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CRITICAL VERBAL REASONING PRACTICE TEST 2

Although the human genome was mapped many years ago, only now are we starting to see the expected medical advances. Watson and Crick's original understanding of DNA was that our genes: firstly, control all of our physical characteristics and susceptibility to disease; and secondly that genes do not change over time. Whilst this, without doubt, was one of biology's most influential discoveries many modern geneticists now question the intransigence of human genes.

Evidence is increasing for the human mind-body connection being extended right down to the genetic level. "Epigenetics" is the scientific name assigned to this rapidly expanding field. More specifically, *epigenetics* is how this activity changes in response to our life experiences. Genetics and evolutionary theory have traditionally treated genetic mutation as entirely random. However, this new paradigm of "self-directed biological transformation" rewrites our long-standing rules for genetic mutation. In today's new world of *epigenetic*, "*self-directed biological transformation*" models how human genome adapts in response to its environment.

The human genome can respond to everything that we experience. The human genome's environment is all our thoughts, feelings, and every other stimulus picked up by our five senses. So even if you engage in traditionally healthy activities such as yoga and meditation, these will immediately stimulate a response in genetic activity. There are major shifts in cellular activity leading to physiological changes. Exercise, a balanced diet, good sleep, and stress reduction - all well-known for improving bodily function - exert beneficial effects via our genes. This is another research finding that surprised many geneticists. It's also another challenge to the traditional "biology as destiny" perspective in which our destiny was genetically defined from birth.

The next frontier will be to discover how deep and lasting such changes are, how much control we have over them individually, and how they can be passed on to future generations through so-called soft inheritance, in which the parents' life experiences and behaviour directly influence the genome of their offspring - transmitted via the epigenome, which controls how the activities of our genes are turned up and down.

- 1) What does the passage's author mean when describing inheritance as "soft"?
 - a) Gentle
 - b) Parental
 - c) Not genetic
 - d) Expedient
 - e) Transgenerational

- 2) Which of the following words are the best substitute for "paradigm of" in the second paragraph?
 - a) Structure for
 - b) Dimension to



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- c) Model of
- d) Test for
- e) Human anatomy theory of

3) Which of the following is the most suitable replacement for the first paragraph's *intransigence*?

- a) Insignificance
- b) Unfit
- c) Unknown quality
- d) Irreparability
- e) Uncompromising

4) Which of the following is *not* described as beneficial?

- a) Jogging
- b) Meditation
- c) Diet
- d) Yoga
- e) Exercise

5) Which of the following is the best summary of the third paragraph?

- a) The term *biology as destiny* is an effective summary.
- b) Research that environmental changes go unnoticed by our body's genes.
- c) Modern genetics research has challenged traditional genetics.
- d) Human responses at the cellular level are mapped by the human genome.
- e) Epigenetics studies the mind-body interface at the genetic level.

6) Which of the following is not discussed in the passage?

- a) Environmental effects on the human genome.
- b) What is and isn't genetically defined from birth.
- c) The epigenome's activity.
- d) Modern theories of genetics.
- e) Watson and Crick's early genetics research.



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REVIEW YOUR TEST 2 ANSWERS

QUESTION (1) *What does the passage's author mean when describing inheritance as "soft"? The context of the passage reveals that "soft" is being used to highlight that this is "not hard" inheritance. In other words **Not genetic***

QUESTION (2) *Which of the following words are the best substitute for "paradigm of" in the second paragraph? The best substitute is answer option (c) **Model of***

QUESTION (3) *Which of the following word or words would be the most suitable replacement for intransigence? This is an example of an Interpretation type of verbal critical reasoning question. The most suitable replacement is answer option (e) **Uncompromising***

QUESTION (4) *Which of the following is not described as beneficial?*

On reading the question, the relevant sentence that comes to mind is:

a more cautious approach is warranted though since there is a second relevant sentence; *...engage in traditionally healthy activities such as yoga and meditation, these will immediately stimulate.* Once you have retraced this information in the passage; it's obvious that the only option that's not listed is **(a) Jogging**.

QUESTION (5) *Which of the following is the best summary of the third paragraph?*

The best overview of the key points in the third paragraph is given by **c) Modern genetics research has challenged traditional genetics**.

QUESTION (6) *Which of the following is not discussed in the passage?*

Going through each answer option: the following are each mentioned in the passage: a) Environmental effects on the human genome; c) The epigenome's activity; d) Modern theories of genetics; and e) Watson and Crick's early genetics research. Thus the other answer option is logically the only possible correct answer; **b) What is and isn't genetically defined from birth**. Genetic and non-genetic factors are not detailed in the passage.

CRITICAL REASONING PRACTICE TEST 3

The human activity in which we spend the highest proportion of our time is sleeping. Like humans, every other animal species relies upon regular sleep; to the extent that sleep deprivation can result in death. This makes it all the more surprising that there is no unifying theory to explain why we need to sleep, or why we dream. There is actually much controversy amongst sleep researchers: on the one side are those favouring a memory-based unifying theory to explain sleep. Whereas, on the other side of the debate are those sleep researchers who believe that toxins are cleared from the brain during sleep. In fact, neuroscientific research now focuses on these two related questions: (i) What is the human brain doing whilst we sleep; and

(ii) Why did human sleep evolve? This second question is particularly puzzling, given that whenever an animal sleeps it is then at the mercy of other any animal predators out hunting. It would be an enormous advantage for any animal to not have to sleep. Regardless of the hazards whilst asleep, every single type of animal species does sleep. So sleep must therefore bestow something vital.

Over the last 3.5 billion years on Earth's, animal species have evolved their individual biological clocks in response to the alternating cycles of natural light from the sun. It makes some evolutionary sense for human brains to use the regular downtime period of sleep to refresh themselves by clearing out toxins and restoring energy levels. During the day the brain streams in data from all our senses and this huge amount of data needs to be processed at night. So sleep *probably* serves all these functions.

Question (i) addresses the physiology of the brain during sleep. There are four stages of non-REM sleep in a typical sleeping cycle, with these regular cycles repeated up to five times a night. Dreaming only occurs during the fifth stage, which is characterized by "rapid eye movements", or REM sleep.

Most adults and children, if woken during REM sleep, will report that they were dreaming. It's during this dreaming REM phase that your body is paralysed - except for the eye muscles. During REM sleep is the only time that the stress-related chemical, noradrenalin, is switched off in the brain. This allows the brain to remain calm as particularly emotional events from the day before are reprocessed. Each night, our few hours of deep sleep our brain moves our memories from short-term to long-term storage, thus freeing-up short-term memory space for tomorrow. Our memories do need to be consolidated within 24 hours of being formed, so without sufficient deep sleep, some unconsolidated memories are eventually lost.

Most REM sleep occurs in the last half of the night. Hence, the effect of feeling stressed and groggy if you're woken up in the middle of REM sleep by a sudden noise. Your brain has not yet processed all of your difficult emotions from the previous day.



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Francis Crick - who with Watson discovered the double helix structure of DNA - posited that non-REM sleep was to replenish the body, whilst REM sleep was to replenish the brain. A more recent theory to explain dreaming posits that a "sleeping" brain is actually piecing together an information jigsaw of that day's events to get clarity of the picture as a whole. This theory conveniently explains the bizarre associations that occur in dreams as due to anomalous pieces of information that do not readily "fit".

If you cut back on sleep then this causes those genes firstly associated with your immune and stress responses to become more active. Secondly, increased activity in your genes which are associated with diabetes and cancer. Whereas additional sleep decreases activity in all these genes.

1) All of the following aspects of sleep are discussed by the author in their second paragraph except for which one?

- a) Human sleep
- b) Sleeping hazard
- c) REM sleep
- d) Sleep evolution
- e) Predators sleeping

2) Each of the following statements can be inferred from the passage except for which one?

- a) There are unanswered questions about the reasons for sleep.
- b) We spend more time working than sleeping.
- c) DNA has a double-helix structure.
- d) REM sleep is one of the most important sleep stages.
- e) Both body and mind may be replenished during different sleep stages.

3) Which of the following is *not* characteristic of REM sleep?

- a) Memory transfer
- b) Events reprocessing
- c) Complete paralysis
- d) Lack of noradrenalin
- e) Dreams

4) Which of the following possible explanations for sleep's evolution are not present in the passage?

- a) It replenishes energy levels.
- b) It replenishes the body and the brain.
- c) It allows sense to be made of the day's events.
- d) It clears the brain of toxins.
- e) It keeps animals safe from predators.

5) Which of these is the best summary of the effects of cutting back on sleep?

- a) There is decreased activity in those genes associated with the immune system.



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- b) There is increased activity in those genes associated with cancer.
 - c) There is increased activity in the immune system's genes and cancer-related genes.
 - d) Stress response genes become less active.
 - e) Stress response genes become more active.
- 6) The passage includes which one or more of the following facts about sleep?
- a) Not sleeping for a few days can slowly cause someone to die from exhaustion.
 - b) Neuroscience has failed to answer the most basic questions about sleep.
 - c) Non-REM and REM sleep tend to alternate.
 - d) The Earth has been inhabited by animals for 3.5 billion years.
 - e) A typical human spends most of the 24-hour day-night cycle engaged in dreams.
- 7) Which word is the most suitable replacement for "anomalous" within the context of the last sentence?
- a) Erroneous
 - b) Atypical
 - c) Missing
 - d) Anonymous
 - e) Allegorical

REVIEW YOUR TEST 3 ANSWERS

QUESTION (1) *All of the following aspects of sleep are discussed by the author in their second paragraph except for which one?* There must be four answer options which are included in the second paragraph; leaving one answer option that is not mentioned. These four are highlighted in bold below:

Why did **(human sleep) (evolve)**? This second question is particularly puzzling, given that whenever an animal sleeps it is then at the mercy of any **(animal predators out hunting)**. It would be an enormous advantage for any animal to not have to sleep. Regardless of the **(hazards whilst asleep)**, every single type of animal species does sleep. So sleep must therefore bestow something vital. The unmentioned and therefore correct answer is answer options (c) **REM sleep**.

QUESTION (2) *Each of the following statements can be inferred from the passage except for which one?* This is an example of an Inference type of critical thinking question. Taking each of the answer options one at a time:

a) *There are unanswered questions about sleep.*

There are several places in the passage from which it can be inferred that there is an unanswered question about sleep, including: *neuroscientific research now focuses on these two related questions... This second question is particularly puzzling... So sleep probably serves all these functions.*



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b) We spend more time working than sleeping.

There is one indication given in the passage of how much time humans spend asleep; ... *comparison of human activity in which we spend the highest proportion of our time is sleeping*. However there is no comparison with the proportion of time spent working. Hence answer option (b) cannot be inferred from the passage and is therefore the correct answer.

c) DNA has a double-helix structure.

This is true according to the passage; *Francis Crick - who with Watson discovered the double helix structure*.

d) REM sleep is one of the most important sleep stages.

the passage mentions several facts highlighting the importance of REM sleep, including that this is when dreaming occurs. Hence this statement can be inferred from the passage.

e) Both body and mind may be replenished during different sleep stages.

this statement is referring to Crick theory (from the last paragraph); *non-REM sleep was to replenish the body, whilst REM sleep was to replenish the brain*. It can therefore be inferred from the passage.

QUESTION (3)

Four of the answer options are described in the passage. By a process of elimination, the only one that isn't is **(c) Complete paralysis**. In fact, *during this dreaming REM phase that your body is paralysed - except for the eye muscles*.

QUESTION 4) Which of the following possible explanations for sleep's evolution are not present in the passage? Taking each of the answer options one at a time to exclude each of those that are found in the passage:

- **a) It replenishes energy levels.**
This explanation is given in the passage; ... *use the regular downtime period of sleep to restore energy levels*.
- **b) It replenishes the body and the brain.**
This is given as a possible explanation in the passage; *refresh themselves by clearing out toxins*.
- **c) It allows sense to be made of the day's events.**
This explanation is given in two places within the passage; *this huge amount of data needs to be processed at night...* and later *piecing together an information jigsaw of that day's events to get clarity of the picture as a whole*.
- **d) It clears the brain of toxins.**
This is given as a possible explanation in the passage; ...*refresh themselves by clearing out toxins*.
- **e) It keeps animals safe from predators.**



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This is not mentioned specifically in the passage. In fact the opposite can be inferred from the passage. Hence (e) is the correct answer.

QUESTION (5) *Which of these is the best summary of the effects of cutting back on sleep?*

(c) There is increased activity in the immune system's genes and cancer-related genes.

QUESTION (6) *The passage includes which one or more of the following facts about REM sleep?* is a Comprehension type of verbal critical reasoning question. So, taking each of the answer options one at a time:

- (a) *Not sleeping for a few days can slowly cause someone to die from exhaustion. The following describes this fact; ...sleep deprivation can result in death.*
- (b) *Neuroscience has failed to answer the most basic questions about sleep. The following describes this fact; ...neuroscientific research now focuses on these two related questions.*
- **(c) Non-REM and REM sleep tend to alternate.**
This fact is found in the following part of the passage; four stages of non-REM sleep in a typical sleeping cycle, with these regular cycles repeated up to five times a night.
- (d) *The Earth has been inhabited by animals for 3.5 billion years. The following describes this fact; Over the last 3.5 billion years on Earth's, animal species have evolved...*
- (e) *A typical human spends most of the 24-hour day-night cycle engaged in dreams. This fact is found in the first sentence of the passage; The human activity in which we spend the highest proportion of our time is sleeping.*

QUESTION (7) *Which of the following is the most suitable replacement for the word "anomalous" within the context of the last sentence?* This is an example of an Interpretation type of verbal critical reasoning question. The only option that comes close to the meaning of the word "anomalous" is **Atypical**.

CRITICAL REASONING PRACTICE TEST 4

Recently it has been claimed that the anti climate-change movement has turned into a large-scale political effort that operates across the UK and the US. Politicians and political commentators have debated whether global warming is actually occurring - despite the scientific evidence proving this. Some have even denied that there is a link to carbon dioxide levels in the atmosphere. Any attempt to downplay or negate the scientific consensus on global warming and the link to human activity is an example of climate change denial. The *anti-climate change movement* is those individuals or groups who refuse to accept, or legislate to prevent, the damage done to our planet.



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The denial of such scientific facts is pseudoscientific; taking the rhetorical form of legitimate scientific debate, but ignoring the actual principles of that debate.

Throughout history individual wealth has been used to purchase political power. One recent investigation of secret funding operations found that it was mainly billionaires, who supported the anti-climate change agenda. Donations being made through a convoluted system of trusts to guarantee anonymity. In fact, there are now thought to be almost 100 advocacy groups, think tanks and industry associations whose mission is to block the agreement of any governmental action on climate change. Geoffrey Siddons, Climate Change Advisor from one such body, commented on behalf of the Greentree Trust that, *Greentree considers carbon dioxide to be a greenhouse gas. We also believe that man-made emissions will cause a little warming. However, we are still opposed to mandatory reductions in greenhouse gas emissions.*

The Best Choice Fund is considered by many to be the leading destination for many of these underground donations that are then used to fund groups opposed to climate action. Although the Fund's senior Director, Geoffrey Siddons denied that it took a position on any issue advocated by its grantees. Janette Cooper, Head of PR for the Allied Group (an influential think tank based in North London) was slightly more forthcoming in her response, explaining somewhat surprisingly that it can be *"extremely challenging"* to separate funds designated strictly for climate-change work from overall budgets. Janette went on to stress that *"...each Allied Group researcher works independently and will be available for comment on their individual findings. Although many of our past researchers have moved on to new projects in other organisations"*.

1) What is it about Janette Cross's response that makes the passage's author "somewhat surprised"?

- a) It's unexpectedness.
- b) It's acute perception.
- c) It's financial inaccuracy.
- d) It's dubious nature.
- e) The inappropriate context.

2) Which one of the following opinions form part of the anti-climate change agenda (described in the passage)?

- a) Mandatory reductions in greenhouse gas emissions could work.
- b) There is a clear link between global warming and climate change.
- c) Government agreements on climate change reform need to be encouraged.
- d) Donor names should be kept anonymous.
- e) Climate change is a misnomer.

3) What does the author mean by the term *pseudoscience*?

- a) Incorrect
- b) Artistic
- c) Unreal
- d) Nonsensical



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e) Misleading

4) Which of the following statements is false?

- (a) Some political debate have sent mixed messages of the effects of climate change.
- (b) There is scientific agreement that global warming exists.
- (c) The anti-climate change movement accepts anonymous donations.
- (d) The Best Choice Fund is a corrupt organisation.
- (e) There has been insufficient global efforts to turnaround the effects of climate change.

5) Which of the following is the most accurate summary of the first paragraph?

- a) English and American democracies have been distorted by climate change.
- b) The climate-change counter movement is one of the most dominant political forces.
- c) The anti climate change agenda has been hijacked by UK and US politicians.
- d) Well-paid writers and publicity agents are behind many anti climate change headlines.
- e) Unsurprisingly there is some political coercion behind the anti-climate change movement.

6) The passage includes which one or more of the following facts?

- a) North London's Allied Group sponsors researchers.
- b) Geoffrey Siddons works for the Allied Group.
- c) Authors of anti-climate change books often do not write about their own beliefs.
- d) Anti-climate change advocates do not consider carbon dioxide a greenhouse gas.
- e) The numbers of anti-climate change organisations now numbers in the three figures.

7) Some members of which group are identified in the passage as opponents of climate change policy?

- a) Activists
- b) Billionaires
- c) Conservative corporations
- d) Unaccountable organisations deciding what our politics should be.
- e) Top-tier conservative think tanks

REVIEW YOUR test 4 ANSWERS

QUESTION 1) *What is it about Janette Cross's response that makes the passage's author "somewhat surprised"?* Within the context of the passage, and the tone of the author's message it's most likely that the author does not believe Janette Cross. therefore the correct answer is; **d) It's dubious nature.**

QUESTION 2) *Which of the following opinions forms part of the anti-climate change agenda (described in the passage)?*

Taking each of the answer options one at a time:



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- (a) *Mandatory reductions in greenhouse gas emissions could work.*
The passage provides the anti-climate change opinion on this issue - via the Greentree Trust representative - that *we are still opposed to mandatory reductions in greenhouse gas emissions.*
- (b) *There is a clear link between global warming and climate change.*
According to the passage, certain book authors are commissioned to write about the *lack of scientific evidence linking global warming and climate change.* (b) is the first of two opinions forming part of the anti-climate change agenda.
- (c) *Government agreements on climate change reform need to be encouraged.*
The passage mentions, *almost 100 advocacy groups, think tanks and industry associations whose mission is to block the agreement of any governmental action on climate change.* (c) is the second of two opinions forming part of the anti-climate change agenda.
- (d) *Donor names should be kept anonymous.*
This is not mentioned specifically in the passage.
- (e) ***Climate change is a misnomer.***
A "misonomer" is a word that misrepresents something. So, the meaning of this opinion is that the term "climate change" is wrong in implying that the climate is changing. This is one of the fundamental opinions of the anti-climate change agenda. Specifically the passage states the *climate-change counter movement - who do not believe world climates are changing.* (e) is the third of two opinions forming part of the anti-climate change agenda.

QUESTION 3) What does the author mean by the term *characterized as pseudoscience*?

This term is applied to misleading "facts" that are justified on the basis of scientific methods when in fact the research has not followed scientific principles. Of the options shown this unscientific practice could best be described as **(e) misleading**.

QUESTION 4) Which of the following statements is false?

- (a) The US media has sent mixed messages of the effects of climate change.
(e) There has been insufficient global efforts to turnaround the effects of climate change.

QUESTION 5) *Which of the following is the most accurate summary of the first paragraph?* This Interpretation type of verbal critical reasoning question requires you to précis the first paragraph into a more concise summary. Let's start by reducing the first paragraph to just two sentences that cover the main 3-4 points:

- Linking anti-climate change funding with the purchase of political power that is a distortion of democracy.



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- TV coverage and the commissioning of authors being leveraged to promote the anti-climate change agenda, such as the *lack of scientific evidence linking global warming and climate change*.

Now, taking each of the answer options one at a time, consider which one is the *most accurate summary* of the main 1-2 points from these 3-4 points:

- (a) *English and American democracies have been distorted by climate change.*
American democracies not mentioned specifically in the first paragraph.
- (b) *The climate-change counter movement is one of the most dominant political forces.*
Within the first paragraph it does state that the *anti climate-change movement...* (has become) *a large-scale political effort*. However it does not state that globally it has become one of the most dominant political forces.
- (c) *The anti climate change agenda has been hijacked by UK and US politicians.*
US politicians are not mentioned specifically in the first paragraph.
- (d) *Well-paid writers and publicity agents are behind many anti climate change headlines.*
Publicity agents are not mentioned specifically in the first paragraph.
- (e) ***Unsurprisingly there is some political coercion behind the anti-climate change movement.***
Answer option (e) is in fact a "watered-down" version of answer option (c). The question is does that then make it the most accurate summary. There are three key phrases that are most relevant from the first paragraph: firstly that *throughout history individual wealth has been used to purchase political power*; secondly that the *anti climate-change movement...* (has become) *a large-scale political effort*; and thirdly that the *national democracy is thus distorted*. Whilst the application of the subjective word *unsurprisingly* does make this statement an opinion rather than fact, the three points highlighted previously are summarized quite effectively by answer option (e)'s statement.

QUESTION 6) *The passage includes which one or more of the following facts?*

Taking each of the answer options one at a time: The first answer option [(a) **North London's Allied Group sponsors researchers**] is indeed true since the passage states that the Allied Group (is) *an influential think tank based in North London*.

As a check of your answer - and assuming that you have spare time in a test - it's worth casting your eye over the other four answer options to check that there isn't another contender for the only true statement. In this case the other four answers options (b) to (e) are each clearly false.

QUESTION 7) *Some members of which group are identified in the passage as opponents of climate change policy?* is a Comprehension type of verbal critical reasoning question. A valid approach is to eliminate possible answers that are not mentioned within the passage. Thus, four of the "groups" listed as answer options are



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not a) Activists (c) Conservative corporations; (d) Unaccountable organisations deciding what our politics should be; and (e) Top-tier conservative think tanks. That leaves only answer option (b) **Billionaires as the correct answer and the passage states that** a recent investigation of secret funding operations found that is was mainly billionaires, supporting an anti-climate change agenda - who were footing the bills.