the technical terms, but candidates should note, one way or another, the structure and / or method of reasoning from one proposal to conflicting or unacceptable consequences and so to the rejection of the original proposal.)

Award as follows:

1 – 2 candidate's response indicates understanding that the argument is against AAT / to show weaknesses in AAT yet analysis is thin, and misunderstandings are evident.

3 – 4 evidence of understanding the way the reasoning works, and a reasonable effort to express key points (for example candidates understand that the author was trying to show something false about AAT through a contradiction). Candidates in this band might show that a contradiction has been set up, but not identify what conclusions are drawn.

5 – 6 a clear understanding of the argument and the way the reasoning works.

No.	Question AO:	1	2	3
	(b) Give a short critical evaluation of the argument, stating why you do, or do not, accept its reasoning and conclusion. **(8 marks)**		**4**	**4**

Superficially and formally the reasoning is valid: If it is true that from the supposition we would have to accept a contradiction, and that both cannot be right, then the AAT claim cannot be correct. It would seem fair to say that if a love of watery environments now is evidence that we evolved in water, then equally a love of grasslands is an indication that we evolved there. A supporting point might be that we also value trees and forests, which would be explained by our even earlier ape-ancestry.

However, it could be argued that there is no warrant to assume that we could *not* have evolved in two places at once. We could have evolved in an aquatic habitat bordering the savannah? Anyway, the AAT claims that we moved to the savannah *after* the watery phase, and would therefore have had a significant past / developmental phase in each place. It is irrelevant whether they were at the same time or in succession.

Another suspect assumption is that the environments we are fond of are necessarily the ones we evolved in: it may be that we like parks for one reason and water for another. However, this is a weak (arguably ad hoc) objection unless some other explanation can be suggested for our fondness for grasslands other than having origins there. A further objection could be that we value some other landscapes too, for no obvious evolutionary reason: mountains for example.

Credit will be given for positive or negative evaluations – the above are just examples – and judged by the following criteria.

1 – 2 for basic evaluative comment: accepting or rejecting claims or conclusion/s (1), with some accompanying explanation (1).

3 – 5 for taking some features of the reasoning and making general evaluative comment on their effectiveness; and for some assessment of the truth / acceptability of the main premises and / or implicit assumptions.

6 – 8 for supporting or challenging the author's claims and inferences with effective critical comment on the effectiveness, validity, relevance, etc. of the reasoning. Also for fair assessment of the truth / acceptability of the premises and implicit assumptions.

No.	Question AO:	1	2	3
10	**'Elaborate theories about our origins are motivated mostly by human vanity. The truth is we are not so different from the other animals as we like to think and we are certainly no better!'** **Present a concise but well argued case for or against the above viewpoint.** **(15 marks)** Candidates can tackle all or part of the citation. There is no need to express the conclusion as a discrete claim; as long as it is clear exactly what the position is that is being advanced. Marks will be awarded for an argument with recognisable structure, clear conclusion and relevant supporting reasons. Candidates could take on the second part of the citation (i.e. that we are not so different and certainly no better). Relevant lines of reasoning might include: • In general: a discussion of what is meant by 'different' and (esp.) by 'better'. Is it just physical differences, or differences in behaviour, intelligence, moral conduct? Are we physically inferior but mentally superior? Questions of this kind will need to be attended to in any cogent response. For: • Clearly we are animals, different from others only in degree or detail. There is no obvious difference in kind between say a chimp and a human. We have evolved from common origins and not broken decisively away. • In physical terms we are in many ways less well equipped than many animals: slower, weaker, unable to fly like birds or swim like dolphins. • Our best claim to superiority is intelligence and communication. But many animals show signs of intelligence which likewise differ from ours in degree. Moreover we don't know if animals have different kinds of intelligence which we simply don't understand or recognise. We may indeed be less observant, perceptive etc. than we think we are. • We often behave in ways which are irrational, unethical, etc. We are very aggressive which certainly makes us no different from many animals and may be a reason for saying some animals are 'better' than we are (depending on how 'better' has been understood by the candidate.)			**15**

No.	Question AO:	1	2	3
	Against • Humans are very different in appearance from other animals. Hair (or lack of), stature / posture, colouring, are just some examples. • We are different kind when it comes to intelligence – problem solving, reasoning, sense of right and wrong, communication, technological advances, social institutions. No other animal is even on the bottom rung of the ladder when it comes to adapting the environment to our needs. All others (arguably) must adapt to the environment. • We may not be as fast as cheetahs or as acrobatic as monkeys, but we are different in not needing to be. In fact we are able to travel faster than any animal thanks to various transport vehicles. These are just examples. There are many more points that can be made and that will be credited. Candidates could tackle aspects of both claims; for example candidates could advance an argument as follows: • Quickly establish (as an intermediate conclusion), that we *are* (significantly) different. • They could then argue that, since we *are* so different, we are entitled to seek novel / 'elaborate' theories in order to explain these differences; • Thus the motivation behind such theories is not vanity. Given the open nature of the question, marks will be awarded primarily in accordance with the following criteria and descriptors:			

Generic mark-grid for Section B:

Criteria	**Award level**		
	Criteria thoroughly met (For Reasoning marks: well structured and clearly expressed)	**Criteria partially met (For Reasoning marks: with adequate expression and structure)**	**Basic response (For Reasoning marks: with some weaknesses of expression / structure)**
Conclusion A clear, uncontradictory, and relevant position is advanced, which neatly targets all or part of the citation, which is consistent with (and well supported by) the reasoning.	3	1 – 2	0
Reasoning Strong supporting reasons: 2 or more, or 1 thoroughly developed	5 – 6	3 – 4	1– 2
Supplements to reasoning (1 or 2 more): example; analogy; evidence; explanation; principle; hypothetical / suppositional reasoning; anticipating and responding to objections	5 – 6	3 – 4	1– 2

- NB Candidates are not rewarded for exhibiting additional knowledge per se, but for the use they put it to in their reasoning if they choose to introduce it. Conversely, there is no penalty for not exhibiting additional knowledge: use of the documents alone is sufficient for awarding full credit (5–6).

Distribution of marks across the questions and assessment objectives for Unit 3

AO Balance	AO1	AO2	AO3
Total Section A	**13**	**18**	**04**
Total Section B	**06**	**07**	**22**
Paper Total: [70] Marks	**19**	**25**	**26**
Paper Total: [70] Percentage	**27%**	**36%**	**37%**

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