

## 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:** —

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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 question asks us to identify the set of terms that best serves as keywords to summarize the provided passage. Let's break down the elements that the passage emphasizes and match them to the options:

1. **Humans and Musicking:** The passage frequently refers to humans as inherently musical beings, introducing the term “musicking” to describe the broad capacity for musical engagement beyond just professional music-making.

2. **Linguistic Capacities:** It discusses the overlap between musical and linguistic capacities, highlighting their importance in human cognitive features.

3. **Symbol-making:** The text delves into humans as symbol-makers, how this ties to language, and the relation of symbolic thought to musicking.

4. **Modern Humanity:** The narrative discusses these capabilities as markers of modern humanity and explores the lengthy emergence of these traits over thousands of years.

Given these focal points of the passage, the option that aligns with all these key ideas is:

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

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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:**

The passage primarily discusses the evolution and significance of music-making in humans, referred to here as "musicking." The option about human musical capacities 20,000 years ago being similar to

today is substantiated by the text, which implies that these capacities have been stable over a long period. Here's the breakdown of how this conclusion is drawn:

1. In the passage, it's noted that humans from 20,000 years ago likely had musical capacities similar to contemporary humans. This suggests that musicking is an ancient and stable human trait.
2. Although the passage explores the idea that music has evolved over a significant period, it indicates that changes are gradual and that recent historical capacities are not vastly different from today's.
3. The text rejects the notion of a sudden emergence of music, instead describing its evolution as gradual and integrated within the broader human cognitive and sociocultural development.

Given these points, the statement "20,000 years ago, human musical capacities were not very different from what they are today" aligns with the passage's content. It highlights the stability of musical capabilities over a long timeline while acknowledging the gradual development 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:**

In the provided passage, the author directly addresses the concept that humans universally engage in music-making, despite several reasonable qualifications or clarifications that might follow such a statement. The main point communicated through the quoted extract is the inherent truth of the premise: "Humans today make music." Although there are numerous qualifications that could refine or restrict this statement, such qualifications do not undermine the fundamental assertion. Instead, these aspects are considered moot in light of the overarching truth that humans inherently possess the capability to perceive and experience music. The author emphasizes that music-making or "musicking" is a cognitive and psychological trait shared by virtually all modern humans. This leads to the conclusion that even though there are caveats, the essence of the statement remains valid. Thus, the correct interpretation of the extract is: "Although there may be many caveats and other considerations, the statement is essentially 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 task here is to analyze the statements provided and identify which one weakens the author's claim that humans are musicking creatures.

The author posits that musicking is a fundamental human trait, integral to our cognitive and psychological makeup. Let's evaluate each option:

"As musicking is neither language-like nor symbol-like, it is a much older form of expression." This statement supports the author's claim by suggesting that musicking is an ancient form of expression, aligning with the idea that it's a basic human trait.

"Nonmusical capacities are of far greater consequence to human survival than the capacity for music." While this suggests non-musical traits might be more important for survival, it doesn't directly contradict the idea that musicking is a fundamental trait.

"Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms." This statement could weaken the author's claim because it places human musicking not as a fundamental trait but as a cultural phenomenon, varying widely across different societies. It implies that musicking might be more learned behavior dependent on social contexts rather than an innate human trait.

"From a cognitive and psychological vantage, musicking arises from unconscious dispositions, not conscious ones." This supports the author's view that musicking is rooted deeply in human nature, reinforcing it as a broad and unconscious human capacity.

In summary, option 3, "Musical capacities are primarily socio-cultural, which explains the wide diversity of musical forms," is the statement that most effectively undermines the author's claim by suggesting that musical ability is more cultural and not an intrinsic human trait.



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:** —

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**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:**

Based on the provided comprehension passage, we need to identify which inference from a set of statements is not false according to the passage. Let's analyze each option systematically in relation to the passage:

- **Option 1:** "institutions like the family, rituals, governance, economy, and the military are natural and cannot be consciously modified."

The passage contradicts this by stating these institutions can be molded and planned consciously. Thus, this inference is false.

- **Option 2:** "as concepts, 'culture' and 'tradition' have no analytical, explanatory or expository power, especially when they are treated in isolation."

This is false according to the passage, which states culture and tradition are subsets of institutions used analytically or expositionally.

- **Option 3:** "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."

The passage outlines that both informal and formal types of institutions exist, but it doesn't strictly imply exclusivity like in the statement. Thus, this is not directly supported and can be considered false.

- **Option 4:** "'natural language' refers to that stage of language development where no conscious human intent is evident in the formation of language."

This matches the explanation in the passage where natural languages result from human action but not from explicit human design. This inference is not false based on the passage's content.

Therefore, the correct and not false inference from the passage is:

**Option 4: "'natural language' refers to that stage of language development where no conscious human intent is evident in the formation of language."**



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 passage introduces the concept of the *philosophy of the social sciences* as both an **arena of thought** and a **set of social institutions**.

Within this context, the passage discusses the overlap and lack of congruence among different characterisations.

In identifying these characterisations, the passage specifically compares **academic disciplines** and **institutions**. It states: "The two characterisations overlap but are not congruent. Academic disciplines are social institutions." This explicitly points out that although academic disciplines and institutions may seem related, they are conceptually distinct constructs in this context.

Therefore, the two "characterisations" that overlap but are not congruent are **“academic disciplines”** and **“institutions”**.

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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 understand the given quote regarding the stock exchange and the black market as market institutions, we need to explore the passage's context about social institutions. The passage suggests that:

- Institutions are entities that organize actions and link individuals into social structures.
- There are formal and informal institutions, with some existing in both forms or mixed variants.
- The stock exchange is a formal institution, while the black market is informal.
- Different kinds of institutions can coexist within the same domain, indicating diversity in structure and operation.

The statement that best captures this explanation is: "The stock exchange and the black market are examples of how, even within the same domain, different kinds of institutions can co-exist." This aligns

with the passage's idea of formal and informal institutions and their coexistence.



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 essence of the passage revolves around the concept of institutions and their role in society. The passage provides a comprehensive view of institutions as all those social structures that organize actions and coordinate the efforts of individuals. It distinguishes formal from informal institutions and highlights that institutions are not exclusive entities but intertwined social constructs that adapt and evolve over time. The passage further stresses that institutions themselves lack inherent aims or purposes; rather, these are attributed by individuals who engage with them. The option that best matches this core idea is:

**Institutions are structures that serve to coordinate the actions of individuals.**



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:**

The solution to this problem requires understanding the author's perspective on the limitations of current engineering pedagogy and what an evolved approach would encompass. The passage critiques technical-social dualism by explaining how traditional methods fail to integrate social considerations into engineering design. The author advocates for integrating social justice and societal needs into engineering education.

When analyzing the options, it's important to identify which one does not align with the author's advocated pedagogical evolution. The correct answer is **moving towards technical-social dualism where social community needs are incorporated in problem-definition and solutions**. This option describes the current criticized practice wherein technical and social dimensions are considered separate. The

other options support the desired integration of social and environmental considerations into engineering education:

1. Design based on communities' needs and local knowledge aligns with incorporating societal input.
2. Making environmental sustainability a priority aligns with a more responsible engineering approach.
3. Focusing on responsible technical design over speed aligns with considering broader impacts and responsibilities.

Therefore, the author would not approve of continuing the practice of technical-social dualism, making the first option the correct exception.



**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 question asks which option is *not* a negative outcome of focusing on technical ideals in the medical sphere. We examine each option in relation to the passage:

**Continuing calibration of medical devices based on past racial biases that have remained unadjusted for changes:** The passage discusses spirometers with racially biased adjustments, highlighting this as a negative outcome.

**Incorrect assignment of people as female at birth which has resulted in faulty drug interventions:** While the passage addresses issues with drug interventions due to inadequate representation, it does not relate this directly to the assignment of gender at birth but rather the broader issue of dosing based on inaccurate clinical trials. The incorrect assignment here is unrelated to the core negative outcomes discussed.

**Neglect of research and development of medical technologies for the diagnosis and treatment of diseases that typically afflict marginalised communities:** The neglect of certain diseases, such as endometriosis, is specifically mentioned in the passage as a negative outcome.

**Exclusion of non-privileged groups in clinical trials which leads to incorrect drug dosages:** This directly aligns with the passage's point on inadequate representation in clinical trials resulting in adverse drug reactions.

Thus, the correct answer is option 2: *incorrect assignment of people as female at birth which has resulted in faulty drug interventions.*



**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 question asks which reason the author does **not** include as a cause of systemic discrimination against marginalized people in technology-related interventions. Each option provided is a statement from the original passage, and only one of them does not relate directly to justification or description of discrimination.

The passage discusses various ways marginalized people face discrimination through the technology intervention process. It mentions:

- Technical ideals as social and political choices favoring privileged segments of society and neglecting public welfare.

- Biased clinical trials and the resulting medication dosages leading to health disparities.
- Use of spirometers with racially biased correction factors resulting from inaccurate scientific beliefs.
- The lack of attention to engineering for marginalized groups and impactful problems like endometriosis.

Each element articulates either a root cause or a symptom of systemic discrimination. The sentence about medical waste and greenhouse gas emissions does not directly describe how marginalized people are discriminated against but is related to environmental impacts.

Therefore, the correct answer 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 statement focuses on sustainability and environmental concerns rather than directly explaining how marginalized groups face discrimination 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 passage discusses the contemporary approach to engineering education, where students are trained to focus on finding a single "best" solution relying on technical criteria such as low cost, scalability, and speed. This training method results in a technical-social dualism that separates technical outcomes from social considerations, which are often dismissed as political or invalid. The passage argues that this focus on technical ideals neglects the social and political choices underlying those standards, leading to a disengagement from societal concerns and ethical codes within engineering. It highlights the real-world consequences of ignoring social dimensions in engineering, such as medical inequities and technological disregard for marginalized communities. To address these issues, it advocates for incorporating social justice into engineering education, with some universities and

educators already taking steps to integrate societal needs into their curricula.

From the passage, we ascertain that the author's main claim is:

**engineering students today are taught to focus on objective technical outcomes, independent of the social dimensions of their 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 at 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:** —

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**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 question asks which of the following is NOT a reason for octopuses being considered "misfits." To answer this, we need to analyze the provided comprehension text, which describes certain characteristics that make octopuses stand out among their mollusc family.

The passage states:

- Octopuses exhibit higher intelligence than other molluscs.
- Octopuses do not possess an outer protective shell, unlike most other molluscs.
- Cephalopods, including octopuses, are often preyed upon by various animals, including humans.

From the statement above, we can confirm that *exhibit higher intelligence than other molluscs* and *do not possess an outer protective shell* are reasons that contribute to their "misfit" status. The fact that *they are consumed by humans and other animals* is mentioned in the passage but is not presented as a reason for being a "misfit"—rather, it indicates the challenges they face due to the lack of a protective shell. Therefore, the correct answer, which does not align as a reason for octopuses being considered "misfits," is:

- *are consumed by humans and other animals.*

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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 correct answer to the question is: *Cephalopods can take on the colour of their predator*. This statement is not true about the camouflaging ability of cephalopods. Based on the given passage, cephalopods have abilities to change their own color and texture to match their surroundings but there is no mention of them taking on the color of their predators. The passage explains four main catalysts for their camouflaging capability:

- **Chromatophores:** These organs on their bodies contain pigment sacs that can change the color of their skin when influenced by electrical impulses from the brain.
- **Iridophores:** Cells that reflect light at different wavelengths, creating an iridescent effect similar to holograms.
- **Papillae:** Skin sections that can be altered to change texture, allowing cephalopods to blend into textured surroundings like rocks or reefs.
- **Leucophores:** Reflector cells that scatter full-spectrum light, enabling them to match the reflected light of their environment.

Thus, while cephalopods have remarkable abilities to camouflage, taking on the color of a predator is not one of 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:**

This might take some time to answer. We need to identify the option that does not undermine the camouflaging proficiency of Cephalopods. Three options have a weakening effect, while one does not. Regarding option 1, we must refer to the third paragraph; if radial muscle movement is challenging, the technique won't be effective, diminishing the overall camouflaging process. Therefore, 1 is not a suitable choice. Iridophores represent the second level of skin, suggesting the others are at the first level. However, the impact of their numbers on the camouflaging process is not clearly stated. Thus, 2 neither strengthens nor weakens the argument. The passage

indicates that red, brown, and yellow are reflected, while the others are absorbed. This implies that even green is absorbed, contradicting option 3, which weakens the argument. If the transmission of neural signals is problematic, the entire camouflaging process will be compromised. Therefore, 4 is the most appropriate 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:**

The passage describes the camouflaging techniques of cephalopods, specifically octopuses, involving chromatophores, iridophores, papillae, and leucophores. These techniques relate to color change, iridescence, texture alteration, and light reflection. Octopuses do not possess a shell like most other molluscs and use these dynamic methods for camouflage. In contrast, sea snails, being molluscs with a hard external shell, lack such dynamic camouflaging capabilities. Meanwhile, cuttlefish and squids share similar adaptive techniques with octopuses. Polar bears use leucophores-like mechanisms with their fur for camouflage but not in the same dynamic way as octopuses. Therefore, the camouflaging techniques of octopuses are most dissimilar to those in sea snails.

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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 logic behind the sequence can be understood as follows:

- **Option 2** introduces the topic by stating that social welfare concerns are often downplayed in a neoliberal context.
- **Option 4** provides a specific example or evidence to support the claim made in 2, particularly focusing on the consequences of this downplaying in education.

- **Option 3** follows logically as it further discusses the implications of neoliberalism on education and its link to social inequality.
- **Option 1** concludes the paragraph by making a broader statement about the overall impact of neoliberal policies on social inequality and education.

This sequence maintains a logical flow of ideas from introduction to specific example to broader implications, and finally, a concluding statement. Therefore, 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:**

The passage discusses how contemporary debates around behavioral control echo previous concerns about manipulation during the Cold War, particularly in the context of a "technological society." A central theme is how targeted online content can influence individuals subtly and effectively. Han's book, "Psychopolitics," highlights that true freedom may only be a temporary state, given the extent of personal data exposure to machine-learning algorithms. The passage suggests that while we have yet to see a culture of disconnection and independence, the pervasive nature of digital influencers and entrepreneurs enforces conformity rather than autonomy.

Consequently, the passage asserts the need for a renewed discourse on solitude and detachment as responses to the threats posed by online targeting and polarization.

The correct option captures these themes: **With big data making personal information freely available, the debate on the nature of freedom and the need for privacy has resurfaced.** This summary accurately reflects the passage's discussion, emphasizing big data's role in the increased vulnerability of personal information and the ensuing dialogue 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:**

The passage discusses the common misconception that museum artworks are timeless and will be admired by future generations. However, these artworks are susceptible to decay, as evidenced by the deterioration of Old Master paintings and Damien Hirst's artwork. The passage highlights the concept of "inherent vice," which refers to the natural tendency of materials to decay over time. This concept is exemplified by the deterioration of Hirst's shark, which began to decompose due to inappropriate preservation methods. The summary option that best captures this passage's essence is: **Artworks may not last forever; they may deteriorate with time, and the challenge is to slow down their degeneration.** This option emphasizes the inevitability of deterioration and the importance of conservation efforts to extend the lifespan of artworks.

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] introduces the idea of cheerfulness affecting the self through facial expressions. It sets the stage by explaining how cheer moves into the self, implying a transformation.
2. Sentence [1] explains the origin of the word 'cheer' as coming from an Old French word meaning 'face', tying it to expressions

and identity.

3. Sentence [4] provides historical context with the example of 'Canterbury Tales', illustrating 'cheer' as both an expression and body part, showing its connection to emotions and the human condition.
4. Sentence [2] expands on how the word evolved in meaning through Bible translations, turning 'cheer' into 'cheerfulness', which circulates as an emotional and social quality.

Thus, the correct sequence is 3142, offering a logical flow from personal impact to historical context and 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:**

The passage discusses the organization of the world's earliest cities, highlighting that several were structured along egalitarian lines. This means that these urban populations managed themselves without evidence of hierarchical structures such as temples, palaces, or a ruling class. The passage further suggests that urban living does not inherently require a specific form of political organization, challenging the notion that inequality is a necessary aspect of city life. It also implies that understanding the egalitarian nature of ancient cities might open us to consider similar possibilities in the present.

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 logic behind the sequence can be summarized as follows:

- **Option 2** serves as an introduction by presenting the overarching theme of the paragraph: the threat of environmental collapse.
- **Option 1** follows, providing details about the diverse reasons leading to ecosystem collapse.
- **Option 4** then introduces the idea of legislation recognizing the rights of future generations, which is referred to by the pronoun 'this' in Option 3.
- **Option 3** concludes the paragraph by presenting the suggested solution of recognizing the rights of future generations.

This sequence maintains a logical flow from introducing the problem, providing reasons, suggesting a solution, and concluding the paragraph. Therefore, 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 determine the best placement for the sentence in the paragraph, we need to assess its content and context in relation to the paragraph's other sentences. The given sentence is: "This was years in the making but fast-tracked during the pandemic, when people started being more mindful about their food, he explained." Let's analyze the paragraph structure and concepts:

- The first sentence establishes the historical context of ghee, mentioning a period of decline due to health perceptions.
- The second sentence describes a shift in perception, leading to renewed interest.
- The third sentence option could discuss specific reasons or catalysts for this movement.
- The fourth sentence broadens the discussion to a cultural and philosophical context about 'slow food'.

A logical placement for the given sentence would bridge the renewed interest in ghee with specific catalysts or reasons for this interest. Thus, the sentence fits well in blank (3), where it would provide a

reason behind the renewed interest referenced in sentence (2), highlighting the impact of the pandemic and growing mindfulness about food.



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 where the sentence "Most were first-time users of a tablet and a digital app." fits best in the paragraph, we need to look for context clues that align with the information in the sentence. The paragraph discusses the development and purpose of the Aage Badhein app, emphasizing its adaptability for literate and non-literate users and its initial deployment results. The missing sentence suggests a focus on the users' technological inexperience, which aligns perfectly with the sentence that mentions piloting the app with over 400 women from rural areas. Here is why it fits in Option 4:

1. The paragraph initially talks about the app's ethnographic research and customization, making it suitable for various literacy levels (context for diverse user experience).
2. The user interface is described as being accessible to a Hindi-speaking audience with minimal digital experience, setting up the context for introducing first-time users.
3. The content benefits are stated for youth and students, indicating broad utility, but not directly addressing user tech experience.
4. The segue into piloting results (Option 4) is logical, as it discusses reaching the rural audience and their interaction, making it the best place for the sentence about first-time users.

Thus, inserting the sentence "Most were first-time users of a tablet and a digital app." in Option 4 enriches the narrative of the app's real-world impact and adoption by highlighting the newness of technology to its intended audience.

Correct Answer: Option 4