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SAHETI MARKING GUIDELINES PRELIM P2 2023

- 1.1 1.1.1 C✓
1.1.2 A✓
1.1.3 B✓ (3)
- 1.2 1.2.1 A group of organisms that resemble each other ✓ have common ancestry ✓ and can interbreed and produce viable offspring ✓
(Any 2 points) (2)
- 1.2.2 Species-specific courtship behaviour ✓ (1)
- 1.2.3 Sympatric speciation ✓ The two populations were reproductively isolated and there was no gene flow between the populations ✓ A reproductive barrier is needed so that changes in one population do not get transmitted to the other population and vice versa ✓ / no interbreeding between the populations ✓ because females selected specific mates with certain plumage/song ✓ these traits were passed onto offspring ✓ Offspring with favourable plumage were more likely to survive and reproduce ✓ Over time the two populations become more and more different in plumage/song until they can no longer interbreed ✓ (Any 5 points) (5)
- 1.2.4 Mutations ✓ Could be caused by a random change in the nucleotide sequence of a gene ✓ or could be caused by a variety of other factors eg. during DNA replication ✓ UV radiation exposure ✓ etc (2)

- 1.2.5 Galapagos finches were separated by a geographical barrier✓
Seed eaters live in the same area✓.
Galapagos finches differ in beak shape and size ✓ as they are adapted to different types of food available on the islands✓ whereas the seed eaters have not adapted to different food sources, but rather to mate preference✓
Allopatric speciation in Galapagos finches✓ Sympatric speciation in seed eaters✓ (Any two comparisons) (4)
- 1.3 These males tend to have advantageous genetic characteristics; therefore, they would tend to have offspring who inherit these traits.✓ only the strongest genes passed on ✓ ensuring offspring survive long enough to reproduce & continue the sp ✓
Accept other suitable explanations max 2 (2)
- 1.4 1.4.1 As a control ✓ – to compare aggression to an unrelated species✓ in order to be certain that the changes in aggression are due to the two varieties and not some other factor✓ (2)
- 1.4.2 The sandy coloured males reacted more aggressively to other sandy coloured males than to red-chested males or unrelated males✓ This shows that there is competition for mates in the sandy coloured birds✓ but not between the sandy and red birds✓
(Any 2 points) (2)
- 1.5 Speciation generally takes a long time to occur ✓ (1)
- 1.6 “This forms a selection pressure for the males, causing them to adapt quickly, driving faster-than-normal speciation in the birds”✓ (1)
- 1.7 Alfred Wallace ✓ (1)

- 1.8 The feathers don't help the peacock survive better in any given environment✓
 instead the feathers slow the bird down✓ and attract predators✓ the feathers
 should cause more peacocks to die✓ so that they don't survive to reproduce
 and pass the gene onto their offspring✓ The feathers are only present to
 make the bird more attractive✓ this does not fit into the theory of natural
 selection because the bird is not 'fitter' than other birds in terms of adapting to
 the environment✓ However, these peacocks do survive because the feathers
 help attract a mate and so the genes are passed onto future generations✓
 (Any 4 points) (4)

[30]

QUESTION 2

- 2.1 Zambia ✓ (1)
- 2.2 Skull ✓ Tibia ✓ Femur ✓ any 2 (2)
- 2.3 Site damage / destroyed / quarried ✓
 Fossils haphazardly recovered / not accurately preserved ✓ (2)
- 2.4 *H. heidelbergensis* lived same time *H. sapiens* ✓
 Were intelligent / known to made tools ✓
 Lived in Africa (like *H. sapiens*) ✓
 Tools not necessarily made by *H. sapiens* then ✓
 Multiple *Homo* species lived at same time ✓ max (3)
- 2.5 No ✓
 According to human phylogeny timeline, existed closer to 1 mya to about
 100 000 years ago (*about*) ✓ Am I reading the timeline wrong, I see the range
 from about 750 000 ya to about 500 000 ya
 Timeline is very broad / vague / not accurate / present day is not definite ✓
 Text stipulates about 500 000 – 274 000 years ago ✓ max (3)
- 2.6 1 200 ✓ cc (1)

- 2.7 *Homo naledi* ✓
Phylogeny was probably published before *H. naledi* was discovered / fairly recent discovery & classification ✓ (2)
- 2.8 Less prognathous face / reduced snout ✓
Large cranium ✓
Small / human-like teeth ✓
(Foramen magnum further forward ✓ - more inferred than observable? Would you accept??)
Reduced / small upper jaw / maxilla ✓
Reduced cheekbone processes ✓ **max** (3)
- 2.9 Made (stone) tools ✓
Hunted for food ✓ (2)
- 2.10 *H. naledi*; *H. erectus*; *H. neanderthalensis*; *H. heidelbergensis*;
H. sapiens **any 2 listed** (2)
- 2.11 (Foramen magnum orientated further forward ✓ - more inferred than observable?)
Femur placed knee / centre gravity below body ✓
Lower knee than found in chimp ✓
Femur & tibia ran straight line ✓
Femur & tibia were long / longer legs than arms ✓ **max** (2)
- 2.12 Known that Australopithecus species (fossils) only found Africa ✓
Southern Africa has oldest known hominid fossils ✓
Acc to text: *Homo naledi* survived in southern Africa ✓
H. heidelbergensis was in Central Africa and early forms of our species existed in regions like Morocco and Ethiopia ✓
OR many different *Homo* species evolved and survived same time ✓ **Max** (2)
- 2.13 a) *H. heidelbergensis* / *H. erectus* ✓
b) *Paranthropus* ✓ (2)

2.14 Different (modern) human populations have moved into different continents / environments ✓

This initially selected for / against certain characteristics in those environments ✓

Due to intelligence / industrial and/or medical advancements ✓

Humans surpassed environmental selection pressures ✓ **max (3)**
[30]

QUESTION 3

“We have stopped evolving.”	
Agree	Disagree
Humans have stopped evolving: • Sir David Attenborough believes humans have stopped evolving in physical terms, after developing means to keep even the weakest of the species alive. (A) • We are now able to rear up to 99% of our babies so people are no longer subject to Darwinian theories of natural selection.(A) • Humans will continue to develop in the cultural sense. (A) • Things have simply stopped getting better, or worse for humans. (C) • Children’s chances of reaching the age of 25 have reached 98%. Nothing is changing, we have reached stagnation.(C) • This is true for the Western world only (where food, hygiene and medical advances are keeping virtually every member of society alive and able to pass on their genes). (C) • Human evolution has slowed down because very few older men in western societies still reproduce. • Sperm of older men carry more mutations than those of younger men. (A) No older fathers, no genetic mutations.(A)	Humans have not stopped evolving: • We don’t notice the evolution of humans because it is happening so slowly. (A) • Technology is part of evolution, (in so far as they affect survival and reproduction). (B) • Human brain is changing – biggest changes have occurred in neocortex (abstract thinking, long-term planning etc) • Bigger populations cause faster evolution (rising sea-levels/disease example) (B) • Sexual selection influences human evolution (beard example) (B) • We drink milk (B) • Losing wisdom teeth (B) • Resisting diseases (B) • Brains are shrinking (B) • Blue eyes example (B) • Only affecting Western world, dev. countries have no protection from diseases (C)
Natural selection and evolutionary pressures • Western lifestyle protects humanity from the forces that shaped Homo sapiens. (C) • Scientists say humans are no longer capable of changing. (C) • You no longer have to be best suited to an environment to survive – everybody’s genes passed on.(C) • We can now intervene in our own evolution, using cloning and gene therapy – not really evolution. (C)	Natural selection and evolutionary pressures • If people start to live to 150, and can produce children for 100 of those years, the effects could be dramatic (more chance to accumulate wealth and a new race of fecund, productive individuals could have dramatic consequences) (C) • Bigger heads were limited to evolving because they would usually die in the birth canal but now this problem has been circumvented by popular c-sections. This influences natural selection. (B) • We can now intervene in our own evolution, using cloning and gene therapy. (C)

	Human evolutionary events cannot be predicted. (C)
No recent biological change There has been no biological change in humans in 40-50 000years. May have stopped (D)	No recent biological change - Can argue that Quora is not a reliable source and an opinion. Not based on facts. (D) 5000 years isn't long enough to record changes. How would we know? (D)
DNA and negative selection - There is now negative selection (E) - Detrimental traits are not passed on. (E) - Negative selection prevents bad traits from being passed on. (E) - New DNA traits are likely to have no or few effects on traits. (E) - Evolutionary changes occur but don't "stick" (E)	DNA and negative selection - There are differences between generations for various traits mentioned in (E) - Evolutionary changes occur frequently (E)
Own info Can use personal observations for own, but these MUST be given to senior sub to consider. These cannot rely on just a single observation (e.g. one person's experience) - We will be replaced by a new homo species, thereby extinction will occur. Therefore no more evolution for humans per se. - Can use sport as an example. A limit will be reached as to how fast a human can run, swim etc.	Own info Can use personal observations for own, but these MUST be given to senior sub to consider. These cannot rely on just a single observation (e.g. one person's experience) Fertility: not having children, or not bringing pregnancy to term, allow selection, just as death does.
Facts: 1-2 = 1 mark; 3-5 = 2 marks; 6-8 = 3 marks; >=9 marks = 4 marks Source credibility requires full assessment – not a learned response Plan – requires at least 3 facts, 1 counter, 1 own Presentation – start at 4 then work down Supporting argument – NB to look at rubric	

ESSAY MARKING GRID			
Symbols for marking	Section	Total	Symbol
D⁺ or D⁻ decision (write decision at top: FOR/Against/No decision) ✓¹ - knowledge from sources O¹ - own knowledge S - where fact is synthesised/integrated/linked SR - source quality (validity) C – satisfying conclusion I – interesting introduction Rel – relevance CE – conceptual error CA – Fairness (counter argument) Rep - repetition Plan: D⁺/D⁻ – decision identified F – facts present I – facts integrated/grouped S – sources of facts given CA – counter argument O – own info (FOR)	Planning	6	PI
	Decision	2	D
	Knowledge from source to support (4 x 2)	8	K
	Own Knowledge	4	O
	Content Relevance (sources)	2	R
	Support (4 x 2)	8	S
	Fairness	4	CA
	Presentation	4	P
	Merit (links back to main topic, good synthesis etc)	2	Me
	Total	40	T

Note: Essay should be 2½ to 3 pages long.

Time allocation suggestion: Reading of sources 10 min.; Planning 10 min.; Writing essay 40 min.

	1 mark	2 marks	3 marks	4 marks	Possible mark (40)
Planning × 2	- Decision given - Key points present for and against the argument	- Decision given - Key points developed for and against the argument	- Decision given - Key points developed for and against the argument - Sources identified (e.g., Source A/ own information)		6
Decision	- Vague - Changed position within essay	Clear decision made			2
Use of knowledge from sources × 2	Up to ¼ of potential detail in sources used to support argument	Up to ½ of potential detail in sources used to support argument	Up to ¾ of potential detail in sources used to support argument	Source detail – very close to full potential used to support argument	8
Use of own knowledge	Some facts given beyond the source to support argument	Many facts beyond the source given to support argument	- Some facts beyond the source given to support argument - Facts integrated into the argument	- Many facts beyond the source given to support argument - Facts integrated into the argument	4

	1 mark	2 marks	3 marks	4 marks	Possible mark (40)
Content relevance	• Repetition mostly avoided • Some minor digression • Supporting argument relevant	• Repetition mostly avoided • Some minor digression • Supporting argument relevant • Quality of source extracts acknowledged			2
Quality of argument supporting decision × 2	• Writing consists of facts with little linkage or reasoning • Reasoning incorrect	• Maximum if no clear stand taken • Reasoning correct, but hard to follow • Ordinary: some linkage evident	• Supports the position • Reasoning is clear • Minor errors in flow • Linkage sometimes missed	• Strongly supports a clear position • Reasoning is very clear and succinct • Flow is logical • Compelling with regular linkage • Well-integrated argument	8
Fairness – counter opinions to decision	• One to two counter opinions given from the sources	• Three to four counter opinions given from the sources	• Integration into argument of one to two counter opinions from the sources	• Integration into argument of three to four counter opinions from the sources	4
Presentation	• Writing is almost unintelligible • Tone, language, terminology unscientific and very weak • Introduction and/or conclusion not present	• Tone, language, terminology weak • Introduction and conclusion present	• Tone is consistent and suited to scientific language • Good and appropriate language and terminology • Mostly appropriate paragraphing • Introduction and conclusion have merit	• Tone is mature and suited to scientific language • Excellent and appropriate language and terminology • Correct paragraphing with good transitions • Interesting introduction, satisfying conclusion	4
Scientific merit	Essay shows academic rigour, accurate reasoning, insight and cohesiveness.				2