

General Instructions

- (i) This booklet contains 24 questions, each provided with a complete, step-by-step solution.
- (ii) It comprises 24 single-correct multiple-choice questions.
- (iii) The questions are grouped under 4 reading comprehension / data sets; read each passage or data set before its questions.
- (iv) Attempt each question on your own before reviewing the given solution.

1. The passage below is accompanied by a set of questions. Choose the best answer to each question.

Humans today make music. Think beyond all the qualifications that might trail after this bald statement: that only certain humans make music, that extensive training is involved, that many societies distinguish musical specialists from nonmusicians, that in today's societies most listen to music rather than making it, and so forth. These qualifications, whatever their local merit, are moot in the face of the overarching truth that making music, considered from a cognitive and psychological vantage, is the province of all those who perceive and experience what is made. We are, almost all of us, musicians — everyone who can entrain (not necessarily dance) to a beat, who can recognize a repeated tune (not necessarily sing it), who can distinguish one instrument or one singing voice from another. I will often use an antique word, recently revived, to name this broader musical experience. Humans are musicking creatures. . . .

The set of capacities that enables musicking is a principal marker of modern humanity. There is nothing polemical in this assertion except a certain insistence, which will figure often in what follows, that musicking be included in our thinking about fundamental human commonalities.

Capacities involved in musicking are many and take shape in complicated ways, arising from innate dispositions . . . Most of these capacities overlap with nonmusical ones, though a few may be distinct and dedicated to musical perception and production. In the area of overlap, linguistic capacities seem to be particularly important, and humans are (in principle) language-makers in addition to music-makers — speaking creatures as well as musicking ones.

Humans are symbol-makers too, a feature tightly bound up with language, not so tightly with music. The species Cassirer dubbed *Homo symbolicus* cannot help but tangle musicking in webs of symbolic thought and expression, habitually making it a component of behavioral complexes that form such expression. But in fundamental features musicking is neither language-like nor symbol-like, and from these differences come many clues to its ancient emergence.

If musicking is a primary, shared trait of modern humans, then to describe its emergence must be to detail the coalescing of that modernity. This took place, archaeologists are clear, over a very long *durée*: at least 50,000 years or so, more likely something closer to 200,000, depending in part on what that coalescence is taken to comprise. If we look back 20,000 years, a small portion of this long period, we reach the lives of humans whose musical capacities were probably little different from our own. As we look farther back we reach horizons where this similarity can no longer hold — perhaps 40,000 years ago, perhaps 70,000, perhaps 100,000. But we never cross a line before which all the cognitive capacities recruited in modern musicking abruptly disappear. Unless we embrace the incredible notion that music sprang forth in full-blown glory, its emergence will have to be tracked in gradualist terms across a long period.

This is one general feature of a history of music's emergence . . . The history was at once sociocultural and biological . . . The capacities

recruited in musicking are many, so describing its emergence involves following several or many separate strands.

Correct Answer: —

• • •

1.1. Which one of the following sets of terms best serves as keywords to the passage?

- (A) Humans; Psychological vantage; Musicking; Cassirer; Emergence of music.
- (B) Musicking; Cognitive psychology; Antique; Symbol-makers; Modernity.
- (C) Humans; Capacities; Language; Symbols; Modernity.
- (D) Humans; Musicking; Linguistic capacities; Symbol-making; Modern humanity.

Correct Answer: (D) Humans; Musicking; Linguistic capacities; Symbol-making; Modern humanity.

SOLUTION:

The objective is to pinpoint the keywords that most effectively encapsulate the given text. Let's dissect the passage's central themes and align them with the provided choices:

- 1. Humans and Musicking:** The text emphasizes humans as inherently musical, introducing "musicking" to encompass all forms of musical engagement, not solely professional performance.
- 2. Linguistic Abilities:** It explores the intersection of musical and linguistic capabilities, recognizing their significance in human cognition.

3. Symbolic Creation: The passage examines humans as creators of symbols, their connection to language, and the relationship between symbolic thought and musicking.

4. Contemporary Humanity: The narrative presents these abilities as defining characteristics of modern humans, tracing their gradual development over millennia.

Based on these core themes, the set of keywords that best represents the passage is:

Humans; Musicking; Linguistic capacities; Symbol-making; Modern humanity.



1.2. Based on the passage, which one of the following statements is a valid argument about the emergence of music/musicking?

- (A) Although musicking is not language-like, it shares the quality of being a form of expression.
- (B) All musical work is located in the overlap between linguistic capacity and music production.
- (C) Anyone who can perceive and experience music must be considered capable of musicking.
- (D) 20,000 years ago, human musical capacities were not very different from what they are today.

Correct Answer: (D) 20,000 years ago, human musical capacities were not very different from what they are today.

SOLUTION:

This passage focuses on the development and importance of human music-making, termed "musicking." The assertion that human musical

abilities 20,000 years ago were comparable to current abilities is supported by the text, which implies a long-term stability in these capacities. The reasoning is as follows:

1. The passage indicates that humans from 20,000 years ago likely possessed musical abilities similar to those of today, suggesting musicking is an ancient and consistent human characteristic.
2. While the passage acknowledges music's evolution over an extended period, it points to gradual changes, implying that recent historical capacities are not drastically different from present-day ones.
3. The text refutes the idea of music's abrupt appearance, instead characterizing its evolution as a slow process intertwined with human cognitive and sociocultural advancement.

Therefore, the statement "20,000 years ago, human musical capacities were not very different from what they are today" accurately reflects the passage's content, emphasizing the stability of musical capabilities over a long duration while recognizing the gradual evolution of musicking.



1.3. “Think beyond all the qualifications that might trail after this bald statement . . .” In the context of the passage, what is the author trying to communicate in this quoted extract?

- (A) Thinking beyond qualifications allows us to give free reign to musical expressions.
- (B) A bald statement is one that is trailed by a series of qualifying clarifications and caveats.
- (C) Although there may be many caveats and other considerations, the statement is essentially true.
- (D) A bald statement is one that requires no qualifications to infer its meaning.

Correct Answer: (C) Although there may be many caveats and other considerations, the statement is essentially true.

SOLUTION:

The provided passage asserts that humans universally create music, acknowledging that qualifications might follow this claim. The core message of the extract is the fundamental truth: "Humans today make music." While numerous refinements or restrictions are possible, they do not negate this basic assertion. These qualifications are rendered irrelevant by the overarching reality of humans' inherent capacity to perceive and experience music. The author posits that music-making, or "musicking," is a shared cognitive and psychological characteristic of nearly all contemporary humans. Consequently, despite potential caveats, the statement's essence remains valid. Therefore, the extract's accurate interpretation is: "Despite potential caveats and other considerations, the statement is fundamentally true."



1.4. Which one of the following statements, if true, would weaken the author's claim that humans are musicking creatures?

(A) As musicking is neither language-like nor symbol-like, it is a much older form of expression.

(B) Nonmusical capacities are of far greater consequence to human survival than the capacity for music.

(C) Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms.

(D) From a cognitive and psychological vantage, musicking arises from unconscious dispositions, not conscious ones.

Correct Answer: (C) Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms.

SOLUTION:

The objective is to identify the statement that weakens the assertion that humans are inherently musicking beings. The author contends that musicking is a foundational human characteristic, deeply embedded in our cognitive and psychological makeup. Let us analyze each option:

"As musicking is neither language-like nor symbol-like, it is a much older form of expression." This statement reinforces the author's position by indicating musicking's ancient origins, consistent with it being a fundamental human trait.

"Nonmusical capacities are of far greater consequence to human survival than the capacity for music." Although this implies non-musical abilities may be more critical for survival, it does not directly refute the concept of musicking as a fundamental trait.

"Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms." This statement potentially weakens the author's claim by attributing human musicking to cultural

influences rather than an innate characteristic. It suggests musicking might be a learned behavior shaped by social contexts, rather than an intrinsic human trait.

"From a cognitive and psychological vantage, musicking arises from unconscious dispositions, not conscious ones." This supports the author's perspective by suggesting musicking originates from deep-seated, unconscious human tendencies, thereby strengthening the notion of it being a pervasive human capacity.

In conclusion, option 3, "Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms," most effectively challenges the author's claim by positing that musical ability is predominantly cultural, not an intrinsic human attribute.



2. The passage below is accompanied by a set of questions. Choose the best answer to each question.

We begin with the emergence of the philosophy of the social sciences as an arena of thought and as a set of social institutions. The two characterisations overlap but are not congruent. Academic disciplines are social institutions. . . . My view is that institutions are all those social entities that organise action: they link acting individuals into social structures. There are various kinds of institutions. Hegelians and Marxists emphasise universal institutions such as the family, rituals, governance, economy and the military. These are mostly institutions that just grew. Perhaps in some imaginary beginning of time they spontaneously appeared. In their present incarnations, however, they are very much the product of conscious attempts to mould and plan them. We have family law, established and disestablished churches, constitutions and laws, including

those governing the economy and the military. Institutions deriving from statute, like joint-stock companies are formal by contrast with informal ones such as friendships. There are some institutions that come in both informal and formal variants, as well as in mixed ones. Consider the fact that the stock exchange and the black market are both market institutions, one formal one not. Consider further that there are many features of the work of the stock exchange that rely on informal, noncodifiable agreements, not least the language used for communication. To be precise, mixtures are the norm . . . From constitutions at the top to by-laws near the bottom we are always adding to, or tinkering with, earlier institutions, the grown and the designed are intertwined.

It is usual in social thought to treat culture and tradition as different from, although alongside, institutions. The view taken here is different. Culture and tradition are sub-sets of institutions analytically isolated for explanatory or expository purposes. Some social scientists have taken all institutions, even purely local ones, to be entities that satisfy basic human needs – under local conditions . . . Others differed and declared any structure of reciprocal roles and norms an institution. Most of these differences are differences of emphasis rather than disagreements. Let us straddle all these versions and present institutions very generally . . as structures that serve to coordinate the actions of individuals. . . .

Institutions themselves then have no aims or purpose other than those given to them by actors or used by actors to explain them . . .

Language is the formative institution for social life and for science . . . Both formal and informal language is involved, naturally grown or designed. (Language is all of these to varying degrees.) Languages are paradigms of institutions or, from another perspective, nested sets of institutions. Syntax, semantics, lexicon and alphabet/character-set are all institutions within the larger institutional framework of a written language. Natural languages are typical examples of what Ferguson called ‘the result of human action, but not the execution of any human design’[;] reformed natural languages

and artificial languages introduce design into their modifications or refinements of natural language. Above all, languages are paradigms of institutional tools that function to coordinate.

Correct Answer: —

• • •

2.1. All of the following inferences from the passage are false, EXCEPT:

- (A) institutions like the family, rituals, governance, economy, and the military are natural and cannot be consciously modified.
- (B) as concepts, “culture” and “tradition” have no analytical, explanatory or expository power, especially when they are treated in isolation.
- (C) the institution of friendship cannot be found in the institution of joint-stock companies because the first is an informal institution, while the second is a formal one.
- (D) “natural language” refers to that stage of language development where no conscious human intent is evident in the formation of language.

Correct Answer: (D) “natural language” refers to that stage of language development where no conscious human intent is evident in the formation of language.

SOLUTION:

Analyze the provided passage to determine which statement is not false. Examine each option against the passage:

- **Option 1:** "Institutions such as family, rituals, governance, economy, and the military are innate and cannot be consciously altered." This is false, as the passage indicates these institutions are subject to conscious molding and planning.

- **Option 2:** "'Culture' and 'tradition,' as concepts, possess no analytical, explanatory, or expository value, particularly when examined independently." This is false; the passage identifies culture and tradition as components of institutions used for analytical or expository purposes.
- **Option 3:** "The institution of friendship is absent from joint-stock companies because the former is informal and the latter is formal." The passage distinguishes between informal and formal institutions but does not assert their mutual exclusivity as suggested. This statement lacks direct support and is thus considered false.
- **Option 4:** "'Natural language' describes a phase of language evolution devoid of conscious human intent in its formation." This aligns with the passage's description of natural languages arising from human action without explicit design. This inference is not false.

The inference that is not false, according to the passage, is:

Option 4: "'Natural language' describes a phase of language evolution devoid of conscious human intent in its formation."



2.2. In the first paragraph of the passage, what are the two “characterisations” that are seen as overlapping but not congruent?

- (A) “an arena of thought” and “academic disciplines”.
- (B) “individuals” and “social structures”.
- (C) “academic disciplines” and “institutions”.
- (D) “the philosophy of the social sciences” and “a set of social institutions”.

Correct Answer: (C) “academic disciplines” and “institutions”.

SOLUTION:

The philosophy of the social sciences is presented as both a **domain of inquiry** and a **framework of social organizations**. The text addresses the partial overlap and divergence between various descriptions.

The passage distinguishes between **academic fields** and **established bodies**. It asserts: "The two descriptions share commonalities but are not identical. Academic fields function as social organizations." This highlights their conceptual differentiation within this framework, despite apparent similarities.

Consequently, the two described entities that partially overlap but are not equivalent are "**academic fields**" and "**institutions**".



2.3. “Consider the fact that the stock exchange and the black market are both market institutions, one formal one not.” Which one of the following statements best explains this quote, in the context of the passage?

- (A) Market instruments can be formally traded in the stock exchange and informally traded in the black market.
- (B) The stock exchange and the black market are both organised to function by rules.
- (C) The stock exchange and the black market are both dependent on the market to survive.
- (D) The stock exchange and the black market are examples of how, even within the same domain, different kinds of institutions can co-exist.

Correct Answer: (D) The stock exchange and the black market are examples of how, even within the same domain, different kinds of institutions can co-exist.

SOLUTION:

To grasp the quote about the stock exchange and black market as market institutions, we must examine the passage's discourse on social institutions. The passage posits that:

- Institutions are frameworks that structure activities and integrate individuals into societal frameworks.
- Institutions can be formal, informal, or a blend of both.
- The stock exchange exemplifies a formal institution, whereas the black market represents an informal one.
- Diverse institutional forms can operate concurrently within a single sphere, demonstrating variations in their organization and function.

The most fitting statement summarizing this explanation is: "The stock exchange and the black market illustrate the coexistence of differing institutional types within the same domain." This sentiment reflects the passage's concept of formal and informal institutions and their concurrent existence.



2.4. Which of the following statements best represents the essence of the passage?

- (A) It is usual in social thought to treat culture and tradition as different from institutions.
- (B) Language is the fundamental formal institution for social life and for science.
- (C) The stock exchange and the black market are both market institutions.
- (D) Institutions are structures that serve to coordinate the actions of individuals.

Correct Answer: (D) Institutions are structures that serve to coordinate the actions of individuals.

SOLUTION:

The passage focuses on institutions and their societal function, defining them as social structures that organize individual actions and coordinate efforts. It differentiates between formal and informal institutions, emphasizing their interconnectedness and adaptability over time. The text asserts that institutions do not possess intrinsic goals; these are conferred by individuals interacting with them. The statement that most accurately reflects this central theme is:

Institutions are structures that coordinate individual actions.



3. The passage below is accompanied by a set of questions. Choose the best answer to each question.

When we teach engineering problems now, we ask students to come to a single “best” solution defined by technical ideals like low cost, speed to build, and ability to scale. This way of teaching primes students to believe that their decision-making is purely objective, as it is grounded in math

and science. This is known as technical-social dualism, the idea that the technical and social dimensions of engineering problems are readily separable and remain distinct throughout the problem-definition and solution process.

Nontechnical parameters such as access to a technology, cultural relevancy or potential harms are deemed political and invalid in this way of learning. But those technical ideals are at their core social and political choices determined by a dominant culture focused on economic growth for the most privileged segments of society. By choosing to downplay public welfare as a critical parameter for engineering design, we risk creating a culture of disengagement from societal concerns amongst engineers that is antithetical to the ethical code of engineering.

In my field of medical devices, ignoring social dimensions has real consequences. . . . Most FDA-approved drugs are incorrectly dosed for people assigned female at birth, leading to unexpected adverse reactions. This is because they have been inadequately represented in clinical trials. Beyond physical failings, subjective beliefs treated as facts by those in decision-making roles can encode social inequities. For example, spirometers, routinely used devices that measure lung capacity, still have correction factors that automatically assume smaller lung capacity in Black and Asian individuals. These racially based adjustments are derived from research done by eugenicists who thought these racial differences were biologically determined and who considered nonwhite people as inferior. These machines ignore the influence of social and environmental factors on lung capacity.

Many technologies for systemically marginalized people have not been built because they were not deemed important such as better early diagnostics and treatment for diseases like endometriosis, a disease that afflicts 10 percent of people with uteruses. And we hardly question whether devices are built sustainably, which has led to a crisis of medical waste and health care accounting for 10 percent of U.S. greenhouse gas

emissions. Social justice must be made core to the way engineers are trained. Some universities are working on this. . . . Engineers taught this way will be prepared to think critically about what problems we choose to solve, how we do so responsibly and how we build teams that challenge our ways of thinking.

Individual engineering professors are also working to embed societal needs in their pedagogy. Darshan Karwat at the University of Arizona developed activist engineering to challenge engineers to acknowledge their full moral and social responsibility through practical self-reflection. Khalid Kadir at the University of California, Berkeley, created the popular course Engineering, Environment, and Society that teaches engineers how to engage in place-based knowledge, an understanding of the people, context and history, to design better technical approaches in collaboration with communities. When we design and build with equity and justice in mind, we craft better solutions that respond to the complexities of entrenched systemic problems.

Correct Answer: —

• • •

3.1. We can infer that the author would approve of a more evolved engineering pedagogy that includes all of the following EXCEPT:

- (A) moving towards technical-social dualism where social community needs are incorporated in problem-definition and solutions.
- (B) design that is based on the needs of communities using local knowledge and responding to local priorities.
- (C) making considerations of environmental sustainability intrinsic to the development of technological solutions.
- (D) a more responsible approach to technical design and problem-solving than a focus on speed in developing and bringing to scale.

Correct Answer: (A) moving towards technical-social dualism where social community needs are incorporated in problem-definition and solutions.

SOLUTION:

Resolving this issue necessitates comprehending the author's viewpoint regarding the deficiencies in present engineering education and the characteristics of an improved methodology. The text criticizes the separation of technical and social aspects, explaining the inefficacy of conventional methods in embedding social considerations into engineering design. The author champions the integration of social justice and societal requirements into engineering curricula.

When evaluating the choices, it is crucial to discern which option deviates from the author's proposed educational advancement. The accurate response is the option that suggests a move towards technical-social dualism, where social community requirements are integrated into problem definition and solutions. This specific option delineates the presently criticized methodology where technical and social dimensions are treated as distinct. The remaining options endorse the desired integration of social and environmental factors into engineering education:

1. Designing based on community needs and local knowledge is consistent with incorporating societal input.
2. Prioritizing environmental sustainability aligns with a more conscientious engineering practice.
3. Emphasizing responsible technical design over expediency aligns with considering broader consequences and obligations.

Consequently, the author would not endorse the continuation of technical-social dualism, rendering the initial option the correct divergence.

• • •

3.2. All of the following are examples of the negative outcomes of focusing on technical ideals in the medical sphere EXCEPT the:

- (A) continuing calibration of medical devices based on past racial biases that have remained unadjusted for changes.
- (B) incorrect assignment of people as female at birth which has resulted in faulty drug interventions.
- (C) neglect of research and development of medical technologies for the diagnosis and treatment of diseases that typically afflict marginalised communities.
- (D) exclusion of non-privileged groups in clinical trials which leads to incorrect drug dosages.

Correct Answer: (B) incorrect assignment of people as female at birth which has resulted in faulty drug interventions.

SOLUTION:

The inquiry seeks to identify which option does *not* represent a detrimental consequence of prioritizing technical ideals within the medical domain. Each option is analyzed against the provided text:

Continued calibration of medical devices using outdated racial biases without adjustments for temporal changes: The text explicitly identifies the issue of racially biased spirometer calibrations as a negative outcome.

Misclassification of individuals as female at birth leading to erroneous drug treatments: While the passage acknowledges drug intervention problems stemming from insufficient representation, it does not link these errors directly to the initial assignment of sex at birth. Instead, it focuses on broader dosing issues arising from inaccurate clinical trials. This particular misclassification is not connected to the primary negative consequences described.

Lack of research and development in medical technologies for diagnosing and treating diseases prevalent in marginalized communities: The passage specifically cites the underfunding of research for diseases like endometriosis as a negative consequence.

Exclusion of underprivileged groups from clinical trials resulting in incorrect drug dosages: This directly corroborates the passage's assertion that inadequate representation in clinical trials leads to adverse drug reactions.

Therefore, the correct response is option 2: *misclassification of individuals as female at birth leading to erroneous drug treatments*.



3.3. The author gives all of the following reasons for why marginalised people are systematically discriminated against in technology-related interventions EXCEPT:

- (A) “And we hardly question whether devices are built sustainably, which has led to a crisis of medical waste and health care accounting for 10 percent of U.S. greenhouse gas emissions.”
- (B) “But those technical ideals are at their core social and political choices determined by a dominant culture focused on economic growth for the most privileged segments of society.”
- (C) “These racially based adjustments are derived from research done by eugenicists who thought these racial differences were biologically determined and who considered nonwhite people as inferior.”
- (D) “Beyond physical failings, subjective beliefs treated as facts by those in decision-making roles can encode social inequities.”

Correct Answer: (A) “And we hardly question whether devices are built sustainably, which has led to a crisis of medical waste and health care accounting for 10 percent of U.S. greenhouse gas emissions.”

SOLUTION:

The inquiry seeks to identify the reason **not** cited by the author as contributing to systemic discrimination against marginalized individuals within technology-related interventions. Each option represents a statement from the original text; only one does not directly pertain to the justification or depiction of discrimination. The passage details instances of discrimination faced by marginalized people throughout the technology intervention lifecycle, including:

- Technical ideals construed as socio-political decisions that benefit privileged groups while disregarding public welfare.
- Clinical trials incorporating bias, leading to medication dosages that exacerbate health inequalities.
- Spirometer deployment utilizing racially prejudiced correction factors, stemming from erroneous scientific assumptions.

- Insufficient engineering focus on marginalized communities and critical issues such as endometriosis.

Each listed item elucidates a root cause or a manifestation of systemic discrimination. The statement concerning medical waste and greenhouse gas emissions, while related to environmental consequences, does not directly illustrate the discrimination experienced by marginalized individuals. Consequently, the correct response is: “And we hardly question whether devices are built sustainably, which has led to a crisis of medical waste and health care accounting for 10 percent of U.S. greenhouse gas emissions.” This assertion centers on sustainability and environmental impacts rather than directly articulating the mechanisms of discrimination against marginalized groups in technological applications.



3.4. In this passage, the author is making the claim that:

- (A) technical-social dualism has emerged as a technique for engineering students to incorporate social considerations into their technical problem-solving processes.
- (B) engineering students today are trained to be non-subjective in their reasoning as this best enables them to develop much-needed universal solutions.
- (C) the objective of best solutions in engineering has shifted the focus of pedagogy from humanism and social obligations to technological perfection.
- (D) engineering students today are taught to focus on objective technical outcomes, independent of the social dimensions of their work.

Correct Answer: (D) engineering students today are taught to focus on objective technical outcomes, independent of the social dimensions of their work.

SOLUTION:

The contemporary engineering education paradigm trains students to prioritize singular, optimal solutions based on technical metrics like cost-efficiency, scalability, and performance speed. This pedagogical approach fosters a dichotomy between technical results and social implications, with the latter often being disregarded as non-technical or irrelevant. The author contends that this exclusive emphasis on technical perfection overlooks the inherent social and political decisions embedded in such standards, consequently distancing engineers from societal issues and ethical frameworks. The text underscores the tangible repercussions of neglecting the social aspects of engineering, citing examples such as disparities in healthcare access and the marginalization of communities through technological development. To rectify this, the author proposes integrating social justice principles into engineering curricula, noting that some academic institutions and instructors are already beginning to incorporate societal considerations into their teaching.

The passage establishes that the author's central assertion is: **current engineering education emphasizes technical results, divorced from the social context of the work.**



4. The passage below is accompanied by a set of questions. Choose the best answer to each question. [Octopuses are] misfits in their own extended families . . . They belong to the Mollusca class Cephalopoda. But they don't look like their cousins at all. Other molluscs include sea snails, sea slugs,

bivalves – most are shelled invertebrates with a dorsal foot. Cephalopods are all arms, and can be as tiny as 1 centimetre and as large as 30 feet. Some of them have brains the size of a walnut, which is large for an invertebrate. . . . It makes sense for these molluscs to have added protection in the form of a higher cognition; they don't have a shell covering them, and pretty much everything feeds on cephalopods, including humans. But how did cephalopods manage to secure their own invisibility cloak? Cephalopods fire from multiple cylinders to achieve this in varying degrees from species to species. There are four main catalysts – chromatophores, iridophores, papillae and leucophores. . . .

[Chromatophores] are organs on their bodies that contain pigment sacs, which have red, yellow and brown pigment granules. These sacs have a network of radial muscles, meaning muscles arranged in a circle radiating outwards. These are connected to the brain by a nerve.

When the cephalopod wants to change colour, the brain carries an electrical impulse through the nerve to the muscles that expand outwards, pulling open the sacs to display the colours on the skin. Why these three colours? Because these are the colours the light reflects at the depths they live in (the rest is absorbed before it reaches those depths). . . .

Well, what about other colours? Cue the iridophores. Think of a second level of skin that has thin stacks of cells. These can reflect light back at different wavelengths. . . . It's using the same properties that we've seen in hologram stickers, or rainbows on puddles of oil. You move your head and you see a different colour. The sticker isn't doing anything but reflecting light – it's your movement that's changing the appearance of the colour. This property of holograms, oil and other such surfaces is called "iridescence". . . .

Papillae are sections of the skin that can be deformed to make a texture bumpy. Even humans possess them (goosebumps) but cannot use them in the manner that cephalopods can. For instance, the use of these cells is how an octopus can wrap itself over a rock and appear jagged or how a

squid or cuttlefish can imitate the look of a coral reef by growing miniature towers on its skin. It actually matches the texture of the substrate it chooses.

Finally, the leucophores: According to a paper, published in *Nature*, cuttlefish and octopuses possess an additional type of reflector cell called a leucophore. They are cells that scatter full spectrum light so that they appear white in a similar way that a polar bear's fur appears white. Leucophores will also reflect any filtered light shown on them . . . If the water appears blue at a certain depth, the octopuses and cuttlefish can appear blue; if the water appears green, they appear green, and so on and so forth.

Correct Answer: —

• • •

4.1. All of the following are reasons for octopuses being “misfits” EXCEPT that they:

- (A) exhibit higher intelligence than other molluscs.
- (B) do not possess an outer protective shell.
- (C) are consumed by humans and other animals.
- (D) have several arms.

Correct Answer: (C) are consumed by humans and other animals.

SOLUTION:

The query seeks to identify which factor is NOT a basis for classifying octopuses as "misfits." This requires an examination of the provided comprehension text, which details specific traits distinguishing octopuses within their mollusc family.

The text specifies:

- Octopuses demonstrate superior intelligence compared to other molluscs.
- Octopuses lack an external protective shell, a feature common to most other molluscs.
- Cephalopods, including octopuses, are frequently hunted by a range of predators, including humans.

Based on these points, it is evident that their *higher intelligence than other molluscs* and their *lack of an outer protective shell* are reasons for their "misfit" designation. The statement that they *are consumed by humans and other animals* is noted in the passage but is not presented as a cause for their "misfit" status; instead, it highlights the vulnerabilities they face due to their absent shell.

Consequently, the factor that does not qualify as a reason for octopuses being considered "misfits" is:

- *are consumed by humans and other animals.*

• • •

4.2. Which one of the following statements is not true about the camouflaging ability of Cephalopods?

- (A) Cephalopods can change their colour.
- (B) Cephalopods can change their texture.
- (C) Cephalopods can blend into the colour of their surroundings.
- (D) Cephalopods can take on the colour of their predator.

Correct Answer: (D) Cephalopods can take on the colour of their predator.

SOLUTION:

The statement "Cephalopods can take on the colour of their predator" is incorrect regarding their camouflage abilities. The provided passage indicates that cephalopods can alter their color and texture to match their environment, but it does not mention them adopting the color of predators. The passage details four primary mechanisms behind their camouflage:

- **Chromatophores:** These are organs containing pigment sacs that change skin color in response to electrical signals from the brain.
- **Iridophores:** These cells reflect light at varying wavelengths, producing a holographic-like iridescence.
- **Papillae:** These are adjustable skin sections that alter texture, enabling cephalopods to camouflage against surfaces like rocks or reefs.
- **Leucophores:** These reflector cells scatter all light spectrums, allowing them to mimic the ambient reflected light.

Therefore, while cephalopods possess exceptional camouflage skills, mimicking predator coloration is not among them.

• • •

4.3. Based on the passage, we can infer that all of the following statements, if true, would weaken the camouflaging adeptness of Cephalopods EXCEPT:

- (A) the hydrostatic pressure at the depths at which Cephalopods reside renders radial muscle movements difficult.
- (B) the number of chromatophores in Cephalopods is half the number of iridophores and leucophores.
- (C) light reflects the colours red, green, and yellow at the depths at which Cephalopods reside.
- (D) the temperature of water at the depths at which Cephalopods reside renders the transmission of neural signals difficult.

Correct Answer: (B) the number of chromatophores in Cephalopods is half the number of iridophores and leucophores.

SOLUTION:

To determine the factor that preserves cephalopod camouflage, we must identify the one option that does not diminish this ability. Three options weaken camouflage; one does not. Option 1 is unsuitable because paragraph three indicates that difficulty with radial muscle contraction impairs the technique's effectiveness, thereby reducing overall camouflage. Iridophores are the second skin layer, implying other layers are the first. However, the text does not clarify how iridophore quantity affects camouflage. Therefore, option 2 neither strengthens nor weakens the argument. The passage states that red, brown, and yellow light are reflected, while other colors are absorbed, implying green light is also absorbed. This contradicts option 3, which therefore weakens the argument. If neural signal transmission is compromised, the entire camouflage process fails. Consequently, option 4 is the most suitable choice.



4.4. Based on the passage, it can be inferred that camouflaging techniques in an octopus are most dissimilar to those in:

- (A) polar bears
- (B) cuttlefish
- (C) squids
- (D) sea snails

Correct Answer: (D) sea snails

SOLUTION:

Cephalopods, particularly octopuses, employ camouflage via chromatophores, iridophores, papillae, and leucophores for color change, iridescence, texture modification, and light reflection. Lacking the shells of most molluscs, octopuses rely on these dynamic methods. Conversely, sea snails, protected by external shells, cannot achieve similar rapid camouflage. Cuttlefish and squids, however, exhibit analogous adaptive techniques to octopuses. Polar bears utilize fur, comparable to leucophore mechanisms, for camouflage, though not with the same dynamism as octopuses. Consequently, octopus camouflage is most distinct from that of sea snails.

• • •

5. The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

[1] Women may prioritize cooking because they feel they alone are responsible for mediating a toxic and unhealthy food system.

[2] Food is commonly framed through the lens of individual choice: you can choose to eat healthily.

[3] This is particularly so in a neoliberal context where the state has transferred the responsibility for food onto individual consumers.

[4] The individualized framing of choice appeals to a popular desire to experience agency, but draws away from the structural obstacles that stratify individual food choices.

(A) 2431

(B) 1342

(C) 3241

(D) 3142

Correct Answer: (A) 2431

SOLUTION:

The sequence's logic is explained as follows:

- **Option 2** initiates the discussion by asserting that social welfare concerns are frequently minimized within a neoliberal framework.
- **Option 4** offers a concrete illustration or data to substantiate the assertion in Option 2, specifically addressing the educational ramifications of this minimization.
- **Option 3** proceeds logically by further examining neoliberalism's effects on education and its connection to societal disparities.
- **Option 1** concludes the section with a generalized observation on the comprehensive effect of neoliberal strategies on social inequality and education.

This order ensures a coherent progression of ideas, moving from an introduction to a specific example, then to broader consequences, and finally to a concluding remark. Thus, the correct sequence is 2431.



6. The passage given below is followed by four alternate summaries.

Choose the option that best captures the essence of the passage.

Today, many of the debates about behavioural control in the age of big data echo Cold War-era anxieties about brainwashing, insidious manipulation and repression in the ‘technological society’. In his book *Psychopolitics*, Han warns of the sophisticated use of targeted online content, enabling ‘influence to take place on a pre-reflexive level’. On our current trajectory, “freedom will prove to have been merely an interlude.” The fear is that the digital age has not liberated us but exposed us, by offering up our private lives to machine-learning algorithms that can process masses of personal and behavioural data. In a world of influencers and digital entrepreneurs, it’s not easy to imagine the resurgence of a culture engendered through disconnect and disaffiliation, but concerns over the threat of online targeting, polarisation and big data have inspired recent polemics about the need to rediscover solitude and disconnect.

(A) The role of technology in influencing public behaviour is reminiscent of the manner in which behaviour was manipulated during the Cold War.

(B) With big data making personal information freely available, the debate on the nature of freedom and the need for privacy has resurfaced.

(C) The notion of freedom and privacy is at stake in a world where artificial intelligence is capable of influencing behaviour through data gathered online.

(D) Rather than freeing us, digital technology is enslaving us by collecting personal information and influencing our online behaviour.

Correct Answer: (B) With big data making personal information freely available, the debate on the nature of freedom and the need for privacy has resurfaced.

SOLUTION:

Contemporary discussions on behavioral control mirror Cold War-era anxieties about manipulation within a "technological society." A key point is the subtle yet potent influence of targeted online content. Han's "Psychopolitics" suggests that genuine freedom is precarious due to extensive personal data exposure to machine-learning algorithms. While a culture of disconnection and independence is not yet prevalent, digital influencers and entrepreneurs promote conformity over autonomy. Therefore, the passage advocates for a renewed focus on solitude and detachment as countermeasures to online targeting and polarization.

The selected option accurately reflects these points: **With big data making personal information freely available, the debate on the nature of freedom and the need for privacy has resurfaced.** This summary correctly identifies the passage's focus on big data's impact on personal information security and the subsequent discussion on freedom and privacy.



7. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

There's a common idea that museum artworks are somehow timeless objects available to admire for generations to come. But many are objects of decay. Even the most venerable Old Master paintings don't escape: pigments discolour, varnishes crack, canvases warp. This challenging fact of art-world life is down to something that sounds more like a thread from a morality tale: inherent vice. Damien Hirst's iconic shark floating in a tank – entitled *The Physical Impossibility of Death in the Mind of Someone Living* – is a work that put a spotlight on inherent vice. When he made it in 1991, Hirst got himself in a pickle by not using the right kind of pickle to

preserve the giant fish. The result was that the shark began to decompose quite quickly – its preserving liquid clouding, the skin wrinkling, and an unpleasant smell wafting from the tank.

(A) The role of museums has evolved to ensure that the artworks are preserved forever in addition to guarding and displaying them.

(B) Artworks may not last forever; they may deteriorate with time, and the challenge is to slow down their degeneration.

(C) Museums are left with the moral responsibility of restoring and preserving the artworks since artists cannot preserve their works beyond their life.

(D) Museums have to guard timeless art treasures from intrinsic defects such as the deterioration of paint, polish and canvas.

Correct Answer: (B) Artworks may not last forever; they may deteriorate with time, and the challenge is to slow down their degeneration.

SOLUTION:

Contrary to the belief that museum art is eternal and will always be appreciated, artworks are prone to degradation. This is illustrated by the decay of both Old Master paintings and Damien Hirst's creations. The notion of "inherent vice," the natural tendency of materials to break down, is central. Hirst's shark's decomposition, caused by improper preservation, serves as a prime example. The most fitting summary is: **Artworks are not immortal; they degrade over time, and the key challenge lies in mitigating this decline.** This summary stresses that deterioration is unavoidable and that conservation is crucial for extending the longevity of art.



8. The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

[1] The trajectory of cheerfulness through the self is linked to the history of the word 'cheer' which comes from an Old French meaning 'face'.

[2] Translations of the Bible into vernacular languages, expanded the noun 'cheer' into the more abstract 'cheerful-ness', something that circulates as an emotional and social quality defining the self and a moral community.

[3] When you take on a cheerful expression, no matter what the state of your soul, your cheerfulness moves into the self: the interior of the self is changed by the power of cheer.

[4] People in the medieval 'Canterbury Tales' have a 'piteous' or a 'sober' cheer; 'cheer' is an expression and a body part, lying at the intersection of emotions and physiognomy.

(A) 3124

(B) 3214

(C) 3412

(D) 3142

Correct Answer: (D) 3142

SOLUTION:

To sequence the sentences coherently:

1. Sentence [3] establishes that cheerfulness impacts the self via facial expressions, implying a transformation as cheer enters the self.
2. Sentence [1] traces the etymology of 'cheer' to Old French, meaning 'face', thereby linking it to expressions and identity.

3. Sentence [4] uses 'Canterbury Tales' as a historical example, demonstrating 'cheer' as both expression and physical attribute, connected to emotions and the human experience.
4. Sentence [2] details the semantic shift of 'cheer' to 'cheerfulness' through Bible translations, marking its circulation as an emotional and social attribute.

The correct sequence is 3142, presenting a logical progression from individual impact to historical context and semantic evolution.



9. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage. Several of the world's earliest cities were organised along egalitarian lines. In some regions, urban populations governed themselves for centuries without any indication of the temples and palaces that would later emerge; in others, temples and palaces never emerged at all, and there is simply no evidence of a class of administrators or any other sort of ruling stratum. It would seem that the mere fact of urban life does not, necessarily, imply any particular form of political organization, and never did. Far from resigning us to inequality, the picture that is now emerging of humanity's past may open our eyes to egalitarian possibilities we otherwise would have never considered.

(A) We now have the evidence in support of the existence of an egalitarian urban life in some ancient cities, where political and civic organisation was far less hierarchical.

(B) Contrary to our assumption that urban settlements have always involved hierarchical political and administrative structures, ancient cities were not organised in this way.

(C) The emergence of a class of administrators and ruling stratum transformed the egalitarian urban life of ancient cities to the hierarchical civic organisations of today.

(D) The lack of hierarchical administration in ancient cities can be deduced by the absence of religious and regal structures such as temples and palaces.

Correct Answer: (A) We now have the evidence in support of the existence of an egalitarian urban life in some ancient cities, where political and civic organisation was far less hierarchical.

SOLUTION:

Evidence supports the existence of egalitarian urban life in some ancient cities, characterized by less hierarchical political and civic organization, without the presence of temples, palaces, or a ruling class. This suggests urban living is not inherently tied to a specific political structure or inequality, and understanding this ancient egalitarianism could inform present-day possibilities.

The option that best captures this essence is: **We now have the evidence in support of the existence of an egalitarian urban life in some ancient cities, where political and civic organisation was far less hierarchical.**



10. The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

[1] From chemical pollutants in the environment to the damming of rivers to invasive species transported through global trade and travel, every environmental issue is different and there is no single tech solution that can solve this crisis.

[2] Discourse on the threat of environmental collapse revolves around cutting down emissions, but biodiversity loss and ecosystem collapse are caused by myriad and diverse reasons.

[3] This would require legislation that recognises the rights of future generations and other species that allows the judiciary to uphold a much higher standard of environmental protection than currently possible.

[4] Clearly, our environmental crisis requires large political solutions, not minor technological ones, so, instead of focusing on infinite growth, we could consider a path of stable-state economies, while preserving markets and healthy competition.

(A) 1234

(B) 1432

(C) 2143

(D) 2341

Correct Answer: (C) 2143

SOLUTION:

The sequence's logic is summarized as follows:

- **Option 2** introduces the paragraph's main theme: the threat of environmental collapse.

- **Option 1** elaborates on the various causes of ecosystem collapse.
- **Option 4** proposes legislation recognizing future generations' rights, which 'this' in Option 3 refers to.
- **Option 3** concludes with the proposed solution: recognizing future generations' rights.

This order logically progresses from problem introduction to reasons, solution proposal, and conclusion. The correct sequence is 2143.

• • •

11. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide in which blank (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: This was years in the making but fast-tracked during the pandemic, when “people started being more mindful about their food”, he explained.

Paragraph: For millennia, ghee has been a venerated staple of the subcontinental diet, but it fell out of favour a few decades ago when saturated fats were largely considered to be unhealthy. ____ (1) ____ But more recently, as the thinking around saturated fats is shifting globally, Indians are finding their own way back to this ingredient that is so integral to their cuisine. ____ (2) ____ For Karmakar, a renewed interest in ghee is emblematic of a return-to basics movement in India. ____ (3) ____ This movement is also part of an overall trend towards “slow food”. In keeping with the movement’s philosophy, ghee can be produced locally (even at home) and has inextricable cultural ties. ____ (4) ____ At a basic level, ghee is a type of clarified butter believed to have originated in India as a way to preserve butter from going rancid in the hot climate.

- (A) Option 1
- (B) Option 2
- (C) Option 3
- (D) Option 4

Correct Answer: (C) Option 3

SOLUTION:

To ascertain the optimal sentence placement within the paragraph, an evaluation of the sentence's content and its contextual relationship with other sentences is required. The sentence in question is: "This was years in the making but fast-tracked during the pandemic, when people started being more mindful about their food, he explained." Analyzing the paragraph's structure and themes yields the following:

- The initial sentence sets the historical backdrop for ghee, noting a decline attributed to health perceptions.
- The subsequent sentence details a perceptual change that has reignited interest.
- A potential third sentence could elaborate on the specific drivers or triggers of this resurgence.
- The fourth sentence expands the scope to encompass the cultural and philosophical dimensions of 'slow food'.

Logically, the provided sentence would serve as a transition, connecting the revived interest in ghee to its specific catalysts or underlying reasons. Therefore, its placement in blank (3) is appropriate. In this position, it would elucidate the impetus for the renewed interest mentioned in sentence (2), underscoring the pandemic's influence and the burgeoning consumer focus on food consciousness.

12. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide in which blank (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: Most were first-time users of a tablet and a digital app.

Paragraph: Aage Badhein's USP lies in the ethnographic research that constituted the foundation of its development process. Customizations based on learning directly from potential users were critical to making this self-paced app suitable for both a literate and non-literate audience.

____(1)____ The user interface caters to a Hindi-speaking audience who have minimal to no experience with digital services and devices.

____(2)____ The content and functionality of the app are suitable for a wide audience. This includes youth preparing for an independent role in life or a student ready to create a strong foundation of financial management early in her life. ____ (3) ____ Household members desirous of improving their family's financial strength to reach their aspirations can also benefit. We piloted Aage Badhein in early 2021 with over 400 women from rural areas. ____ (4) ____ The digital solution generated a large amount of interest in the communities.

(A) Option 1

(B) Option 2

(C) Option 3

(D) Option 4

Correct Answer: (D) Option 4

SOLUTION:

To determine the optimal placement for the sentence "Most were first-time users of a tablet and a digital app." within the paragraph, context

clues must be identified that corroborate the sentence's content. The paragraph elaborates on the development and objectives of the Aage Badhein app, emphasizing its versatility for both literate and non-literate individuals and presenting initial deployment findings. The sentence in question highlights the users' lack of technological familiarity, which directly corresponds with the mention of piloting the app with over 400 women from rural areas. The rationale for its inclusion in Option 4 is as follows:

1. The paragraph commences with a discussion of the app's ethnographic research and adaptation, highlighting its suitability for users with varying literacy levels, thus establishing a context for diverse user experiences.
2. The user interface is characterized as accessible to Hindi speakers with limited digital experience, thereby preparing the reader for the introduction of novice users.
3. The stated benefits of the content for young people and students indicate broad applicability but do not specifically address the users' technological proficiency.
4. The transition to pilot results (Option 4) is logical, as it addresses the engagement of the rural demographic with the app, making it the most appropriate location for the sentence concerning first-time users.

Consequently, inserting the sentence "Most were first-time users of a tablet and a digital app." at Option 4 enhances the narrative of the app's practical implementation and adoption by underscoring the novelty of technology for its target demographic.

Correct Answer: Option 4