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CAT 2019 Questions and Answers – Morning Slot

Verbal Ability – Reading Comprehension – Morning Slot – CAT 2019

As defined by the geographer Yi-Fu Tuan, topophilia is the affective bond between people and place. His 1974 book set forth a wide-ranging exploration of how the emotive ties with the material environment vary greatly from person to person and in intensity, subtlety, and mode of expression. Factors influencing one's depth of response to the environment include cultural background, gender, race, and historical circumstance, and Tuan also argued that there is a biological and sensory element. Topophilia might not be the strongest of human emotions— indeed, many people feel utterly indifferent toward the environments that shape their lives— but when activated it has the power to elevate a place to become the carrier of emotionally charged events or to be perceived as a symbol.

Aesthetic appreciation is one way in which people respond to the environment. A brilliantly colored rainbow after gloomy afternoon showers, a busy city street alive with human interaction—one might experience the beauty of such landscapes that had seemed quite ordinary only moments before or that are being newly discovered. This is quite the opposite of a second topophilic bond, namely that of the acquired taste for certain landscapes and places that one knows well. When a place is home, or when a space has become the locus of memories or the means of gaining a livelihood, it frequently evokes a deeper set of attachments than those predicated purely on the visual. A third response to the environment also depends on the human senses but may be tactile and olfactory, namely a delight in the feel and smell of air, water, and the earth.

Topophilia—and its very close conceptual twin, sense of place—is an experience that, however elusive, has inspired recent architects and planners. Most notably, new urbanism seeks to counter the perceived placelessness of modern suburbs and the decline of central cities through neo-traditional design motifs. Although motivated by good intentions, such attempts to create places rich in meaning are perhaps bound to disappoint. As Tuan noted, purely aesthetic responses often are suddenly revealed, but their intensity rarely is longlasting. Topophilia is difficult to design for and impossible to quantify, and its most articulate interpreters have been self-reflective philosophers such as Henry David Thoreau, evoking a marvelously intricate sense of place at Walden Pond, and Tuan, describing his deep affinity for the desert.

Topophilia connotes a positive relationship, but it often is useful to explore the darker affiliations between people and place. Patriotism, literally meaning the love of one's terra patria or homeland, has long been cultivated by governing elites for a range of nationalist projects, including war preparation and ethnic cleansing. Residents of upscale residential developments have disclosed how important it is to maintain their community's distinct identity, often by casting themselves in a superior social position and by reinforcing class and racial differences. And just as a beloved landscape is suddenly revealed, so too may landscapes of fear cast a dark shadow over a place that makes one feel a sense of dread or anxiety—or topophobia.

Q.1 Which one of the following comes closest in meaning to the author's understanding of topophilia?

1. Nomadic societies are known to have the least affinity for the lands through which they traverse because they tend to be topophobic
2. The French are not overly patriotic, but they will refuse to use English as far as possible, even when they know it well
3. The tendency of many cultures to represent their land as "motherland" or "fatherland" may be seen as an expression of their topophilia
4. Scientists have found that most creatures, including humans, are either born with or cultivate a strong sense of topography.

Answer: 3

Q.2 In the last paragraph, the author uses the example of "Residents of upscale residential developments" to illustrate the:

1. social exclusivism practised by such residents in order to enforce a sense of racial or class superiority
2. manner in which environments are designed to minimise the social exclusion of their clientele

3. sensitive response to race and class problems in upscale residential developments.
4. . introduction of nationalist projects by such elites to produce a sense of dread or topophobia.

Answer: 1

Q.3 Which of the following statements, if true, could be seen as not contradicting the arguments in the passage?

1. The most important, even fundamental, response to our environment is our tactile and olfactory response
2. Patriotism, usually seen as a positive feeling, is presented by the author as a darker form of topophilia
3. New Urbanism succeeded in those designs where architects collaborated with their clients.
4. Generally speaking, in a given culture, the ties of the people to their environment vary little in significance or intensity.

Answer: 2

Q.4 The word "topophobia" in the passage is used:

1. to signify the fear of studying the complex discipline of topography.
2. to represent a feeling of dread towards particular spaces and places.
3. as a metaphor expressing the failure of the homeland to accommodate non-citizens.
4. to signify feelings of fear or anxiety towards topophilic people.

Answer: 2

Q.5 Which one of the following best captures the meaning of the statement, "Topophilia is difficult to design for and impossible to quantify . . ."?

1. Architects have to objectively quantify spaces and hence cannot be topophilic.
2. The deep anomie of modern urbanisation led to new urbanism's intricate sense of place.
3. Philosopher-architects are uniquely suited to develop topophilic design.
4. People's responses to their environment are usually subjective and so cannot be rendered in design.

Answer: 4

Explanation: The passage is about geographer Yi-Fu Tuan’s interpretation of Topophilia which he defines as the emotional bond that people have for a particular place. This bond varies greatly from person to person and its intensity is dependent on factors such as cultural background, gender and race. There is also a biological and sensory element to topophilia.

Emotional bonds between people and place may be due to aesthetic appreciation for a certain landscape, an acquired taste for a landscape that one knows well or this bond may even be tactile or olfactory.

Topophilia has inspired architects to create new suburbs in neo-traditional design motifs but this effect has been disappointing. Topophilia is difficult to design for and impossible to quantify and human-inspired topophilia does not match up to the bonds inspired by natural landscapes.

Although topophilia has a positive relationship between people and place it has often been used for darker motives, such as war and ethnic cleansing. Upscale developments deliberately cast some people in a superior social position. The passage ends with an antonym of topophilia – topophobia – which is dread or anxiety for a particular place.

Solution 1: According to the passage, topophilia is the affective bond between people and their physical surroundings. This bond may be aesthetic appreciation, acquired taste for certain landscapes or even a tactile or olfactory attachment. It is different from topophobia – meaning feeling a sense of dread or anxiety about a place – since topophilia connotes a positive relationship.

To sum up, topophilia is the positive attachment to a certain physical surrounding.

A topophobic state of mind does not indicate a positive attachment to a particular place. Eliminate option 1.

Topophilia is about the physical landscape only. Eliminate option 2.

Option 4 is mentioned in the passage but does not give the meaning of topophilia. In fact, it does not offer any meaning at all. Option 4 can also be eliminated.

Option 3 comes closest in meaning to topophilia because the meaning of topophilia – a positive attachment to a certain physical surrounding – is reflected in people referring to their country as “motherland” or “fatherland.” These two terms have a definite, positive connotation. Hence, the correct answer is option 3.

Solution 2: The passage mentions, “Residents of upscale residential developments have disclosed how important it is to maintain their community’s distinct identity, often by casting themselves in a superior social position and by reinforcing class and racial

differences." This clearly implies social exclusivism based on racial or class superiority as stated in option 1.
Option 2 contradicts the passage. Upscale developments are designed to reinforce racial and class superiority from other people and not to minimize them. Eliminate option 2.
Option 3, too, is contradicted by the passage. Upscale developments exacerbate race and class divisions. They are not sensitive to race and class in the slightest.
Option 4 is not borne out by the passage. Upscale developments are not "nationalist projects" at all. Secondly, they do not produce a sense of dread or topophobia but reinforce class and racial superiority.
Hence, the correct answer is option 1.

Solution 3: "Not contradicting" is a double negative. Therefore, the question can be reworded as "Which of the following statements, if true, could be seen as agreeing with the arguments in the passage?" We have to identify the statement which agrees with the arguments in the passage.
Option 1 is not borne out by the passage. The passage gives several factors for peoples' attachment to a particular place but it does not rank them in importance or degree of intensity. Therefore, we cannot conclude that the most important, even fundamental, response to our environment is our tactile and olfactory response. Thus, option 1 is eliminated.
Option 2 is true according to the passage. The following extract, "Topophilia connotes a positive relationship, but it often is useful to explore the darker affiliations between people and place. Patriotism, literally meaning the love of one's terra patria or homeland, has long been cultivated by governing elites for a range of nationalist projects, including war preparation and ethnic cleansing." This extract from paragraph 4 is in conformity with option 2.
Option 3 is also not borne out by the passage. Paragraph 3 talks about the architects' attempts to replicate topophilia with neo-traditional design motifs in new suburbs but the passage goes on to say that its effects were disappointing and not up to the mark. Secondly, and most importantly, the passage does not mention that architects' ever collaborated with their clients. Thus, option 3 is eliminated.
Option 4 is also not true according to the passage. The following extract from paragraph 1, "His 1974 book set forth a wide-ranging exploration of how the emotive ties with the material environment vary greatly from person to person and in intensity, subtlety, and mode of expression" contradicts option 4 completely.
Hence, the correct answer is option 2.

Solution 4: The following extract from paragraph 4, "And just as a beloved landscape is

suddenly revealed, so too may landscapes of fear cast a dark shadow over a place that makes one feel a sense of dread or anxiety—or topophobia" gives the definition of topophobia. Therefore, topophobia is a feeling of dread towards certain landscapes or spaces and places. Thus, option 2 is the correct answer since this meaning is in conformity with the meaning expressed in option 2.
Option 1 has not been mentioned in the passage at all. The passage is about topophilia and its antonym topophobia and the term 'topography' has not been mentioned in the passage. Eliminate option 1.
The term 'topophobia' has not been used in a metaphorical sense in the passage. The passage has only given the literal meaning of 'topophobia'. Thus, option 3 is eliminated.
"Topophobia" signifies feelings of dread or anxiety towards certain spaces and places and not towards any set of people. Thus, option 4 is also eliminated.
Hence, the correct answer is option 2.

Solution 5: Refer to paragraph 3. The paragraph mentions that architects' and planners have attempted to create topophilia by building new suburbs in neo-traditional design motifs. Its effects have rarely been long lasting in terms of intensity or affinity among people. Different people seem to develop a sense of topophilia for different spaces such as "Henry David Thoreau, evoking a marvelously intricate sense of place at Walden Pond, and Tuan, describing his deep affinity for the desert." Therefore, peoples' sense of affinity is deeply personal or "subjective" with different people having an affinity for different spaces and this factor cannot be accommodated for by architects. This points to option 4 as being the correct answer.
Option 1 does not give the meaning asked for nor can it be implemented. It contradicts the passage. If architects build spaces objectively, (that is with a basis in observable facts rather than feelings or opinions) then they would probably have to ask each and every individual residing in a new suburb (for example) about their likings for particular landscapes. Since different people have an affinity for different landscapes (as shown in the extract above) it would not be possible for architects' to be able to accommodate every type of landscape asked for. Therefore, architects cannot design their spaces objectively. If they could, that would imply that their creations would be topophilic. Thus, option 1 is eliminated.
Option 2, too, does not give the meaning asked for in the question. "Anomie" means "social instability resulting from a breakdown of standards and values." Thus the meaning of option 2 as implied is: The deep social instability of modern urbanization led to urbanism's intricate sense of place. This meaning contradicts the meaning asked for. The passage clearly mentions that modern architects failed in designing places that people would have an affinity for while option 2 suggests that the architects succeeded

in building spaces that were topophilic. Thus, option 2 is also eliminated.
Option 3 may be true but does not give us the required meaning asked for. The passage mentions the fact that philosophers are the best interpreters of topophilia but implies that architects are not. This option does not give us the meaning asked for as to the reason Topophilia is difficult to design for and impossible to quantify.
Hence, the correct answer is option 4.

Contemporary internet shopping conjures a perfect storm of choice anxiety. Research has consistently held that people who are presented with a few options make better, easier decisions than those presented with many. . . . Helping consumers figure out what to buy amid an endless sea of choice online has become a cottage industry unto itself. Many brands and retailers now wield marketing buzzwords such as curation, differentiation, and discovery as they attempt to sell an assortment of stuff targeted to their ideal customer. Companies find such shoppers through the data gold mine of digital advertising, which can catalog people by gender, income level, personal interests, and more. Since Americans have lost the ability to sort through the sheer volume of the consumer choices available to them, a ghost now has to be in the retail machine, whether it's an algorithm, an influencer, or some snazzy ad tech to help a product follow you around the internet. Indeed, choice fatigue is one reason so many people gravitate toward lifestyle influencers on Instagram—the relentlessly chic young moms and perpetually vacationing 20-somethings—who present an aspirational worldview, and then recommend the products and services that help achieve it. . . .

For a relatively new class of consumer-products start-ups, there's another method entirely. Instead of making sense of a sea of existing stuff, these companies claim to disrupt stuff as Americans know it. Casper (mattresses), Glossier (makeup), Away (suitcases), and many others have sprouted up to offer consumers freedom from choice: The companies have a few aesthetically pleasing and supposedly highly functional options, usually at mid-range prices. They're selling nice things, but maybe more importantly, they're selling a confidence in those things, and an ability to opt out of the stuff rat race. . . .

One-thousand-dollar mattresses and $300 suitcases might solve choice anxiety for a certain tier of consumer, but the companies that sell them, along with those that attempt to massage the larger stuff economy into something navigable, are still just working within a consumer market that's broken in systemic ways. The presence of so much stuff in America might be more valuable if it were more evenly distributed, but stuff's creators tend to focus their energy on those who already have plenty. As options have expanded for people with disposable income, the opportunity to buy even basic things such as fresh food or quality diapers has contracted for much of America's lower classes.

For start-ups that promise accessible simplicity, their very structure still might eventually push them toward overwhelming variety. Most of these companies are based on hundreds of millions of dollars of venture capital, the investors of which tend to expect a steep growth rate that can't be achieved by selling one great mattress or one great sneaker. Casper has expanded into bedroom furniture and bed linens. Glossier, after years of marketing itself as no-makeup makeup that requires little skill to apply, recently launched a full line of glittering color cosmetics. There may be no way to opt out of stuff by buying into the right thing.

Q.1 Which of the following hypothetical statements would add the least depth to the author's prediction of the fate of start-ups offering few product options?

1. An exponential surge in their sales enables start-ups to meet their desired profit goals without expanding their product catalogue.
2. Start-ups with few product options are no exception to the American consumer market that is deeply divided along class lines
3. With the motive of promoting certain rival companies, the government decides to double the tax-rates for these start-ups.
4. With Casper and Glossier venturing into new product ranges, their regular customers start losing trust in the companies and their products.

Answer: 1

Q.2 A new food brand plans to launch a series of products in the American market. Which of the following product plans is most likely to be supported by the author of the passage?

1. A range of 10 products priced between $5 and $10.
2. A range of 25 products priced between $10 and $25.
3. A range of 10 products priced between $10 and $25.
4. A range of 25 products priced between $5 and $10.

Answer: 1

Q.3 Which one of the following best sums up the overall purpose of the examples of Casper and Glossier in the passage?

1. They are increasing the purchasing power of poor Americans
2. They are facilitating a uniform distribution of commodities in the market.
3. They are exceptions to a dominant trend in consumer markets
4. They might transform into what they were exceptions to.

Answer: 4

Q.4 All of the following, IF TRUE, would weaken the author's claims EXCEPT:

1. the annual sale of companies that hired lifestyle influencers on Instagram for marketing their products were 40% less than those that did not.
2. the empowerment felt by purchasers in buying a commodity were directly proportional to the number of options they could choose from
3. product options increased market competition, bringing down the prices of commodities, which, in turn, increased purchasing power of the poor
4. the annual sales growth of companies with fewer product options were higher than that of companies which curated their products for target consumers.

Answer: 4

Q.5 Based on the passage, all of the following can be inferred about consumer behaviour EXCEPT that:

1. having too many product options can be overwhelming for consumers.
2. . consumers are susceptible to marketing images that they see on social media
3. consumers tend to prefer products by start-ups over those by established companies.
4. too many options have made it difficult for consumers to trust products.

Answer: 3

Explanation: The passage is about e-commerce or shopping over the internet.
Paragraph 1 highlights a problem that most internet shoppers face – too much choice – making it difficult for them to arrive at the right decision. To combat these companies have begun to offer curation, differentiation, and discovery as they attempt to sell an assortment of stuff targeted to their ideal customer.
Paragraph 2 offers a solution to these wide and bewildering choices as offered by newer startups. These companies have a few aesthetically pleasing items that offer consumers freedom from choice.
However, these companies generally sell items that are priced for people with high

disposal incomes rather than for the lower classes. Thus, the purchase of items is not evenly distributed.
However, the companies offering freedom from choice for purchasing items have also undergone a complete U-turn. For start-ups that promise accessible simplicity, their very structure still might eventually push them toward overwhelming variety. Most of these companies are based on hundreds of millions of dollars of venture capital, the investors of which tend to expect a steep growth rate that can't be achieved by selling one great mattress or one great sneaker. Therefore, these companies are also starting to offer a greater variety of products.

Solution 1: The question asks us to identify the option that offers "least depth" or contradicts the prediction of the fate of start-ups offering few product options. The fate of these new start ups is to offer greater variety (expand their product catalog) in order to achieve steep growth rates as demanded by their investors. Option 1 contradicts this by stating that were there to be an exponential surge in sales among these startups that meet their desired profit goals without expanding their product catalog then there would be no reason for these companies to expand their product catalog or offer greater variety. Thus, option 1 is the correct answer.
Option 2 is true according to the passage but does not answer the question of the author's prediction of the fate of start-ups offering few product options. Nor does it contradict the passage as it is supposed to. Thus, option 2 is eliminated.
If the government doubles the tax rates for these companies, then it is likely that their revenues will be adversely impacted but it too does not answer the prediction of startups with few product offerings having to expand their product catalog. If they offer more products, these too would be taxed in the same proportion. Option 3 is also eliminated.
Option 4 is also an incorrect answer. What is the fate of startups? They have to offer more products in order to satisfy the demands of investors. But what if these startups were to offer more products and start losing their regular customers? They have to do it nevertheless because their investors who have invested in their companies expect a steep growth rate and this steep growth rate cannot be achieved by offering only a few products. Thus, option 4 is also eliminated.
Hence, the correct answer is option 1.

Solution 2: The author is in favour of fewer choices for customers – refer paragraph 1. Furthermore, in paragraph 3, he bemoans the fact that most startups are catering only to those with disposal incomes. The following extract from paragraph 3 confirms this assertion, "The presence of so much stuff in America might be more valuable if it were

more evenly distributed, but stuff's creators tend to focus their energy on those who already have plenty. As options have expanded for people with disposable income, the opportunity to buy even basic things such as fresh food or quality diapers has contracted for much of America's lower classes." This extract points to option 1 being the correct answer option. It offers the fewest choices at the lowest prices that would make these items affordable to the American lower classes.
Options 2 and 4, with a wider choice of products can be immediately eliminated.
Option 3 has few items but at higher prices compared to that of option 1. Therefore, option 3 can also be eliminated. Hence, the correct answer is option 1.

Solution 3: Casper and Glossier were exceptions to the internet shopping space in that they offered consumers freedom from choice by offering only a few items (refer paragraph 2). But they were eventually forced to offer a wider product catalog because of pressures from investors who expected a steep growth rate that could not be met with only a few products. Thus, they were forced to change to offer a greater variety of products and eventually become like most other startups as highlighted in paragraph 1. Thus, they were at first exceptions but then became like other internet companies. This explanation points to option 4 as being the correct answer.
Option 1 is incorrect. The passage mentions "poor Americans" only in the context of them not being catered to by internet startup companies.
Option 2 contradicts the assertion made in paragraph 3. Casper and Glossier, like most other startups, cater only to those with high disposal incomes.
Option 3 is partly correct. Casper and Glossier were exceptions to the dominant trend in consumer markets. They offered few products and thus freedom from choice for the customer who was hitherto plagued with too many choices. But pressure from their investors eventually forced them to offer a wider product catalog and now they are like any other internet startup company. Option 3 does not mention this fact and can thus be eliminated.
Hence, the correct answer is option 4.

Solution 4: In paragraph 1, the author is of the opinion that internet startups that offer too many choices in terms of their product offerings was not a good or smart way of being successful. He praises internet startups which offer few product offerings or freedom from choice for the customer and feels it is a good move on the part of these companies. Therefore, growth in sales for internet startups with few product offerings is expected to be higher than those for startups with wide product offerings. This is in conformity with the assertion made in option 4, which is, that the annual sales growth of companies with fewer product options were higher than that of companies which

curated their products for target consumers. Thus, option 4 does not weaken the author’s claim.
In paragraph 1, the following extract, “Indeed, choice fatigue is one reason so many people gravitate toward lifestyle influencers on Instagram—the relentlessly chic young moms and perpetually vacationing 20-somethings—who present an aspirational worldview, and then recommend the products and services that help achieve it. . . .” directly contradicts option 1. Thus, option 1 is eliminated.
Option 2, too, weakens the author’s claim. The following extract from paragraph 1, “Contemporary internet shopping conjures a perfect storm of choice anxiety. Research has consistently held that people who are presented with a few options make better, easier decisions than those presented with many...” combined with “Indeed, choice fatigue is one reason so many people gravitate toward lifestyle influencers on Instagram—the relentlessly chic young moms and perpetually vacationing 20-somethings—who present an aspirational worldview, and then recommend the products and services that help achieve it. . . .” proves that far from empowerment felt by purchasers in buying a commodity being directly proportional to the number of options they could choose from, too many choices cause choice anxiety and choice fatigue. Option 2 is also eliminated.
If (many) product options increased competition, brought down the price of commodities and increased the purchasing power of the poor then this option will directly weaken the author’s claim that all product offerings do is to bewilder the customer. In paragraph 1, the author claims that the problem of internet shopping is far too many choices for the customer resulting in choice anxiety. Since option 3 mentions an advantage of this wide choice of product offerings it too weakens the author’s claim in the passage and can be eliminated.
Hence, the correct answer is option 4.

Solution: 5 We have to choose that option that cannot be inferred from the passage.
Option 1 can be inferred from the passage. Refer to paragraph 1.
The following extract, “Indeed, choice fatigue is one reason so many people gravitate toward lifestyle influencers on Instagram...” proves that option 2, too, can be inferred from the passage.
Option 3 cannot be inferred from the passage. The passage is entirely about internet startups and is totally silent on established companies and the fact that consumers tend to prefer products from startups than from established companies has neither been mentioned nor can it be inferred from the passage.
Option 4, too, can be inferred from the passage. Paragraph 2 mentions the relatively new breed of internet startups that sell few products and offer customers’ freedom from

choice and this has resulted in consumers buying from them since “they’re selling a confidence in those things, and an ability to opt out of the stuff rat race. . .”
Hence, the correct answer is option 3.

In the past, credit for telling the tale of Aladdin has often gone to Antoine Galland . . . the first European translator of . . . Arabian Nights [which] started as a series of translations of an incomplete manuscript of a medieval Arabic story collection. . . But, though those tales were of medieval origin, Aladdin may be a more recent invention. Scholars have not found a manuscript of the story that predates the version published in 1712 by Galland, who wrote in his diary that he first heard the tale from a Syrian storyteller from Aleppo named Hanna Diyab . . .

Despite the fantastical elements of the story, scholars now think the main character may actually be based on a real person’s real experiences. . . . Though Galland never credited Diyab in his published translations of the Arabian Nights stories, Diyab wrote something of his own: a travelogue penned in the mid-18th century. In it, he recalls telling Galland the story of Aladdin [and] describes his own hard-knocks upbringing and the way he marveled at the extravagance of Versailles. The descriptions he uses were very similar to the descriptions of the lavish palace that ended up in Galland’s version of the Aladdin story. [Therefore, author Paulo Lemos] Horta believes that “Aladdin might be the young Arab Maronite from Aleppo, marveling at the jewels and riches of Versailles.” . . .

For 300 years, scholars thought that the rags-to-riches story of Aladdin might have been inspired by the plots of French fairy tales that came out around the same time, or that the story was invented in that 18th century period as a byproduct of French Orientalism, a fascination with stereotypical exotic Middle Eastern luxuries that was prevalent then. The idea that Diyab might have based it on his own life — the experiences of a Middle Eastern man encountering the French, not vice-versa — flips the script. [According to Horta,] “Diyab was ideally placed to embody the overlapping world of East and West, blending the storytelling traditions of his homeland with his youthful observations of the wonder of 18th-century France.” . . .

To the scholars who study the tale, its narrative drama isn’t the only reason storytellers keep finding reason to return to Aladdin. It reflects not only “a history of the French and the Middle East, but also [a story about] Middle Easterners coming to Paris and that speaks to our world today,” as Horta puts it. “The day Diyab told the story of Aladdin to Galland, there were riots due to food shortages during the winter and spring of 1708 to 1709, and Diyab was sensitive to those people in a way that Galland is not. When you read this diary, you see this solidarity among the Arabs who were in Paris at the time. . . . There is little in the writings of Galland that would suggest that he was capable of developing a character like Aladdin with sympathy, but Diyab's memoir reveals a narrator adept at capturing the distinctive psychology of a young protagonist, as well as recognizing the kinds of injustices and opportunities that can transform the path of any youthful adventurer."

Q.1 Which of the following does not contribute to the passage's claim about the authorship of Aladdin?

1. The story-line of many French fairy tales of the 18th century
2. The depiction of the affluence of Versailles in Diyab's travelogue
3. The narrative sensibility of Diyab's travelogue.
4. Galland's acknowledgment of Diyab in his diary.

Answer: 1

Q.2 The author of the passage is most likely to agree with which of the following explanations for the origins of the story of Aladdin?

1. Galland derived the story of Aladdin from Diyab's travelogue in which he recounts his fascination with the wealth of Versailles.
2. Galland received the story of Aladdin from Diyab who, in turn, found it in an incomplete medieval manuscript.
3. Basing it on his own life experiences, Diyab transmitted the story of Aladdin to Galland who included it in Arabian Nights.
4. The story of Aladdin has its origins in an undiscovered, incomplete manuscript of a medieval Arabic collection of stories.

Answer: 3

Q.3 Which of the following is the primary reason for why storytellers are still fascinated by the story of Aladdin?

1. The traveller's experience that inspired the tale of Aladdin resonates even today.
2. The archetype of the rags-to-riches story of Aladdin makes it popular even today
3. The tale of Aladdin documents the history of Europe and Middle East.
4. The story of Aladdin is evidence of the eighteenth century French Orientalist attitude.

Answer: 1

Q.4 Which of the following, if true, would invalidate the inversion that the phrase "flips the script" refers to?

1. The French fairy tales of the eighteenth century did not have rags-to-riches plot lines like that of the tale of Aladdin
2. Diyab's travelogue described the affluence of the French city of Bordeaux, instead of Versailles.
3. The description of opulence in Hanna Diyab's and Antoine Galland's narratives bore no resemblance to each other
4. Galland acknowledged in the published translations of Arabian Nights that he heard the story of Aladdin from Diyab.

Answer: 3

Q.5 All of the following serve as evidence for the character of Aladdin being based on Hanna Diyab EXCEPT:

1. Diyab's humble origins and class struggles, as recounted in his travelogue
2. Diyab's description of the wealth of Versailles in his travelogue
3. Diyab's cosmopolitanism and cross-cultural experience
4. Diyab's narration of the original story to Galland.

Answer: 4

Explanation: The passage is about the credit of telling the tale of Aladdin. The Frenchman Antoine Galland was the first to translate the tales of Aladdin which he claimed he first heard the tale from a Syrian storyteller from Aleppo named Hanna Diyab.
Despite the fantastical elements of the story, scholars now think the main character may actually be based on a real person's real experiences and that real person may well be Hanna Diyab himself, the young Arab Maronite from Aleppo, marveling at the wealth of Versailles.
For 300 years scholars thought this story was based on fantasy but the fact remains that Diyab might have based it on his own life.
To the scholars who study the tale, its narrative drama isn't the only reason that makes it so popular. It resonates even today because it is a story about Middle Easterners coming to Paris and that is still relevant today. There is little in the writings of Galland that would suggest that he was capable of developing a character like Aladdin with sympathy, but

Diyab's memoir reveals a narrator adept at capturing the distinctive psychology of a young protagonist, as well as recognizing the kinds of injustices and opportunities that can transform the path of any young migrant or adventurer.

Solution 1: Antoine Galland is the first European to translate the tale of Aladdin, which he claimed in his diary he heard from Diyab. Scholars however feel that the tale of Aladdin may well be the tale of Diyab himself marveling at the riches of the Versailles. Thus, options 2,3 and 4 contribute to the passage's claim about the authorship of Aladdin.
Option 1, is mentioned in a different context. The following extract, "For 300 years, scholars thought that the rags-to-riches story of Aladdin might have been inspired by the plots of French fairy tales that came out around the same time, or that the story was invented in that 18th century period as a byproduct of French Orientalism, a fascination with stereotypical exotic Middle Eastern luxuries that was prevalent then. The idea that Diyab might have based it on his own life — the experiences of a Middle Eastern man encountering the French, not vice-versa — flips the script" proves that Diyab may well have written the story and thus nothing is owed to French fairy tales of the 18th century for this work.
Hence, the correct answer is option 1.

Solution 2: Paragraph 1 states that Galland received the story of Aladdin from Diyab while paragraph 3 mentions that modern scholars now think that Diyab based the story of Aladdin on his own life experiences. Option 3 states this assertion and is the correct answer.
Option 1 is incorrect. The author clearly states that Galland heard the story from Diyab and that Diyab never mentioned to Galland that it was his own story.
The story of Aladdin was not found in an incomplete medieval manuscript but was recounted by Diyab to Galland. Eliminate option 2. Option 4 is not stated in the passage as pertinent to the tale of Aladdin. It is relevant to Arabian Nights.
Hence, the correct answer is option 3.

Solution 3: The following extract from paragraph 4, 'To the scholars who study the tale, its narrative drama isn't the only reason storytellers keep finding reason to return to Aladdin. It reflects not only "a history of the French and the Middle East, but also [a story about] Middle Easterners coming to Paris and that speaks to our world today," as Horta puts it' clearly points to option 1 as the correct answer.
Although the story of Aladdin is a rags-to-riches tale, that is not the reason for the story's fascination. Eliminate option 2.

Option 3 is also not true for the storytellers' fascination for the story of Aladdin. Eliminate option 3.
Option 4 is also not true for the story's current popularity.
Hence, the correct answer is option 1.

Solution 4: "Flips the script" refers to the assertion made by modern day scholars that the story of Aladdin was that of Diyab himself. Refer to the following extract from paragraph 2, 'The descriptions he (Diyab) uses were very similar to the descriptions of the lavish palace that ended up in Galland's version of the Aladdin story. [Therefore, author Paulo Lemos] Horta believes that "Aladdin might be the young Arab Maronite from Aleppo, marveling at the jewels and riches of Versailles." . . .' This extract combined with the following extract from paragraph 4, "The idea that Diyab might have based it on his own life — the experiences of a Middle Eastern man encountering the French, not vice-versa — flips the script" that it was not the French encountering the orientals – rather it was the other way around. Had the two stories of Galland and Diyab borne no resemblance to each other scholars would not have guessed that the story of Aladdin was the story of Diyab himself. We have to choose that option that validates this conclusion and only option 3 does it correctly.
Option 1 cannot be validated from the passage.
Option 2 is incorrect. Diyab did describe the opulence of Versailles. It does not answer the question.
Option 4 has nothing to do with "flipping the script." It is also not true. Galland acknowledged that he heard the story from Diyab only in his diary and not in his published translations.
Hence, the correct answer is option 3.

Solution 5: The story of Aladdin was a rags-to-riches story (refer paragraph 3). This fact validates option 1.
In paragraph 2, the following extract "Diyab wrote something of his own: a travelogue penned in the mid-18th century. In it, he recalls telling Galland the story of Aladdin [and] describes his own hard-knocks upbringing and the way he marveled at the extravagance of Versailles" serves as evidence for the character of Aladdin being based on Hanna Diyab. Therefore, option 2 is also validated.
In paragraph 3, Diyab's cross cultural experience, similar to that of Aladdin, is also mentioned. This fact validates option 3.
The fact that Diyab narrated the story of Aladdin to Galland does not serve as evidence that the character of Aladdin was based on Diyab himself. Option 4 does not serve as

any sort of evidence at all.
Hence, the correct answer is option 4.

"Free of the taint of manufacture" – that phrase, in particular, is heavily loaded with the ideology of what the Victorian socialist William Morris called the "anti-scrape", or an anticapitalist conservationism (not conservatism) that solaced itself with the vision of a preindustrial golden age. In Britain, folk may often appear a cosy, fossilised form, but when you look more closely, the idea of folk – who has the right to sing it, dance it, invoke it, collect it, belong to it or appropriate it for political or cultural ends – has always been contested territory. . . .

In our own time, though, the word "folk" . . . has achieved the rare distinction of occupying fashionable and unfashionable status simultaneously. Just as the effusive floral prints of the radical William Morris now cover genteel sofas, so the revolutionary intentions of many folk historians and revivalists have led to music that is commonly regarded as parochial and conservative. And yet – as newspaper columns periodically rejoice – folk is hip again, influencing artists, clothing and furniture designers, celebrated at music festivals, awards ceremonies and on TV, reissued on countless record labels. Folk is a sonic "shabby chic", containing elements of the uncanny and eerie, as well as an antique veneer, a whiff of Britain's heathen dark ages. The very obscurity and anonymity of folk music's origins open up space for rampant imaginative fancies. . . .

[Cecil Sharp, who wrote about this subject, believed that] folk songs existed in constant transformation, a living example of an art form in a perpetual state of renewal. "One man sings a song, and then others sing it after him, changing what they do not like" is the most concise summary of his conclusions on its origins. He compared each rendition of a ballad to an acorn falling from an oak tree; every subsequent iteration sows the song anew. But there is tension in newness. In the late 1960s, purists were suspicious of folk songs recast in rock idioms. Electrification, however, comes in many forms. For the early-20th-century composers such as Vaughan Williams and Holst, there were thunderbolts of inspiration from oriental mysticism, angular modernism and the body blow of the first world war, as well as input from the rediscovered folk tradition itself.

For the second wave of folk revivalists, such as Ewan MacColl and AL Lloyd, starting in the 40s, the vital spark was communism's dream of a post-revolutionary New Jerusalem. For their younger successors in the 60s, who thronged the folk clubs set up by the old guard, the lyrical freedom of Dylan and the unchained melodies of psychedelia created the conditions for folkrock's own golden age, a brief Indian summer that lasted from about 1969 to 1971. . . . Four decades on, even that progressive period has become just one more era ripe for fashionable emulation and pastiche. The idea of a folk tradition being exclusively confined to oral transmission has become a much looser, less severely guarded concept. Recorded music and television, for today's metropolitan generation, are where the equivalent of folk memories are seeded. . . .

Q.1 At a conference on folk forms, the author of the passage is least likely to agree with which one of the following views ?

1. Folk forms, in their ability to constantly adapt to the changing world, exhibit an unusual poise and homogeneity with each change.
2. Folk forms, despite their archaic origins, remain intellectually relevant in contemporary times
3. The plurality and democratising impulse of folk forms emanate from the improvisation that its practitioners bring to it.
4. The power of folk resides in its contradictory ability to influence and be influenced by the present while remaining rooted in the past.

Answer: 1

Q.2 The primary purpose of the reference to William Morris and his floral prints is to show:

1. the pervasive influence of folk on contemporary art, culture, and fashion.
2. that what is once regarded as radical in folk, can later be seen as conformist.
3. that despite its archaic origins, folk continues to remain a popular tradition.
4. that what was once derided as genteel is now considered revolutionary

Answer: 2

Q.3 Which of the following statements about folk revivalism of the 1940s and 1960s cannot be inferred from the passage?

1. It reinforced Cecil Sharp's observation about folk's constant transformation
2. Freedom and rebellion were popular themes during the second wave of folk revivalism
3. Electrification of music would not have happened without the influence of rock music.
4. Even though it led to folk-rock's golden age, it wasn't entirely free from critique.

Answer: 3

Q.4 The author says that folk "may often appear a cosy, fossilised form" because:

1. the notion of folk has led to several debates and disagreements.
2. it has been arrogated for various political and cultural purposes
3. of its nostalgic association with a pre-industrial past.
4. folk is a sonic "shabby chic" with an antique veneer.

Answer: 3

Q.5 All of the following are causes for plurality and diversity within the British folk tradition EXCEPT:

1. the fluidity of folk forms owing to their history of oral mode of transmission.
2. that British folk continues to have traces of pagan influence from the dark ages
3. that British folk forms can be traced to the remote past of the country.
4. paradoxically, folk forms are both popular and unpopular.

Answer: 4

Explanation: The passage is about folk music which in the first paragraph is likened to a pre-industrial age. In Britain, folk appears to be a cosy, fossilized form.
However, in contemporary times, folk is hip again, influencing artists, clothing and furniture designers, celebrated at music festivals, awards ceremonies and on TV, reissued on countless record labels. It is both fashionable and unfashionable.
Folk songs exist in constant transformation, a living example of an art form in a perpetual state of renewal. "One man sings a song, and then others sing it after him, changing what they do not like."
In the late 1960s, purists were suspicious of folk songs recast in rock idioms such as electrification. For the early-20th-century composers such as Vaughan Williams and Holst, inspiration came from oriental mysticism, angular modernism and the first world war.
For the second wave of folk revivalists, such as Ewan MacColl and AL Lloyd, starting in the 40s, the vital spark was communism's dream of a new world order. For their younger successors in the 60s, their inspiration was the lyrical freedom of Dylan and psychedelia that created the conditions for folk rock's own golden age. But the idea of a folk tradition being exclusively confined to oral transmission has become a much looser, less severely guarded concept. Today, folk memories are in recorded music and television, for today's generation.

Solution 1: The following extract from paragraph 3, "[Cecil Sharp, who wrote about this subject, believed that] folk songs existed in constant transformation, a living example of an art form in a perpetual state of renewal."One man sings a song, and then others sing it after him, changing what they do not like" is the most concise summary of his conclusions on its origins" combined with "But there is tension in newness. In the late 1960s, purists were suspicious of folk songs recast in rock idioms" clearly assert the fact that although folk music was able to adapt to the changing world, this change was not viewed with favour by purists (such as folk songs being recast in rock idioms). This is in conformity with the view presented in option 1.
Option 2 is true and is something that the author would agree with. Refer to paragraph 2.
Option 3 is also true and is something that the author would agree with. Refer to the following extract in paragraph 3, ""One man sings a song, and then others sing it after him, changing what they do not like".
Option 4 can also be derived from the passage. Refer to paragraph 2, "In our own time, though, the word "folk" . . . has achieved the rare distinction of occupying fashionable and unfashionable status simultaneously. Just as the effusive floral prints of the radical William Morris now cover genteel sofas, so the revolutionary intentions of many folk historians and revivalists have led to music that is commonly regarded as parochial and conservative."
Hence, the correct answer is option 1.

Solution 2: The following extract from paragraph 2, "Just as the effusive floral prints of the radical William Morris now cover genteel sofas, so the revolutionary intentions of many folk historians and revivalists have led to music that is commonly regarded as parochial and conservative" points to the fact that what was once radical in folk music is now seen as conformist. Thus, option 2 is the correct answer.
Option 1 is not true as per the extract given above.
Option 3 has nothing to do with the metaphor of William Morris and his floral prints with folk music.
Option 4 inverts the relationship given in the passage. Folk music that was once considered revolutionary is now genteel and acceptable. Hence, the correct answer is option 2.

Solution 3: Option 1 can be inferred from the passage. In the 1940s folk music "the vital spark was communism's dream of a post-revolutionary New Jerusalem. For their younger successors in the 60s, who thronged the folk clubs set up by the old guard, the lyrical freedom of Dylan and the unchained melodies of psychedelia created the conditions for folk rock's own golden age, a brief Indian summer that lasted from about 1969 to 1971. This extract reinforces Cecil Sharp's observation about folk's constant transformation. Eliminate option 1.

The following extract, "For the second wave of folk revivalists, such as Ewan MacColl and AL Lloyd, starting in the 40s, the vital spark was communism's dream of a post-revolutionary New Jerusalem" validates option 2. Thus, option 2 is eliminated.

Option 3 cannot be inferred from the passage. Purists were against the electrification of folk music but the passage is silent on the origins of the electrification of music except for the fact that "In the late 1960s, purists were suspicious of folk songs recast in rock idioms. Electrification, however, comes in many forms." Therefore, rock music is not necessarily the originator of electrification in music. Thus, option 3 is the correct answer.

Option 4 can be inferred from the following extract, "For their younger successors in the 60s, who thronged the folk clubs set up by the old guard, the lyrical freedom of Dylan and the unchained melodies of psychedelia created the conditions for folk rock's own golden age, a brief Indian summer that lasted from about 1969 to 1971. . . . Four decades on, even that progressive period has become just one more era ripe for fashionable emulation and pastiche." Pastiche means to imitate or copy and the author is critical about this phenomenon. Thus, option 4 is eliminated.

Hence, the correct answer is option 3.

Solution 4: The first paragraph clearly gives the link between folk music appearing as a cosy, fossilized form because of its association with a pre-industrial past. Thus, option 3 is the correct answer.

Options 1 and 2 may be true but are not connected with folk being referred to as a cosy, fossilized form.

"Shabby chic" in option 4 refers to modern folk music that is now hip and fashionable.

Hence, the correct answer is option 3.

Solution 5: The oral mode of transmission with regard to folk music has been mentioned in paragraph 4. Therefore, option 1 is not the answer. Option 2 is also true and can be derived from paragraph 2. Thus, option 2 is also not the answer.

Option 3 can be asserted from the following extract in paragraph 2 – "a whiff of Britain's heathen dark ages" with regard to folk music. Thus, option 3 is also eliminated.

Option 4 may also be true but it does not answer the question asked. The popularity or unpopularity of folk music has nothing to do with the plurality and diversity of folk music in Britain. Thus, option 4 is the correct answer.

Hence, the correct answer is option 4.

Scientists recently discovered that Emperor Penguins—one of Antarctica's most celebrated species—employ a particularly unusual technique for surviving the daily chill. As detailed in an article published today in the journal Biology Letters, the birds minimize heat loss by keeping the outer surface of their plumage below the temperature of the surrounding air. At the same time, the penguins' thick plumage insulates their body and keeps it toasty. . . .

The researchers analyzed thermographic images . . . taken over roughly a month during June 2008. During that period, the average air temperature was 0.32 degrees Fahrenheit. At the same time, the majority of the plumage covering the penguins' bodies was even colder: the surface of their warmest body part, their feet, was an average 1.76 degrees Fahrenheit, but the plumage on their heads, chests and backs were -1.84, -7.24 and -9.76 degrees Fahrenheit respectively. Overall, nearly the entire outer surface of the penguins' bodies was below freezing at all times, except for their eyes and beaks. The scientists also used a computer simulation to determine how much heat was lost or gained from each part of the body—and discovered that by keeping their outer surface below air temperature, the birds might paradoxically be able to draw very slight amounts of heat from the air around them. The key to their trick is the difference between two different types of heat transfer: radiation and convection.

The penguins do lose internal body heat to the surrounding air through thermal radiation, just as our bodies do on a cold day. Because their bodies (but not surface plumage) are warmer than the surrounding air, heat gradually radiates outward over time, moving from a warmer material to a colder one. To maintain body temperature while losing heat, penguins, like all warm-blooded animals, rely on the metabolism of food. The penguins, though, have an additional strategy. Since their outer plumage is even colder than the air, the simulation showed that they might gain back a little of this heat through thermal convection—the transfer of heat via the movement of a fluid (in this case, the air). As the cold Antarctic air cycles around their bodies, slightly warmer air comes into contact with the plumage and donates minute amounts of heat back to the penguins, then cycles away at a slightly colder temperature.

Most of this heat, the researchers note, probably doesn't make it all the way through the plumage and back to the penguins' bodies, but it could make a slight difference. At the very least, the method by which a penguin's plumage wicks heat from the bitterly cold air that surrounds it helps to cancel out some of the heat that's radiating from its interior. And given the Emperors' unusually demanding breeding cycle, every bit of warmth counts. . . . Since [penguins trek as far as 75 miles to the coast to breed and male penguins] don't eat anything during [the incubation period of 64 days], conserving calories by giving up as little heat as possible is absolutely crucial.

Q.1 Which of the following best explains the purpose of the word “paradoxically” as used by the author?

1. Keeping their body colder helps penguins keep their plumage warmer.
2. Heat loss through radiation happens despite the heat gain through convection.
3. Keeping a part of their body colder helps penguins keep their bodies warmer.
4. Heat gain through radiation happens despite the heat loss through convection

Answer: 3

Q.2 Which of the following can be responsible for Emperor Penguins losing body heat?

1. Thermal convection.
2. Plumage.
3. Reproduction process
4. Food metabolism.

Answer: 3

Q.3 In the last sentence of paragraph 3, “slightly warmer air” and “at a slightly colder temperature” refer to ______ AND ______ respectively:

1. the cold Antarctic air which becomes warmer because of the heat radiated out from penguins’ bodies AND the fall in temperature of the surrounding air after thermal convection
2. the cold Antarctic air whose temperature is higher than that of the plumage AND the fall in temperature of the Antarctic air after it has transmitted some heat to the plumage.
3. the air trapped in the plumage which is warmer than the Antarctic air AND the fall in temperature of the trapped plumage air after it radiates out some heat.
4. the air inside penguins’ bodies kept warm because of metabolism of food AND the fall in temperature of the body air after it transfers some heat to the plumage.

Answer: 2

Q.4 All of the following, if true, would negate the findings of the study reported in the passage EXCEPT:

1. the penguins' plumage were made of a material that did not allow any heat transfer through convection or radiation.
2. the temperature of the plumage on the penguins' heads, chests and backs were found to be 1.84, 7.24 and 9.76 degrees Fahrenheit respectively
3. the average temperature of the feet of penguins in the month of June 2008 were found to be 2.76 degrees Fahrenheit.
4. the average air temperature recorded during the month of June 2008 in the area of study were –10 degrees Fahrenheit.

Answer: 3

Explanation: The passage is about the ability of emperor penguins to survive the chill Antarctic temperatures. They do this by minimizing heat loss by keeping the outer surface of their plumage below the temperature of the surrounding air.
By keeping their outer surface below air temperature, the emperor penguins might paradoxically be able to draw very slight amounts of heat from the air around them. The key to their trick is the difference between two different types of heat transfer: radiation and convection.
Because their bodies (but not surface plumage) are warmer than the surrounding air, heat gradually radiates outward over time, moving from a warmer material to a colder one. Since their outer plumage is even colder than the air, the simulation showed that they might gain back a little of this heat through thermal convection—the transfer of heat via the movement of a fluid (in this case, the air).
The method by which a penguin's plumage absorbs heat from the bitterly cold air that surrounds it helps to cancel out some of the heat that's radiating from its body. Given the Emperors' unusually demanding breeding cycle, every bit of warmth counts, conserving calories by giving up as little heat as possible is absolutely critical.

Solution: 1 A paradoxical statement is one in which the statement is seemingly contradictory. The following extract in paragraph 2 has the word "paradoxically" – "The scientists also used a computer simulation to determine how much heat was lost or gained from each part of the body—and discovered that by keeping their outer surface below air temperature, the birds might paradoxically be able to draw very slight amounts of heat from the air around them."
Option 1 is not true according to the passage. Penguins keep their bodies warmer and their plumage colder.

Option 2 is not a paradoxical statement at all. Although it is true it is not contradictory in scope.
Option 3 is the correct answer (refer paragraph 3). Emperor penguins keep their outer plumage colder than the surrounding air in order to keep their bodies warmer. The heat that they lose through thermal radiation is more than made up slightly through convection.
Option 4 is incorrect. Penguins lose heat through radiation and gain it through convection. Thus, option 4 is also eliminated.
Hence, the correct answer is option 3

Solution 2: The following extract, "Since their outer plumage is even colder than the air, the simulation showed that they might gain back a little of this heat through thermal convection—the transfer of heat via the movement of a fluid (in this case, the air)" shows that Emperor penguins gain heat during convection. Eliminate option 1.
The Emperor penguin's plumage is colder than the surrounding air in order for convection to take place. Convection is heat gain. Eliminate option 2.
The following extract in paragraph 4, "And given the Emperors' unusually demanding breeding cycle, every bit of warmth counts. . . . Since [penguins trek as far as 75 miles to the coast to breed and male penguins] don't eat anything during [the incubation period of 64 days], conserving calories by giving up as little heat as possible is absolutely crucial" clearly shows the fact that emperor penguins lose heat during the reproduction process. Therefore, option 3 is the correct answer.
The following extract from paragraph 3, "Because their bodies (but not surface plumage) are warmer than the surrounding air, heat gradually radiates outward over time, moving from a warmer material to a colder one. To maintain body temperature while losing heat, penguins, like all warm-blooded animals, rely on the metabolism of food" clearly proves the assertion that emperor penguins gain heat during the food metabolism process. Thus, option 4 is also eliminated.
Hence, the correct answer is option 3.

Solution 3: The relevant extract in paragraph 3, "Since their outer plumage is even colder than the air, the simulation showed that they might gain back a little of this heat through thermal convection—the transfer of heat via the movement of a fluid (in this case, the air). As the cold Antarctic air cycles around their bodies, slightly warmer air comes into contact with the plumage and donates minute amounts of heat back to the penguins, then cycles away at a slightly colder temperature." A careful reading will lead us to the fact that the "slightly warmer air" refers to the cold Antarctic air whose temperature is higher than that of the plumage and "at a slightly colder temperature"

refers to the fall in temperature of the Antarctic air after it has transferred some heat to the plumage of the emperor penguins. Thus, option 2 is the correct answer.
Option 1 is incorrect as explained above.
Nothing has been mentioned about air being trapped in the plumage of the emperor penguins. Eliminate option 3.
Option 4 is incorrect. Food metabolism is not pertinent to the above fill in the blanks question. Secondly, heat is not transferred to the plumage but to the surrounding air by the process of thermal radiation. Eliminate option 4.
Hence, the correct answer is option 2.

Solution 4: The question asks us to choose the option that is true according to the passage. The double negatives: negate and EXCEPT cancel themselves out.
The following extract from paragraph 2, "The researchers analyzed thermographic images . . . taken over roughly a month during June 2008. During that period, the average air temperature was 0.32 degrees Fahrenheit. At the same time, the majority of the plumage covering the penguins' bodies was even colder: the surface of their warmest body part, their feet, was an average 1.76 degrees Fahrenheit, but the plumage on their heads, chests and backs were -1.84, -7.24 and -9.76 degrees Fahrenheit respectively" contains all the information required to be able to answer this question.
Option 1 cannot be said to be true according to the passage. The material of the penguins' plumage has not been discussed in the passage. In option 2, the temperatures of the plumage on the penguins' heads, chests and backs should have read -1.84, -7.24 and -9.76 degrees Fahrenheit respectively. Thus, option 2 is also untrue and is eliminated.
Option 3 is correct and true and is borne out by the extract given above.
Option 4 is not true. The extract given above gives the average air temperature recorded during the month of June 2008 in the area of study to be 0.32 degrees Fahrenheit.
Hence, the correct answer is option 3.

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

Vance Packard's The Hidden Persuaders alerted the public to the psychoanalytical techniques used by the advertising industry. Its premise was that advertising agencies were using depth interviews to identify hidden consumer motivations, which were then used to entice consumers to buy goods. Critics and reporters often wrongly assumed that Packard was writing mainly about subliminal advertising. Packard never mentioned the word subliminal, however, and devoted very little space to discussions of “subthreshold” effects. Instead, his views largely aligned with the notion that individuals do not always have access to their conscious thoughts and can be persuaded by supraliminal messages without their knowledge.

1. Packard held that advertising as a ‘hidden persuasion’ builds on peoples’ conscious thoughts and awareness, by understanding the hidden motivations of consumers and works at the subliminal level.
2. Packard argued that advertising as a ‘hidden persuasion’ works at the supraliminal level, wherein the people targeted are aware of being persuaded, after understanding the hidden motivations of consumers and works.
3. Packard argued that advertising as a ‘hidden persuasion’ understands the hidden motivations of consumers and works at the subliminal level, on the subconscious level of the awareness of the people targeted.
4. Packard held that advertising as a ‘hidden persuasion’ understands the hidden motivations of consumers and works at the supraliminal level, though the people targeted have no awareness of being persuaded.

Answer: 4

Solution: What does the passage state? Vance Packard’s argument is clear. Advertising agencies use supraliminal messages, which individuals are not conscious of, to entice them to buy goods. Furthermore, individuals have no knowledge or awareness that supraliminal messages are being used to entice them.
Now let us examine each option:
Option 1 clearly contradicts Packard’s assertion by stating that advertising or the ‘hidden persuasion’ builds on peoples’ conscious thoughts and awareness. The passage clearly states that advertisers use supraliminal messages which people are not conscious of. Secondly, option 1 states that advertising works at the subliminal level. Packard was clear that the hidden persuasion works at the supraliminal level. Therefore, option 1 can be eliminated.
Option 2 is incorrect. While it is true that Packard was of the opinion that advertising works at the supraliminal level, option 2 states that people targeted are aware they are being persuaded. Actually, they are not aware that they are being persuaded. Therefore, option 2 can also be eliminated.
Option 3 is also incorrect as the option states that advertising works at the subliminal level while Packard was of the view that it works at the supraliminal level. Therefore,

option 3 can also be eliminated.
Option 4 summarises the passage correctly and succinctly by stating the crux of the passage. Advertising understands the hidden motivations of consumers and works at the supraliminal level in which the consumers have no idea that they are being persuaded.
Hence, the correct answer is option 4.

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

Physics is a pure science that seeks to understand the behavior of matter without regard to whether it will afford any practical benefit. Engineering is the correlative applied science in which physical theories are put to some specific use, such as building a bridge or a nuclear reactor. Engineers obviously rely heavily on the discoveries of physicists, but an engineer's knowledge of the world is not the same as the physicist's knowledge. In fact, an engineer's know-how will often depend on physical theories that, from the point of view of pure physics, are false. There are some reasons for this. First, theories that are false in the purest and strictest sense are still sometimes very good approximations to the true ones, and often have the added virtue of being much easier to work with. Second, sometimes the true theories apply only under highly idealized conditions which can only be created under controlled experimental situations. The engineer finds that in the real world, theories rejected by physicists yield more accurate predictions than the ones that they accept.

1. The relationship between pure and applied science is strictly linear, with the pure science directing applied science, and never the other way round.
2. Though engineering draws heavily from pure science, it contributes to knowledge, by incorporating the constraints and conditions in the real world
3. The unique task of the engineer is to identify, understand, and interpret the design constraints to produce a successful result.
4. Engineering and physics fundamentally differ on matters like building a bridge or a nuclear reactor

Answer: 2

Solution: Let us sum up the passage. The passage states that physics seeks to understand the behavior of matter without regard to whether it will afford any practical benefit while engineering uses the theories of physics for some specific use. Secondly, in real world situations, engineers often use theories from physics that have been rejected

under controlled experimental situations.
Option 1 is an assumption that is not borne out by the passage. The passage does state that theories of physics or pure sciences do direct applied sciences such as engineering but we do not know whether or not the reverse is true. Thus, option 1 is eliminated.
Option 2 summarizes the paragraph succinctly. It restates the meanings given in summing up the passage. Though engineering uses a lot of theories of physics it also accepts a lot of theories rejected by physicists that have been created in controlled experimental situations because they happen to work in real world situations.
Option 3 erroneously refers to “design constraints” instead of the “acceptance and rejections of theories of pure science.” The paragraph does not mention “design constraints” at all but the fact that engineers frequently use theories of physics that have been rejected in controlled experimental situations. Thus, option 3 is eliminated.
Option 4 distorts the meaning of the paragraph. Engineering and physics do not fundamentally differ on matters like building a bridge or a nuclear reactor. The paragraph states in sentence 2 that engineers use the theories of physics to build bridges and nuclear reactors. It is just that some theories of physics which have been rejected in controlled experimental situations are put into use by engineers in real world situations but fundamentally engineers use the theories of physics and do not differ from them.
Hence, the correct answer is option 2.

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

1. People with dyslexia have difficulty with print-reading, and people with autism spectrum disorder have difficulty with mind-reading.
2. An example of a lost cognitive instinct is mind-reading: our capacity to think of ourselves and others as having beliefs, desires, thoughts and feelings.
3. Mind-reading looks increasingly like literacy, a skill we know for sure is not in our genes, since scripts have been around for only 5,000-6,000 years
4. Print-reading, like mind-reading varies across cultures, depends heavily on certain parts of the brain, and is subject to developmental disorders.

Answer: 2341

Solution: The paragraph is about mind-reading and print-reading and sentence 1 seems to conclude the paragraph by giving names to people who cannot print-read or have difficulty in mind-reading – people with dyslexia have difficulty with print-reading, and people with autism spectrum disorder have difficulty with mind-reading.
Sentence 2 is the introductory sentence since it defines and gives the meaning of mind reading. It goes on to mention that mind-reading is a "lost cognitive instinct."
Sentence 3 extends this thought of mind-reading by likening it to literacy and stating that scripts have been around for only 5000-6000 years. Therefore, literacy is not in our genes.
Sentence 4 with "print reading" extends this thought of scripts being around for a short human period only. Furthermore, it talks about development "disorders" in print-reading.
Sentence 1 concludes the paragraph by giving names to people with mind-reading or print-reading disorders – people with dyslexia have difficulty with print-reading, and people with autism spectrum disorder have difficulty with mind-reading.
Hence, the correct sequence is 2341.

Q. Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1. His idea to use sign language was not a completely new idea as Native Americans used hand gestures to communicate with other tribes.
2. Ancient Greek philosopher Aristotle, for example, observed that men who are deaf are incapable of speech.
3. People who were born deaf were denied the right to sign a will as they were "presumed to understand nothing; because it is not possible that they have been able to learn to read or write."
4. Pushback against this prejudice began in the 16th century when Pedro Ponce de León created a formal sign language for the hearing impaired.
5. For millennia, people with hearing impairments encountered marginalization because it was believed that language could only be learned by hearing the spoken word

Answer: 2

Solution: Let us solve this question by linking the sentences logically into a coherent paragraph.
The paragraph is about the prejudices that deaf people encountered in the past before Pedro Ponce de Leon created a formal sign language for the hearing impaired in the 16th century.
Sentence 5 would be the first sentence of the paragraph. It mentions the marginalization that the hearing impaired encountered for millennia and the reason for that marginalization or prejudice – it was believed that language could only be learned by hearing the spoken word.
Sentence 3 extends the thought of prejudice by citing one instance of this prejudice; deaf people were not permitted the right to sign wills.
Sentence 4 with the thought reversal "Pushback against this prejudice" will follow sentence 3 with the mention of a formal sign language created by Pedro Ponce Leon.
Sentence 1 closes the paragraph by stating that Pedro's idea (of using sign language) was not new. Native Americans used hand gestures as well to communicate with other tribes.
We are left with sentence 2 which does not appear to fit anywhere in the paragraph. It states that the ancient Greek philosopher, Aristotle, observed that deaf people were incapable of speech. This sentence clearly is the odd one out since the paragraph is about the prejudices that the deaf people faced and the attempt to redress this prejudice by the creation of a sign language by Pedro Ponce. The fact that the deaf were also incapable of speech is not of any importance or relevance to the paragraph.
Hence, the correct answer is option 2.

Q. Five sentences related to a topic are given below in a jumbled order. Four of them form a coherent and unified paragraph. Identify the odd sentence that does not go with the four. Key in the number of the option that you choose.

1. 'Stat' signaled something measurable, while 'matic' advertised free labour; but 'tron', above all, indicated control.
2. It was a totem of high modernism, the intellectual and cultural mode that decreed no process or phenomenon was too complex to be grasped, managed and optimized.
3. Like the heraldic shields of ancient knights, these morphemes were painted onto the names of scientific technologies to proclaim one's history and achievements to friends and enemies alike.

4. The historian Robert Proctor at Stanford University calls the suffix '-tron', along with '-matic' and '-stat', embodied symbols.
5. To gain the suffix was to acquire a proud and optimistic emblem of the electronic and atomic age.

Answer: 2

Solution: It is clear that the passage is about the three morphemes, 'stat,' 'matic' and 'tron', their meanings and importance in the electronic and atomic age.
Let us link the sentences logically and try and find the sentence which does not link logically with the other sentences. 'Stat', 'matic' and 'tron' are suffixes as first mentioned in sentence 4. Therefore, sentence 4 will begin the paragraph. Sentence 1 follows sentence 4 by giving the meanings of the three suffixes.
Sentence 3 follows sentence 1 by stating that these morphemes (Stat, matic and tron) have been linked to scientific technologies to proclaim one's history and achievements, similar to knights in ancient times wearing shields with emblems to proclaim their warrior statuses.
Sentence 5 extends this thought further by stating that to gain these suffixes (signifying different professions) was a mark of prestige in the modern era.
It is clear that sentence 2 is the odd sentence out of the paragraph. We are not sure as to what the pronoun "it" is referring to.
Secondly, it mentions that the modern age is characterized by the fact that no process or phenomenon is too complex to be understood or deciphered. Sentence 2 is completely at variance with the other sentences in the paragraph since it does not mention anything about the three suffixes (stat, matic and tron) discussed in the other sentences.
Hence, the correct answer is option 2.

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

1. We'll all live under mob rule until then, which doesn't help anyone.
2. Perhaps we need to learn to condense the feedback we receive online so that 100 replies carry the same weight as just one.
3. As we grow more comfortable with social media conversations being part of the way we interact every day, we are going to have to learn how to deal with legitimate criticism.

4. . A new norm will arise where it is considered unacceptable to reply with the same point that dozens of others have already.

Answer: 3241

Solution: Sentence 1, with “then” cannot be the introductory sentence and neither can sentence 2 with “perhaps.” Both these words suggest an event or action will precede these sentences. A close reading of the sentences shows us that the paragraph is about “social media conversations” – at least sentences 2,3 and 4 are. Sentences 2 and 4 are about replying to social media conversations while sentence 3 is about social media conversations. Therefore, sentence 3 is the introductory sentence since it is the more generic sentence.
Sentences 2 and 4 are a pair since sentence 2 speaks about condensing feedback or replies and sentence 4 talks about this new norm where it would be unacceptable to reply with the same point that dozens of others have already.
Until this condensation of feedback or replies is undertaken, we will all live under mob rule in the social media universe. Sentence 1 states this and concludes the paragraph. Hence, the correct sequence is 3241.

Q. Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1. One argument is that actors that do not fit within a single, well-defined category may suffer an “illegitimacy discount”.
2. Others believe that complex identities confuse audiences about an organization’s role or purpose.
3. Some organizations have complex and multidimensional identities that span or combine categories, while other organizations possess narrow identities.
4. Identity is one of the most important features of organizations, but there exist opposing views among sociologists about how identity affects organizational performance.
5. Those who think that complex identities are beneficial point to the strategic advantages of ambiguity, and organizations’ potential to differentiate themselves from competitors.

Answer: 1

Solution: Let us link the sentences logically and find out which sentence does not conform to the main theme of the paragraph. It is clear that the paragraph is about "identity", more specifically, identities of organizations. Sentence 4 is the introductory sentence since it introduces the theme of "identity" and the opposing views among sociologists about how identity affects organizational performance.
Sentence 3 follows sentence 4 by mentioning two types of identities that organizations have – some organizations have complex and multidimensional identities while other organizations have narrow identities.
Sentence 5 follows sentence 3 by mentioning "those" who think complex or multidimensional identities are more beneficial to organizations and sentence 2 will follow sentence 5 with "others" who feel the opposite – complex identities confuse audiences about an organization's role or purpose.
Sentence 1 is about "actors" and not about identities at all. Secondly, it is more about "categories" than identities. It does not fit in with the rest of the sentences in the paragraph.
Hence, the correct answer is option 1.

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

1. Metaphors may map to similar meanings across languages, but their subtle differences can have a profound effect on our understanding of the world.
2. . Latin scholars point out carpe diem is a horticultural metaphor that, particularly seen in the context of its source, is more accurately translated as "plucking the day," evoking the plucking and gathering of ripening fruits or flowers, enjoying a moment that is rooted in the sensory experience of nature, unrelated to the force implied in seizing.
3. The phrase carpe diem, which is often translated as "seize the day and its accompanying philosophy, has gone on to inspire countless people in how they live their lives and motivates us to see the world a little differently from the norm
4. . It's an example of one of the more telling ways that we mistranslate metaphors from one language to another, revealing in the process our hidden assumptions about what we really value.

Answer: 3241

Solution: Since it is difficult to clearly establish the introductory sentence, let us look for linking pairs.
Sentences 3 and 2 are clearly a linking pair. Both mention the phrase 'carpe diem.' While sentence 3 mentions carpe diem is often translated as "seize the day", its more accurate translation in the context of its source, as mentioned in sentence 2, is "plucking the day" – evoking the plucking and gathering of flowers. Sentence 3, with "The phrase carpe diem" will come first.
It is clear that carpe diem is therefore a metaphor and its meaning has been changed from its original source.
This is exactly what sentence 4 states and this sentence will follow sentence 2.
Sentence 1, at first read, appears to be the introductory sentence of the paragraph but is actually a more effective concluding sentence. It talks about the subtle differences of metaphors across languages which is exactly what sentences 3 and 2 mention in the form of a particular phrase – carpe diem. Sentence 1, therefore, sums up the assertions made in the first three sentences and is the concluding sentence.
Therefore, the correct order of sentences is 3241.

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

1. If you've seen a little line of text on websites that says something like "customers who bought this also enjoyed that" you have experienced this collaborative filtering firsthand
2. The problem with these algorithms is that they don't take into account a host of nuances and circumstances that might interfere with their accuracy
3. If you just bought a gardening book for your cousin, you might get a flurry of links to books about gardening, recommended just for you! – the algorithm has no way of knowing you hate gardening and only bought the book as a gift.
4. Collaborative filtering is a mathematical algorithm by which correlations and cooccurrences of behaviors are tracked and then used to make recommendations.

Answer: 4123

Solution: It is clear that the paragraph is about "Collaborative filtering." Sentence 4 defines collaborative filtering and is our introductory sentence.
Sentence 1 follows by giving an example of collaborative filtering that occurs on websites.
Sentence 2 highlights a flaw in the process of collaborative filtering and sentence 3 gives an example of this type of flaw. Sentence 2 mentions how collaborative filtering algorithms do not take into account the nuances that might interfere with their accuracy while sentence 3 follows this with a suitable example, which is, If you just bought a gardening book for your cousin, you might get a flurry of links to books about gardening, recommended just for you! – the algorithm has no way of knowing you hate gardening and only bought the book as a gift.
Hence, the correct sequence is 4123.

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

A distinguishing feature of language is our ability to refer to absent things, known as displaced reference. A speaker can bring distant referents to mind in the absence of any obvious stimuli. Thoughts, not limited to the here and now, can pop into our heads for unfathomable reasons. This ability to think about distant things necessarily precedes the ability to talk about them. Thought precedes meaningful referential communication. A prerequisite for the emergence of human-like meaningful symbols is that the mental categories they relate to can be invoked even in the absence of immediate stimuli.

1. Thoughts precede all speech acts and these thoughts pop up in our heads even in the absence of any stimulus.
2. Displaced reference is particular to humans and thoughts pop into our heads for no real reason.
3. Thoughts are essential to communication and only humans have the ability to think about objects not present in their surroundings.
4. The ability to think about objects not present in our environment precedes the development of human communication

Answer: 4

Solution: A summary of the passage would read like the following:
Displaced reference is the propensity to have thoughts about distant things without the absence of any obvious stimulus. Displaced reference or thoughts precede language or

communication.
Option 1 distorts the meaning of the paragraph by stating that thoughts precede all speech acts. This implies that we think of a particular subject before speaking about it. The passage mentions that thoughts occurred before communication or language in humans. The two interpretations are not compatible. Secondly, “all” speech acts is too strong an assumption to make. Therefore, option 1 is eliminated. The paragraph does not mention that displaced reference is unique to humans. Eliminate option 2.
The paragraph does not mention that the ability to have thoughts not present in our surroundings is unique only to humans. Eliminate option 3.
Option 4 summarizes the paragraph correctly. The ability to think precedes human communication (as mentioned at the top of the solution). Hence, the correct answer is option 4.

CAT 2019 Questions and Answers – Afternoon Slot

Verbal Ability – Reading Comprehension – Afternoon Slot – CAT 2019

For two years, I tracked down dozens of. . . Chinese in Upper Egypt [who were] selling lingerie. In a deeply conservative region, where Egyptian families rarely allow women to work or own businesses, the Chinese flourished because of their status as outsiders. They didn’t gossip, and they kept their opinions to themselves. In a New Yorker article entitled “Learning to Speak Lingerie,” I described the Chinese use of Arabic as another non-threatening characteristic. I wrote, “Unlike Mandarin, Arabic is inflected for gender, and Chinese dealers, who learn the language strictly by ear, often pick up speech patterns from female customers. I’ve come to think of it as the lingerie dialect, and there’s something disarming about these Chinese men speaking in the feminine voice.” . . .

When I wrote about the Chinese in the New Yorker, most readers seemed to appreciate the unusual perspective. But as I often find with topics that involve the Middle East, some people had trouble getting past the black-and-white quality of a byline. “This piece is so orientalist I don’t know what to do,” Aisha Gani, a reporter who worked at The Guardian, tweeted. Another colleague at the British paper, Iman Amrani, agreed: “I wouldn’t have minded an article on the subject written by an Egyptian woman—

probably would have had better insight." . . .

As a MOL (man of language), I also take issue with this kind of essentialism. Empathy and understanding are not inherited traits, and they are not strictly tied to gender and race. An individual who wrestles with a difficult language can learn to be more sympathetic to outsiders and open to different experiences of the world. This learning process—the embarrassments, the frustrations, the gradual sense of understanding and connection—is invariably transformative. In Upper Egypt, the Chinese experience of struggling to learn Arabic and local culture had made them much more thoughtful. In the same way, I was interested in their lives not because of some kind of voyeurism, but because I had also experienced Egypt and Arabic as an outsider. And both the Chinese and the Egyptians welcomed me because I spoke their languages. My identity as a white male was far less important than my ability to communicate.

And that easily lobbed word—"Orientalist"—hardly captures the complexity of our interactions. What exactly is the dynamic when a man from Missouri observes a Zhejiang native selling lingerie to an Upper Egyptian woman?.. If all of us now stand beside the same river, speaking in ways we all understand, who's looking east and who's looking west? Which way is Oriental?

For all of our current interest in identity politics, there's no corresponding sense of identity linguistics. You are what you speak—the words that run throughout your mind are at least as fundamental to your selfhood as is your ethnicity or your gender. And sometimes it's healthy to consider human characteristics that are not inborn, rigid, and outwardly defined. After all, you can always learn another language and change who you are.

Q.1 A French ethnographer decides to study the culture of a Nigerian tribe. Which of the following is most likely to be the view of the author of the passage?

1. The author would encourage the ethnographer, but ask him/her to first learn the language of the Nigerian tribe s/he wishes to study.
2. The author would discourage the ethnographer from conducting the study as Nigerian ethnographers can better understand the tribe.
3. The author would encourage the ethnographer and recommend him/her to hire a good translator for the purpose of holding interviews.
4. The author would encourage the ethnographer but ask him/her to be mindful of his/her racial and gender identity in the process.

Answer: 1

Q.2 The author's critics would argue that:

1. Language is insufficient to bridge cultural barriers.
2. Empathy can overcome identity politics.
3. Linguistic politics can be erased.
4. Orientalism cannot be practiced by Egyptians.

Answer: 1

Q.3 Which of the following can be inferred from the author's claim, "Which way is Oriental?"

1. Orientalism is a discourse of the past, from colonial times, rarely visible today.
2. Learning another language can mitigate cultural hierarchies and barriers.
3. Globalization has mitigated cultural hierarchies and barriers.
4. Goodwill alone mitigates cultural hierarchies and barriers.

Answer: 2

Q.4 According to the passage, which of the following is not responsible for language's ability to change us?

1. The ups and downs involved in the course of learning a language.
2. The twists and turns in the evolution of language over time.
3. Language's intrinsic connection to our notions of self and identity.
4. Language's ability to mediate the impact of identity markers one is born with.

Answer: 2

Explanation: The passage is an analytical piece of writing most likely written for a magazine. The author, a white man, has spent two years researching Chinese men sell lingerie in Upper Egypt. He gives reasons for the Chinese men being successful in selling lingerie to Egyptian women in a deeply conservative society – "the Chinese flourished because of their status as outsiders. They didn't gossip, and they kept their opinions to themselves" and "there's something disarming about these Chinese men speaking in the feminine voice."
But when he writes of these experiences his critics accuse him of being an "Orientalist."

The author, in turn argues that learning a new language is invariably transformative and leads to better empathy and understanding, which is why the Chinese who had to learn Arabic were much more thoughtful. According to the author, empathy and understanding are not inherited traits and neither are they limited to gender or race. The author goes on to debunk the traditional definition of an orientalist by saying that there is actually no such thing. You are what you speak—the words that run throughout your mind are at least as fundamental to your selfhood as is your ethnicity or your gender. And sometimes it's healthy to consider human characteristics that are not inborn, rigid, and outwardly defined.

Solution 1: Refer to paragraph 5, second sentence where the author says, "You are what you speak—the words that run throughout your mind are at least as fundamental to your selfhood as is your ethnicity or your gender." Therefore, the author is firmly of the belief that learning the language of a certain people and having empathy and understanding are sufficient to be able to study the culture of a certain community. Thus, option 1 is the correct answer.
Option 2 is incorrect and better suited to the author's critics who argued that ethnicity and race are essential to understand the culture of a certain community.
Option 3 is also incorrect. The author firmly believes in "identity linguistics", which is, learning the language of a certain community in order to be able to understand the culture of that community. According to the author, empathy and understanding are not inborn traits and not limited to one particular race or gender. Having empathy and learning the local language are sufficient to be able to understand the culture of a particular community. Therefore, option 4 is also incorrect.
Hence, the correct answer is option 1.

Solution 2: Refer to paragraph 2, where the author's critics have criticized him for writing about Chinese men selling lingerie in Egypt. According to the critics this was nothing but orientalism and an Egyptian woman would have had a better understanding of this subject. Moreover, the critics are dismissive of the author's knowledge of both mandarin and Arabic. Thus, according to them language is insufficient to bridge cultural barriers. This assumption by the critics points to option 1 as being the correct answer.
Option 2 is correct but is not the critics' views. Their views are diametrically opposite – that empathy is not sufficient to bridge cultural barriers. Thus, option 2 is eliminated.
The term "linguistic politics" has not been mentioned in the passage. Eliminate option 3.
Option 4 can also be eliminated as the author has debunked the very concept of orientalism. Refer to paragraph 4 – "And that easily lobbed word—"Orientalist"—hardly captures the complexity of our interactions. What exactly is the dynamic when a man

from Missouri observes a Zhejiang native selling lingerie to an Upper Egyptian woman?.. If all of us now stand beside the same river, speaking in ways we all understand, who's looking east and who's looking west? Which way is Oriental?" Thus, option 4 is also eliminated.
Hence, the correct answer is option 1.

Solution 3: Refer to paragraph 4 – "And that easily lobbed word—"Orientalist"—hardly captures the complexity of our interactions. What exactly is the dynamic when a man from Missouri observes a Zhejiang native selling lingerie to an Upper Egyptian woman?.. If all of us now stand beside the same river, speaking in ways we all understand, who's looking east and who's looking west? Which way is Oriental?" Thus, the author is of the opinion that learning the language of a community and having empathy are sufficient in understanding the culture of that particular community. Thus, option 2 is the correct answer.
Option 1 is the traditional meaning of orientalism. It is not the author's view. Eliminate option 1.
Option 3 has not been mentioned in the passage at all. The impact of globalization in mitigating cultural barriers has not been discussed with reference to "orientalism." Eliminate option 3.
According to the author, the key to understanding cultures are empathy and understanding and learning the language of that particular culture. If goodwill can be said to mean "empathy" then it is one of the reasons but not the only reason in being able to overcome cultural barriers. Language is equally important. Thus, option 4 is also eliminated.
Hence, the correct answer is option 2.

Solution 4: Refer to paragraph 3, "An individual who wrestles with a difficult language can learn to be more sympathetic to outsiders and open to different experiences of the world. This learning process—the embarrassments, the frustrations, the gradual sense of understanding and connection—is invariably transformative." Thus, option 1 is one of the reasons for language's ability to change us and is not the correct answer.
"Evolution of language over time" has not been mentioned or discussed in the passage at all. Thus, option 2 is the correct answer. Refer to paragraph 3, "My identity as a white male was far less important than my ability to communicate." Thus, the author was welcomed by Egyptians and the Chinese not because he was a white male but because he could speak their languages. Thus, option 3 is one of the reasons for language to change us and can also be eliminated.
According to the author, "You are what you speak—the words that run throughout your

mind are at least as fundamental to your selfhood as is your ethnicity or your gender. And sometimes it's healthy to consider human characteristics that are not inborn, rigid, and outwardly defined. After all, you can always learn another language and change who you are." From this extract we can infer that learning a new language will mediate and alter the identity we were born with. Thus, option 4 is also one of the reasons for language to change us and can also be eliminated.
Hence, the correct answer is option 2.

The magic of squatter cities is that they are improved steadily and gradually by their residents. To a planner's eye, these cities look chaotic. I trained as a biologist and to my eye, they look organic. Squatter cities are also unexpectedly green. They have maximum density —1 million people per square mile in some areas of Mumbai—and have minimum energy and material use. People get around by foot, bicycle, rickshaw, or the universal shared taxi.

Not everything is efficient in the slums, though. In the Brazilian favelas where electricity is stolen and therefore free, people leave their lights on all day. But in most slums recycling is literally a way of life. The Dharavi slum in Mumbai has 400 recycling units and 30,000 ragpickers. Six thousand tons of rubbish are sorted every day. In 2007, the Economist reported that in Vietnam and Mozambique, "Waves of gleaners sift the sweepings of Hanoi's streets, just as Mozambiquan children pick over the rubbish of Maputo's main tip. Every city in Asia and Latin America has an industry based on gathering up old cardboard boxes." . . .

In his 1985 article, Calthorpe made a statement that still jars with most people: "The city is the most environmentally benign form of human settlement. Each city dweller consumes less land, less energy, less water, and produces less pollution than his counterpart in settlements of lower densities." "Green Manhattan" was the inflammatory title of a 2004 New Yorker article by David Owen. "By the most significant measures," he wrote, "New York is the greenest community in the United States and one of the greenest cities in the world . . . The key to New York's relative environmental benignity is its extreme compactness. . . . Placing one and a half million people on a twenty-three-square-mile island sharply reduces their opportunities to be wasteful." He went on to note that this very compactness forces people to live in the world's most energy-efficient apartment buildings. . . .

Urban density allows half of humanity to live on 2.8 percent of the land. . . . Consider just the infrastructure efficiencies. According to a 2004 UN report: "The concentration of population and enterprises in urban areas greatly reduces the unit cost of piped water,

sewers, drains, roads, electricity, garbage collection, transport, health care, and schools."
. . .

[T]he nationally subsidised city of Manaus in northern Brazil "answers the question" of how to stop deforestation: give people decent jobs. Then they can afford houses, and gain security. One hundred thousand people who would otherwise be deforesting the jungle around Manaus are now prospering in town making such things as mobile phones and televisions. . . .

Of course, fast-growing cities are far from an unmitigated good. They concentrate crime, pollution, disease, and injustice as much as a business, innovation, education and entertainment. . . . But if they are overall a net good for those who move there, it is because cities offer more than just jobs. They are transformative: in the slums, as well as the office towers and leafy suburbs, the progress is from hick to metropolitan to cosmopolitan . . .

Q.1 Which one of the following statements would undermine the author's stand regarding the greenness of cities?

1. The compactness of big cities in the West increases the incidence of violent crime.
2. Sorting through rubbish contributes to the rapid spread of diseases in the slums.
3. The high density of cities leads to an increase in carbon dioxide and global warming.
4. Over the last decade the cost of utilities has been increasing for city dwellers.

Answer: 3

Q.2 From the passage it can be inferred that cities are good places to live in for all of the following reasons EXCEPT that they:

1. help prevent destruction of the environment.
2. offer employment opportunities.
3. contribute to the cultural transformation of residents.
4. have suburban areas as well as office areas.

Answer: 4

Q.3 In the context of the passage, the author refers to Manaus in order to:

1. explain where cities source their labour for factories.
2. explain how urban areas help the environment.
3. describe the infrastructure efficiencies of living in a city.
4. promote cities as employment hubs for people.

Answer: 2

Q.4 According to the passage, squatter cities are environment-friendly for all of the following reasons EXCEPT:

1. their transportation is energy efficient.
2. they sort out garbage.
3. they recycle material.
4. their streets are kept clean.

Answer: 4

Q.5 We can infer that Calthorpe's statement "still jars" with most people because most people:

1. consider cities to be very crowded and polluted.
2. do not regard cities as good places to live in.
3. regard cities as places of disease and crime.
4. do not consider cities to be eco-friendly places.

Answer: 4

Explanation: This passage is written in a narrative style conducive to a magazine article. In this passage, the author discusses the advantages that cities and urban settlements have on the environment. In slums, there are vast recycling industries of almost every material conceivable and most people travel on environmentally friendly modes of transport such as rickshaws or bicycles or on foot.
The author quotes Calthorpe who is of the opinion that cities are the environmentally most benign form of human settlement since each city dweller consumes less land, less energy, less water, and produces less pollution than his counterpart in settlements of lower densities. The concentration of population and enterprises in urban areas greatly reduces the unit cost of piped water, sewers, drains, roads, electricity, garbage

collection, transport, health care, and schools.
The author though also offers some disadvantages of cities. They concentrate crime, pollution, disease and injustice as much as business, innovation, education and entertainment. However, he ends the passage by stating another advantage that cities possess; they have a transformative effect on people.

Solution 1: Option 1 is incorrect as “violent crime” does not have an adverse impact on the environment.
Option 2 is also incorrect as “the rapid spread of diseases” does not directly impact upon the environment.
Option 3 is the correct answer. If the high density of cities leads to an increase in carbon dioxide and global warming then it would undermine the author’s assertion that cities are relatively environmentally benign.
Option 4 is also incorrect. Increased cost of utilities is not likely to have an adverse impact on the environment.
Hence, the correct answer is option 3.

Solution 2: The passage clearly implies that cities are relatively more “green” than other less densely populated areas. Therefore, option 1 can be inferred and is not the correct answer.
Cities do offer employment opportunities. Refer to paragraph 6. Thus, option 2 can also be inferred and is eliminated.
Cities do contribute to the “transformation” of residents. Thus, option 3 can also be inferred and is also eliminated.
Option 4 has not been mentioned in the passage at all. The passage has not demarcated cities into suburban and office areas. Therefore, option 4 cannot be inferred and is the correct answer.
Hence, the correct answer is option 4.

Solution 3: The relevant extract in paragraph 5, “[T]he nationally subsidised city of Manaus in northern Brazil “answers the question” of how to stop deforestation: give people decent jobs. Then they can afford houses, and gain security. One hundred thousand people who would otherwise be deforesting the jungle around Manaus are now prospering in town making such things as mobile phones and televisions. . . .” clearly reveals that urbanization has led to less destruction of the environment in Manaus. This points to option 2 as being the correct answer.
Option 1 is incorrect and cannot be inferred from the passage.
Option 3 is also incorrect as the example of Manaus is given to show how jobs and

urbanization has led to less destruction of the environment.
All cities are employment hubs for people and not just Manaus. Eliminate option 4.
Hence, the correct answer is option 2.

Solution 4: Refer to paragraphs 1 and 2 of the passage. Most residents in squatter cities travel on foot, by rickshaw or by bicycle. Therefore, their transportation can be said to be energy efficient. Eliminate option 1.
The author gives the example of the slum at Dharavi which has 30,000 rag pickers and in which six thousand tons of rubbish are sorted every day. Eliminate option 2.
Again the author gives the example of the slum at Dharavi which has 400 recycling units. He goes on to say that every city in Asia and South America has an industry based on gathering old cardboard boxes. Eliminate option 3.
Option 4 has not been stated in the passage.
Hence, the correct answer is option 4.

Solution 5: Refer to the relevant extract in paragraph 3, 'In his 1985 article, Calthorpe made a statement that still jars with most people: "The city is the most environmentally benign form of human settlement. Each city dweller consumes less land, less energy, less water, and produces less pollution than his counterpart in settlements of lower densities."' This statement jars with most people because the conventional wisdom up until that time was that cities were actually very destructive towards the environment. Note that the passage is about the relative benign impact of cities on the environment. This points to option 4 as being the correct answer.
"Crowded", "polluted", "disease" and "crime" are characteristics of city life which the author has mentioned as negatives of living in cities but he has gone on to conclude the passage by also stating the positive impacts of living in cities and by suggesting that the positives of living in cities outweigh the negatives. Secondly, these negative facets of city life are not relevant to Calthorpe's statement which was solely about the environmental impact that cities have. Thus, options 1, 2 and 3 can be eliminated.
Hence, the correct answer is option 4.

Around the world, capital cities are disgorging bureaucrats. In the post-colonial fervour of the 20th century, coastal capitals picked by trade-focused empires were spurned for "regionally neutral" new ones . . . . But decamping wholesale is costly and unpopular; governments these days prefer piecemeal dispersal. The trend reflects how the world has changed. In past eras, when information travelled at a snail's pace, civil servants had to cluster together. But now desk-workers can ping emails and video-chat around the world. Travel for face-to-face meetings may be unavoidable, but transport links, too, have improved. . . .

Proponents of moving civil servants around promise countless benefits. It disperses the risk that a terrorist attack or natural disaster will cripple an entire government. Wonks in the sticks will be inspired by new ideas that walled-off capitals cannot conjure up. Autonomous regulators perform best far from the pressure and lobbying of the big city. Some even hail a cure for ascendant cynicism and populism. The unloved bureaucrats of faraway capitals will become as popular as firefighters once they mix with regular folk.

Beyond these sunny visions, dispersing central-government functions usually has three specific aims: to improve the lives of both civil servants and those living in clogged capitals; to save money; and to redress regional imbalances. The trouble is that these goals are not always realised.

The first aim—improving living conditions—has a long pedigree. After the second world war Britain moved thousands of civil servants to "agreeable English country towns" as London was rebuilt. But swapping the capital for somewhere smaller is not always agreeable. Attrition rates can exceed 80%. . . . The second reason to pack bureaucrats off is to save money. Office space costs far more in capitals. . . . Agencies that are moved elsewhere can often recruit better workers on lower salaries than in capitals, where well-paying multinationals mop up talent.

The third reason to shift is to rebalance regional inequality. . . . Norway treats federal jobs as a resource every region deserves to enjoy, like profits from oil. Where government jobs go, private ones follow. . . . Sometimes the aim is to fulfil the potential of a country's second-tier cities. Unlike poor, remote places, bigger cities can make the most of relocated government agencies, linking them to local universities and businesses and supplying a better-educated workforce. The decision in 1946 to set up America's Centres for Disease Control in Atlanta rather than Washington, D.C., has transformed the city into a hub for health-sector research and business.

The dilemma is obvious. Pick small, poor towns, and areas of high unemployment get new jobs, but it is hard to attract the most qualified workers; opt for larger cities with infrastructure and better-qualified residents, and the country's most deprived areas see little benefit. . . .

Others contend that decentralisation begets corruption by making government agencies less accountable. . . . A study in America found that state-government corruption is worse when the state capital is isolated—journalists, who tend to live in the bigger cities, become less watchful of those in power.

Q.1 The "long pedigree" of the aim to shift civil servants to improve their living standards implies that this move:

1. is supported by politicians and the ruling elites.
2. is not a new idea and has been tried in the past.
3. has become common practice in several countries worldwide.
4. takes a long time to achieve its intended outcomes.

Answer: 2

Q.2 People who support decentralising central government functions are LEAST likely to cite which of the following reasons for their view?

1. Policy makers may benefit from fresh thinking in a new environment.
2. More independence could be enjoyed by regulatory bodies located away from political centres.
3. It could weaken the nexus between bureaucrats and media in the capital.
4. It reduces expenses as infrastructure costs and salaries are lower in smaller cities.

Answer: 3

Q.3 According to the author, relocating government agencies has not always been a success for all of the following reasons EXCEPT:

1. a rise in pollution levels and congestion in the new locations.
2. the difficulty of attracting talented, well-skilled people in more remote areas.
3. increased avenues of corruption away from the capital city.
4. high staff losses, as people may not be prepared to move to smaller towns.

Answer: 1

Q.4 The "dilemma" mentioned in the passage refers to:

1. relocating government agencies to boost growth in remote areas with poor amenities or to relatively larger cities with good amenities.

2. keeping government agencies in the largest city with good infrastructure or moving them to a remote area with few amenities.
3. encouraging private enterprises to relocate to smaller towns or not incentivising them in order to keep government costs in those towns low.
4. concentrating on decongesting large cities or focusing on boosting employment in relatively larger cities.

Answer: 1

Q.5 According to the passage, colonial powers located their capitals:

1. to promote their trading interests.
2. where they had the densest populations.
3. to showcase their power and prestige.
4. based on political expediency.

Answer: 1

Explanation: The passage is written in a narrative tone and is easy to read and comprehend. It is probably an extract from a magazine article. The passage is about the phenomenon of shifting bureaucrats and government agencies from capital cities to smaller cities. This helps smaller cities grow economically and for civil servants to be able to generate new ideas. The author gives the example of Atlanta, which grew immensely because of the establishment of the Center for Disease Control research center in that city. Secondly, a terrorist attack or a natural disaster will not be able to cripple the government since the bureaucrats are dispersed in many cities.
However, there are downsides to this phenomenon. Top talent is not attracted to jobs in smaller cities. Secondly, corruption is worse in smaller cities because most journalists are not located there but rather in larger cities.

Solution 1: Refer to paragraph 4. The following extract, "The first aim—improving living conditions—has a long pedigree. After the second world war Britain moved thousands of civil servants to "agreeable English country towns" as London was rebuilt" confirms the assertion that shifting civil servants to smaller and cheaper towns has been tried for a long time now (since after World War II). This points to option 2 as being the correct answer.
Options 1 and 4 have not been mentioned in the passage. They can be eliminated.
Option 3 is true but does not answer the question that has been asked.
Hence, the correct answer is option 2.

Solution 2: Option 1 has been mentioned in paragraph 2, second sentence. Thus, option 1 is eliminated.
Option 2 has been mentioned in paragraph 2, third sentence. Thus, option 2 is eliminated.
Option 4 has been mentioned in paragraph 4, fifth sentence. Thus, option 4 can also be eliminated.
The "nexus" between bureaucrats and media in capital cities has not been mentioned in the passage. In fact the reverse idea to nexus has been hinted in the passage – smaller cities tend to be more corrupt because journalists tend to live in large cities and are therefore not able to keep a close watch on civil servants in smaller towns. Thus, option 3 is the least likely reason for decentralizing central government functions.
Hence, the correct answer is option 3.

Solution 3: Refer to paragraph 6, second sentence, "Pick small, poor towns, and areas of high unemployment get new jobs, but it is hard to attract the most qualified workers;" This is in conformity with option 2.
Option 3 has also been mentioned in relation to the reasons relocating government agencies have not always been successful. The following extract from paragraph 7, "Others contend that decentralisation begets corruption by making government agencies less accountable. . . . A study in America found that state-government corruption is worse when the state capital is isolated—journalists, who tend to live in the bigger cities, become less watchful of those in power."
Option 4 has been stated in paragraph 4. The following extract, "After the second world war Britain moved thousands of civil servants to "agreeable English country towns" as London was rebuilt. But swapping the capital for somewhere smaller is not always agreeable. Attrition rates can exceed 80%" confirms option 4 to be a genuine reason for not relocating government agencies.
Option 1 has not been stated in the passage. Therefore, it cannot be a reason for not relocating government agencies to smaller cities. Hence, the correct answer is option 1.

Solution 4: The following extract from paragraph 6, "The dilemma is obvious. Pick small, poor towns, and areas of high unemployment get new jobs, but it is hard to attract the most qualified workers; opt for larger cities with infrastructure and better-qualified residents, and the country's most deprived areas see little benefit. . . ." is in conformity with the statement made in option 1. The main aims of decentralizing are to save costs and boost growth in smaller cities.
Option 2 is incorrect because it focuses exclusively on amenities of large cities versus

poor amenities in remote towns. Option 3 refers to “encouraging private enterprises to relocate to smaller towns versus not incentivizing them to move to smaller towns.” This is not in conformity with the extract given above.
The dilemma is not population decongestion in large cities versus boosting employment in relatively larger cities but picking small towns where it is hard to attract qualified people versus picking larger cities where qualified people would agree to work in but this would deprive remote areas. Eliminate option 4.
Hence, the correct answer is option 1.

Solution 5: Refer to the following extract from paragraph 1, “In the post-colonial fervour of the 20th century, coastal capitals picked by trade-focused empires were spurned for “regionally neutral” new ones.” This extract points to option 1 as being the correct answer. Options 2, 3 and 4 have not been mentioned in the passage in relation to the location of capitals by colonial powers. They can be eliminated.
Hence, the correct answer is option 1.

British colonial policy . . . went through two policy phases, or at least there were two strategies between which its policies actually oscillated, sometimes to its great advantage. At first, the new colonial apparatus exercised caution, and occupied India by a mix of military power and subtle diplomacy, the high ground in the middle of the circle of circles. This, however, pushed them into contradictions. For, whatever their sense of the strangeness of the country and the thinness of colonial presence, the British colonial state represented the great conquering discourse of Enlightenment rationalism, entering India precisely at the moment of its greatest unchecked arrogance. As inheritors and representatives of this discourse, which carried everything before it, this colonial state could hardly adopt for long such a self-denying attitude. It had restructured everything in Europe—the productive system, the political regimes, the moral and cognitive orders—and would do the same in India, particularly as some empirically inclined theorists of that generation considered the colonies a massive laboratory of utilitarian or other theoretical experiments. Consequently, the colonial state could not settle simply for eminence at the cost of its marginality; it began to take initiatives to introduce the logic of modernity into Indian society. But this modernity did not enter a passive society. Sometimes, its initiatives were resisted by pre-existing structural forms. At times, there was a more direct form of collective resistance. Therefore the map of continuity and discontinuity that this state left behind at the time of independence was rather complex and has to be traced with care.

Most significantly, of course, initiatives for . . . modernity came to assume an external character. The acceptance of modernity came to be connected, ineradicably, with subjection. This again points to two different problems, one theoretical, the other political. Theoretically, because modernity was externally introduced, it is explanatorily unhelpful to apply the logical format of the 'transition process' to this pattern of change. Such a logical format would be wrong on two counts. First, however subtly, it would imply that what was proposed to be built was something like European capitalism. (And, in any case, historians have forcefully argued that what it was to replace was not like feudalism, with or without modificatory adjectives.) But, more fundamentally, the logical structure of endogenous change does not apply here. Here transformation agendas attack as an external force. This externality is not something that can be casually mentioned and forgotten. It is inscribed on every move, every object, every proposal, every legislative act, each line of causality. It comes to be marked on the epoch itself. This repetitive emphasis on externality should not be seen as a nationalist initiative that is so well-rehearsed in Indian social science. . . .

Quite apart from the externality of the entire historical proposal of modernity, some of its contents were remarkable. . . . Economic reforms, or rather alterations . . . did not foreshadow the construction of a classical capitalist economy, with its necessary emphasis on extractive and transport sectors. What happened was the creation of a degenerate version of capitalism —what early dependency theorists called the 'development of underdevelopment'.

Q.1 Which one of the following 5-word sequences best captures the flow of the arguments in the passage?

1. Military power—colonialism—restructuring—feudalism—capitalism.
2. Colonial policy—arrogant rationality—resistance—independence—development.
3. Colonial policy—Enlightenment—external modernity—subjection—underdevelopment.
4. Military power—arrogance—laboratory- modernity—capitalism.

Answer: 3

Q.2 Which of the following observations is a valid conclusion to draw from the author's statement that "the logical structure of endogenous change does not apply here. Here transformation agendas attack as an external force"?

1. The transformation of Indian society did not happen organically, but was forced by colonial agendas.
2. The endogenous logic of colonialism can only bring change if it attacks and transforms external forces.

3. Indian society is not endogamous; it is more accurately characterised as aggressively exogamous.
4. Colonised societies cannot be changed through logic; they need to be transformed with external force.

Answer: 1

Q.3 All of the following statements, if true, could be seen as supporting the arguments in the passage, EXCEPT:

1. the introduction of capitalism in India was not through the transformation of feudalism, as happened in Europe.
2. the change in British colonial policy was induced by resistance to modernity in Indian society.
3. throughout the history of colonial conquest, natives have often been experimented on by the colonisers.
4. modernity was imposed upon India by the British and, therefore, led to underdevelopment.

Answer: 2

Q.4 "Consequently, the colonial state could not settle simply for eminence at the cost of its marginality; it began to take initiatives to introduce the logic of modernity into Indian society." Which of the following best captures the sense of this statement?

1. The colonial state's eminence was unsettled by its marginal position; therefore, it developed Indian society by modernising it.
2. The colonial enterprise was a costly one; so to justify the cost it began to take initiatives to introduce the logic of modernity into Indian society.
3. The cost of the colonial state's eminence was not settled; therefore, it took the initiative of introducing modernity into Indian society.
4. The colonial state felt marginalised from Indian society because of its own modernity; therefore, it sought to address that marginalisation by bringing its modernity to change Indian society.

Answer: 4

Q.5 All of the following statements about British colonialism can be inferred from the first paragraph, EXCEPT that it:

1. was at least partly an outcome of Enlightenment rationalism.
2. was at least partly shaped by the project of European modernity.
3. allowed the treatment of colonies as experimental sites.
4. faced resistance from existing structural forms of Indian modernity.

Answer: 4

Explanation: This is a scholarly passage written in a didactic tone which can be found in an academic journal or text book. The author traces the history of British colonialism in India and divides into two distinct phases. The British colonial state represented the great conquering discourse of Enlightenment rationalism but this modernity did not enter a passive society. Sometimes, its initiatives were resisted by pre-existing structural forms. At times, there was a more direct form of collective resistance.
Since modernity came from the British it assumed an external character and this acceptance of modernity came to be connected, ineradicably, with subjection. Due to this, economic reforms, or rather alterations . . . did not foreshadow the construction of a classical capitalist economy, with its necessary emphasis on extractive and transport sectors. What happened was the creation of a degenerate version of capitalism —what early dependency theorists called the ‘development of underdevelopment’ in India.

Solution 1: The passage begins with British colonial policy and continues with the enlightened rationalism that it tried to bring about. Since this modern rationalism was external it was viewed by its subjects with suspicion and even some resistance as modernity came to be viewed as subjection. The passage ends with “degenerate capitalism” or the “development of underdevelopment” in its colonies such as India. Thus, the sequence in the passage is: Colonial policy, Enlightenment, External modernity, Subjection and underdevelopment. This sequence of events is in conformity with option 3.
Option 1 is incorrect because military power (and subtle diplomacy) followed colonialism. Secondly, there is no mention of modernity and the term “capitalism” mentioned in the option should actually read underdevelopment.
Option 2 is incorrect because of the term “independence” which is not mentioned in the passage with respect to British colonialism. Secondly, the final term in the flow of arguments is not development but underdevelopment.
In option 4, enlightened rationalism has been replaced by “arrogance”. Eliminate option 4.
Hence, the correct answer is option 3.

Solution 2: “Endogenous” means to be caused by factors inside the system. The passage clearly mentions the fact that the British introduced enlightened rationalism into Indian society and this was to some extent resisted by the indigenous people. Therefore, it would be correct to infer that the transformation of Indian society did not happen from within the system but was forced by colonial agendas. This viewpoint is in complete conformity with option 1.
Option 2 is incorrect. It should have read “organic forces” and not “external forces.”
The structure of society is not being contested or discussed here, but rather the method deployed by the British to change it. Eliminate option 3.
Option 4 does not directly address the author’s statement. It can also be eliminated.
Hence, the correct answer is option 1.

Solution 3: Option 1 is true; refer to the following extract from paragraph 2; “Theoretically, because modernity was externally introduced, it is explanatorily unhelpful to apply the logical format of the ‘transition process’ to this pattern of change. Such a logical format would be wrong on two counts. First, however subtly, it would imply that what was proposed to be built was something like European capitalism. (And, in any case, historians have forcefully argued that what it was to replace was not like feudalism, with or without modificatory adjectives.)” In this extract the author implies that it would be incorrect to imply that there was a transition process from feudalism to capitalism and certainly there is no mention of any transformation of the feudal structure. Thus, option 1 is eliminated.
Option 3 is true, refer to the following extract from paragraph 2; “...particularly as some empirically inclined theorists of that generation considered the colonies a massive laboratory of utilitarian or other theoretical experiments.” Thus, option 3 is eliminated.
Option 4 is also true. Refer to paragraph 3; “Quite apart from the externality of the entire historical proposal of modernity, some of its contents were remarkable. . . . Economic reforms, or rather alterations . . . did not foreshadow the construction of a classical capitalist economy, with its necessary emphasis on extractive and transport sectors. What happened was the creation of a degenerate version of capitalism —what early dependency theorists called the ‘development of underdevelopment.’”
Option 2 is not true. There were two distinct phases in British colonialism in India; the first a mix of military power and diplomacy to gain territory and second, the introduction of enlightened rationalism or modernity to India and Indians. Option 2 states that the change in British colonial policy was induced by resistance to modernity in Indian society, which is not the same as the explanation given above as there was only a change from military power and diplomacy to modernity.
Hence, the correct answer is option 2.

Solution 4: The following extract from paragraph 1 is self-explanatory – "As inheritors and representatives of this discourse, which carried everything before it, this colonial state could hardly adopt for long such a self-denying attitude. It had restructured everything in Europe—the productive system, the political regimes, the moral and cognitive orders—and would do the same in India, particularly as some empirically inclined theorists of that generation considered the colonies a massive laboratory of utilitarian or other theoretical experiments. Consequently, the colonial state could not settle simply for eminence at the cost of its marginality; it began to take initiatives to introduce the logic of modernity into Indian society." By "marginality", it is meant that the British colonial state felt marginalized from Indian society because of its own modernity and therefore it tried to address that marginalization by introducing modernity to Indian society. This explanation points to option 4 as being the correct answer.
Option 1 is an incorrect explanation. The colonial state's eminence was not marginalized, rather it felt marginalized because of its own modernity. Refer explanation given above.
"Costs" of maintaining the empire has not been discussed at all in the passage. Eliminate options 2 and 3.
Hence, the correct answer is option 4.

Solution 5: Options 1,2 and 3 have been mentioned in the first paragraph as facets of British colonialism.
Option 4 has not been mentioned in paragraph 1. British modernity and rationalism faced resistance not from existing forms of Indian modernity but from a pre-existing feudal structure.
Hence, the correct answer is option 4.

War, natural disasters and climate change are destroying some of the world's most precious cultural sites. Google is trying to help preserve these archaeological wonders by allowing users access to 3D images of these treasures through its site. But the project is raising questions about Google's motivations and about who should own the digital copyrights. Some critics call it a form of "digital colonialism."

When it comes to archaeological treasures, the losses have been mounting. ISIS blew up parts of the ancient city of Palmyra in Syria and an earthquake hit Bagan, an ancient city in Myanmar, damaging dozens of temples, in 2016. In the past, all archaeologists and historians had for restoration and research were photos, drawings, remnants, and intuition.

But that’s changing. Before the earthquake at Bagan, many of the temples on the site were scanned. . . . [These] scans . . . are on Google’s Arts & Culture site. The digital renditions allow viewers to virtually wander the halls of the temple, look up-close at paintings and turn the building over, to look up at its chambers. . . . [Google Arts & Culture] works with museums and other nonprofits . . . to put high-quality images online.

The images of the temples in Bagan are part of a collaboration with CyArk, a nonprofit that creates the 3D scanning of historic sites. . . . Google . . . says [it] doesn’t make money off this website, but it fits in with Google’s mission to make the world’s information available and useful.

Critics say the collaboration could be an attempt by a large corporation to wrap itself in the sheen of culture. Ethan Watrall, an archaeologist, professor at Michigan State University and a member of the Society for American Archaeology, says he’s not comfortable with the arrangement between CyArk and Google. . . . Watrall says this project is just a way for Google to promote Google. “They want to make this material accessible so people will browse it and be filled with wonder by it,” he says. “But at its core, it’s all about advertisements and driving traffic,” Watrall says these images belong on the site of a museum or educational institution, where there are serious scholarship and a very different mission. . . .

[There’s] another issue for some archaeologists and art historians. CyArk owns the copyrights of the scans — not the countries where these sites are located. That means the countries need CyArk’s permission to use these images for commercial purposes. Erin Thompson, a professor of art crime at John Jay College of Criminal Justice in New York City, says it’s the latest example of a Western nation appropriating a foreign culture, a centuries-long battle. . . . CyArk says it copyrights the scans so no one can use them in an inappropriate way. The company says it works closely with authorities during the process, even training local people to help. But critics like Thompson are not persuaded. . . . She would prefer the scans to be owned by the countries and people where these sites are located.

Q.1 In Dr. Thompson’s view, CyArk owning the copyright of its digital scans of archaeological sites is akin to:

1. the seizing of ancient Egyptian artefacts by a Western museum.
2. the illegal downloading of content from the internet.
3. tourists uploading photos of monuments onto social media.

4. digital platforms capturing users' data for market research.

Answer: 1

Q.2 Of the following arguments, which one is LEAST likely to be used by the companies that digitally scan cultural sites?

1. It helps preserve precious images in case the sites are damaged or destroyed.
2. It provides images free of cost to all users.
3. It enables people who cannot physically visit these sites to experience them.
4. It allows a large corporation to project itself as a protector of culture.

Answer: 4

Q.3 Which of the following, if true, would most strongly invalidate Dr. Watrall's objections?

1. CyArk uploads its scanned images of archaeological sites onto museum websites only.
2. Google takes down advertisements on its website hosting CyArk's scanned images.
3. There is a ban on CyArk scanning archeological sites located in other countries.
4. CyArk does not own the copyright on scanned images of archaeological sites.

Answer: 1

Q.4 Based on his views mentioned in the passage, one could best characterise Dr. Watrall as being:

1. opposed to the use of digital technology in archaeological and cultural sites in developing countries.
2. dismissive of laypeople's access to specialist images of archaeological and cultural sites.
3. critical about the links between a non-profit and a commercial tech platform for distributing archaeological images
4. uneasy about the marketing of archaeological images for commercial use by firms such as Google and CyArk.

Answer: 3

Q.5 By "digital colonialism", critics of the CyArk–Google project are referring to the fact that:

1. CyArk and Google have been scanning images without copyright permission from host countries.
2. the scanning process can damage delicate frescos and statues at the sites.
3. CyArk and Google have not shared the details of digitisation with the host countries.
4. countries where the scanned sites are located do not own the scan copyrights.

Answer: 4

Explanation: This passage is an extract from a serious magazine and the tone of the passage is narrative in nature. War, natural disasters and climate change are destroying some of the world's most precious cultural sites. Google is trying to help preserve these archaeological wonders by allowing users access to 3D images of these treasures through its site. But the project is raising questions about Google's motivations and about who should own the digital copyrights. Some critics even call it a form of "digital colonialism."
But Google says it doesn't make money off this website, and it fits in with Google's mission to make the world's information available and useful. However, some scholars are not convinced by this argument.
Similarly, CyArk owns the copyrights of the scans of the temples in Bagan — not the countries where these sites are located. That means the countries need CyArk's permission to use these images for commercial purposes. Again, scholars feel this is wrong and another example of a Western nation appropriating a foreign culture.

Solution 1: Refer to the following extract in paragraph 6, "Erin Thompson, a professor of art crime at John Jay College of Criminal Justice in New York City, says it's the latest example of a Western nation appropriating a foreign culture, a centuries-long battle. . . . CyArk says it copyrights the scans so no one can use them in an inappropriate way. The company says it works closely with authorities during the process, even training local people to help. But critics like Thompson are not persuaded. . . . She would prefer the scans to be owned by the countries and people where these sites are located." This means that CyArk's work is akin to actually seizing the treasures it scans since even countries where these treasures are located have to take permission to use these scans for commercial purposes. In short, CyArk has effectively seized the treasures of

archaeological sites. This viewpoint is in conformity with option 1.
Options 2, 3 and 4 do not talk about any form of "seizure" of artifacts and can thus be eliminated.
Hence, the correct answer is option 1.

Solution 2: Companies such as Google and CyArk scan 3D images of various archaeological sites for strictly philanthropic purposes such as making information available – so they say. Therefore, these companies would not say that they are scanning images of archaeological sites in order to project themselves as protectors of culture – but as mentioned before simply for philanthropic purposes such as making information available. This points to option 4 as being the correct answer.
Options 1, 2 and 3 are reasons companies are MOST likely to use in order to scan cultural and historical sites.
Hence, the correct answer is option 4.

Solution 3: What are Dr. Watrall's objections? Refer to the following extract from the passage, "Ethan Watrall, an archaeologist, professor at Michigan State University and a member of the Society for American Archaeology, says he's not comfortable with the arrangement between CyArk and Google. . . .Watrall says this project is just a way for Google to promote Google. "They want to make this material accessible so people will browse it and be filled with wonder by it," he says. "But at its core, it's all about advertisements and driving traffic." Watrall says these images belong on the site of a museum or educational institution, where there is serious scholarship and a very different mission. . . ." In short, he believes that companies are using culture to drive traffic and revenues. But what if CyArk uploads its scanned images of archaeological sites onto museum websites only? This will invalidate Dr. Watrall's objections of culture being misused to drive a company's revenues. Thus, option 1 is the correct answer.
Option 2 will partly invalidate Dr. Watrall's objections but not wholly. Google will still be seen as using culture to drive traffic and revenues.
Dr. Watrall does not seek a ban on scanned images but rather that these images be uploaded on museum websites. Eliminate option 3. Option 4 is also incorrect as the scanned images will not be uploaded on museum websites – which is what Dr. Watrall wants.
Hence, the correct answer is option 1.

Solution 4: Dr. Watrall is not against companies taking 3D scanned images of historical sites. Eliminate option 1.
He wants everyone to be able to access images of historical and archaeological sites but

from museum websites only. Eliminate option 2. Option 3 is correct. Dr, Watrall is sceptical of tech firms using scanned images of historical sites for the purpose of disseminating useful information only. He feels that they are exploiting culture for the sake of revenues.
Option 4 has not been mentioned in the passage nor is it true. Google and CyArk are not marketing images for commercial use but rather users who wish to use these images for commercial purposes must obtain permission from these companies.
Eliminate option 4.
Hence, the correct answer is option 3.

Solution 5: The following two extracts, "Google is trying to help preserve these archaeological wonders by allowing users access to 3D images of these treasures through its site. But the project is raising questions about Google's motivations and about who should own the digital copyrights. Some critics call it a form of "digital colonialism" combined with "CyArk owns the copyrights of the scans — not the countries where these sites are located. That means the countries need CyArk's permission to use these images for commercial purposes" clearly implies that the countries where the scanned sites are located do not own the scan copyrights. This is in conformity with the statement in option 4.
Options 1 and 2 are neither mentioned nor can they be inferred from the passage.
Option 3 may be true but is not the reason the critics are against the CyArk-Google project.
Hence, the correct answer is option 4.

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

1. Living things—animals and plants—typically exhibit correlational structure.
2. Adaptive behaviour depends on cognitive economy, treating objects as equivalent.
3. The information we receive from our senses, from the world, typically has structure and order, and is not arbitrary.
4. To categorize an object means to consider it equivalent to other things in that category, and different—along some salient dimension—from things that are not.

Answer: 2431

Solution: It is clear that the paragraph is about "cognitive economy" or categorizing objects as equivalent and dissimilar. Therefore, option 2 is the introductory sentence of the paragraph.
Sentence 4 follows sentence 2 by elaborating on the "equivalent" part first mentioned in sentence 2.
Sentences 3-1 are a pair. Sentence 3 mentions that all information received has some sort of structure and order (and therefore can be categorized) and sentence 1 closes the paragraph by concluding that living things – animals and plants – exhibit correlational structures.
Correlational means existing in some sort of order which is therefore suitable for categorization.
Hence, the sequence is 2431.

Q. Five sentences related to a topic are given below in a jumbled order. Four of them form a coherent and unified paragraph. Identify the odd sentence that does not go with the four. Key in the number of the option that you choose.

1. Socrates told us that 'the unexamined life is not worth living' and that to 'know thyself' is the path to true wisdom.
2. It suggests that you should adopt an ancient rhetorical method favored by the likes of Julius Caesar and known as 'illeism' – or speaking about yourself in the third person.
3. Research has shown that people who are prone to rumination also often suffer from impaired decision making under pressure and are at a substantially increased risk of depression.
4. Simple rumination – the process of churning your concerns around in your head – is not the way to achieve self-realization.
5. The idea is that this small change in perspective can clear your emotional fog, allowing you to see past your biases.

Answer: 1

Solution: Let us link the sentences logically. The sentence that will not link logically is the Odd sentence out of the paragraph. Sentence 3 introduces the phenomenon of rumination and is our introductory sentence.
Sentence 4 follows by mentioning another disadvantage of rumination – it is not the

way to achieve self-realization.
Sentence 2 then gives a corrective mechanism known as “illeism” – speaking about yourself in the third person.
Sentence 5 concludes the paragraph by this small change (of speaking of yourself in the third person) can be the answer to self-realization.
Sentence 1 is clearly the odd sentence out of the paragraph since it is about the path to “true wisdom” while the other four sentences are about rumination and ways of correcting it.
Hence, the correct answer is sentence 1.

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

Language is an autapomorphy found only in our lineage, and not shared with other branches of our group such as primates. We also have no definitive evidence that any species other than Homo sapiens ever had language. However, it must be noted straightaway that ‘language’ is not a monolithic entity, but rather a complex bundle of traits that must have evolved over a significant time frame.... Moreover, language crucially draws on aspects of cognition that are long established in the primate lineage, such as memory: the language faculty as a whole comprises more than just the uniquely linguistic features.

1. Language is not a single, uniform entity but the end result of a long and complex process of linguistic evolution.
2. Language is a distinctively human feature as there is no evidence of the existence of language in any other species.
3. Language evolved with linguistic features building on features of cognition such as memory.
4. Language, a derived trait found only in humans, has evolved over time and involves memory.

Answer: 3

Solution: The crux of the paragraph is: The evolution of language over time which was aided by memory found in primates.
Options 1 and 2 do not mention the importance of “memory” – a crucial aspect in the development and evolution of language. They can be eliminated.
Option 4 is incorrect because language is not a derived trait but instead an evolutionary

one built over a significant time frame.
Option 3 summarizes the paragraph correctly and succinctly by mentioning the two most important aspects of the paragraph about language – that it evolved over time and that it built on features such as memory.
Hence, the correct answer is option 3.

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

Privacy-challenged office workers may find it hard to believe, but open-plan offices and cubicles were invented by architects and designers who thought that to break down the social walls that divide people, you had to break down the real walls, too. Modernist architects saw walls and rooms as downright fascist. The spaciousness and flexibility of an open plan would liberate homeowners and office dwellers from the confines of boxes. But companies took up their idea less out of a democratic ideology than a desire to pack in as many workers as they could. The typical open-plan office of the first half of the 20th century was a white-collar assembly line. Cubicles were interior designers' attempts to put some soul back in.

1. Wall-free office spaces did not quite work out the way their utopian inventors intended, as they became tools for the exploitation of labor.
2. Wall-free office spaces could have worked out the way their utopian inventors intended had companies cared for workers' satisfaction.
3. Wall-free office spaces did not quite work out as companies don't believe in democratic ideology.
4. Wall-free office spaces did not quite work out as desired and therefore cubicles came into being.

Answer: 1

Solution: The crux of the paragraph is: Wall-free offices were meant to break down social barriers but were instead used by companies to pack in as many workers as they could and thus exploit them.
Options 2, 3 and 4 do not mention one important facet of the paragraph – that wall-free offices of companies were designed to pack as many workers as they could. Therefore, they were tools of exploitation by companies. They can therefore be eliminated.
Option 1 is the correct summary as this factor has been mentioned.
Hence, the correct answer is option 1.

Q. Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1. A particularly interesting example of inference occurs in many single panel comics.
2. It's the creator's participation and imagination that makes the single-panel comic so engaging and so rewarding.
3. Often, the humor requires you to imagine what happened in the instant immediately before or immediately after the panel you're being shown.
4. To get the joke, you actually have to figure out what some of these missing panels must be.
5. It is as though the cartoonist devised a series of panels to tell the story and has chosen to show you only one – and typically not even the funniest.

Answer: 2

Solution: Sentences 1, 3, 4 and 5 are about humour and humorous inferences that are present in single panel comics. Sentence 2, on the other hand, is about the reason single-panel comics are so rewarding. Sentence 2 does not talk about the humorous aspect of single panel comics at all but is about the creator's imagination while making single panel comics. Therefore, it is the odd sentence out of the paragraph.
Hence, the correct answer is sentence 2.

Q. Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

1. Ocean plastic is problematic for a number of reasons, but primarily because marine animals eat it.
2. The largest numerical proportion of ocean plastic falls in small size fractions.
3. Aside from clogging up the digestive tracts of marine life, plastic also tends to adsorb pollutants from the water column.
4. Plastic in the oceans is arguably one of the most important and pervasive environmental problems today.
5. Eating plastic has a number of negative consequences such as the retention of plastic particles in the gut for longer periods than normal food particles.

Answer: 2

Solution: Sentence 1 is about the problems of ocean plastic – marine animals eat it.
Sentence 2 is about the largest numerical proportion of ocean plastic.
Sentence 3 mentions another negative impact of ocean plastic on marine life.
Sentence 4 mentions that plastic in the oceans is a pervasive environmental problem.
Sentence 5 mentions another negative effect of eating plastic – retention of plastic particles in the gut for longer periods than normal food particles.
Sentences 1, 3, 4 and 5 are about the negative impact of plastic in the oceans – particularly to marine life while sentence 2 is about the largest numerical proportion of ocean plastic which falls in small size fractions. Therefore, sentence 2 is the odd sentence out of the paragraph.
Hence, the correct answer is sentence 2.

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

Social movement organizations often struggle to mobilize supporters from allied movements in their efforts to achieve critical mass. Organizations with hybrid identities—those whose organizational identities span the boundaries of two or more social movements, issues, or identities—are vital to mobilizing these constituencies. Studies of the post-9/11 U.S. antiwar movement show that individuals with past involvement in non-anti-war movements are more likely to join hybrid organizations than are individuals without involvement in non-anti-war movements. In addition, they show that organizations with hybrid identities occupy relatively more central positions in inter-organizational contact networks within the antiwar movement and thus recruit significantly more participants in demonstrations than do nonhybrid organizations.

1. Post 9/11 studies show that people who are involved in non anti-war movements are likely to join hybrid organizations.
2. Organizations with hybrid identities are able to mobilize individuals with different points of view.
3. Movements that work towards social change often find it difficult to mobilize a critical mass of supporters.
4. Hybrid organizations attract individuals that are deeply involved in anti-war movements.

Answer: 2

Solution: The crux of the paragraph is: Social movement organizations often struggle to mobilize supporters from allied movements in their efforts to achieve critical mass. However, hybrid organizations – those whose organizational identities span the boundaries of two or more social movements, issues, or identities – are able to recruit significantly more participants in demonstrations than do nonhybrid organizations.
Options 1, 3 and 4 miss out on the crucial point of hybrid organizations being able to mobilize more people than nonhybrid organizations.
Only option 2 includes this critical piece of information from the paragraph.
Hence, the correct answer is option 2.

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

1. Conceptualisations of ‘women’s time’ as contrary to clock-time and clock-time as synonymous with economic rationalism are two of the deleterious results of this representation.
2. While dichotomies of ‘men’s time’, ‘women’s time’, clock-time, and caring time can be analytically useful, this article argues that everyday caring practices incorporate a multiplicity of times; and both men and women can engage in these multiple-times.
3. When the everyday practices of working sole fathers and working sole mothers are carefully examined to explore conceptualisations of gendered time, it is found that caring time is often more focused on the clock than generally theorised.
4. Clock-time has been consistently represented in feminist literature as a masculine artefact representative of a ‘time is money’ perspective.

Answer: 4132

Solution: It is clear that the paragraph is about clock-time and sentence 4 is the introductory sentence as it introduces the concept of clock time.
Sentence 1 follows sentence 4 directly with “this representation” in sentence 1 referring to the feminist representation of clock-time.
Sentences 3 and 2 are a pair. Sentence 3 is about caring time for both men and women and sentence 2 concludes the paragraph by mentioning the different types of time

which both men and women can engage in.
Hence, the correct sequence is 4132.

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

1. To the uninitiated listener, atonal music can sound like chaotic, random noise.
2. Atonality is a condition of music in which the constructs of the music do not 'live' within the confines of a particular key signature, scale, or mode.
3. After you realize the amount of knowledge, skill, and technical expertise required to compose or perform it, your tune may change, so to speak.
4. However, atonality is one of the most important movements in 20th century music.

Answer: 2143

Solution: It is clear that the paragraph is about atonal music. Therefore, sentence 2 is the introductory sentence since it defines atonal music.
Sentences 1 and 4 are a pair. Sentence 1 states that atonal music can sound chaotic while sentence 4 with the contrasting word, "however" states a positive factor of atonal music – it is one of the most important movements in 20th century music.
Sentence 3 concludes the sentence by stating that although atonal music may sound chaotic, it is actually involves a lot of knowledge, skill, and technical expertise to compose or perform it.
Hence, the correct sequence is 2143.

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

1. Such a belief in the harmony of nature requires a purpose presumably imposed by the goodness and wisdom of a deity.
2. These parts, all fit together into an integrated, well-ordered system that was created by design.
3. Historically, the notion of a balance of nature is part observational, part metaphysical, and not scientific in any way.

4. It is an example of an ancient belief system called teleology, the notion that what we call nature has a predetermined destiny associated with its component parts.

Answer: 342

Solution: The paragraph is about the balance or harmony present in nature. Sentence 3 with "historically" is clearly the introductory sentence as it states the notion of a balance of nature – part observational, part metaphysical, and not scientific in any way.
Sentence 4 follows directly. The pronoun "it" clearly refers to the historical view of nature.
Sentences 4 and 2 are a pair. Sentence 4 mentions "component parts" and sentence 2 with "these parts" continues on the theme of the balance in nature.
Sentence 1 concludes the paragraph. The word "such a belief" sums up the belief mentioned in the sentences 3, 4 and 2.
Hence, the correct sequence is 3421.

CAT 2019 Questions and Answers – Morning Slot

Data Interpretation – Logical Reasoning – Morning Slot – CAT 2019

A supermarket has to place 12 items (coded A to L) in shelves numbered 1 to 16. Five of these items are types of biscuits, three are types of candies and the rest are types of savouries. Only one item can be kept in a shelf. Items are to be placed such that all items of same type are clustered together with no empty shelf between items of the same type and at least one empty shelf between two different types of items. At most two empty shelves can have consecutive numbers.

The following additional facts are known.

1. A and B are to be placed in consecutively numbered shelves in increasing order
2. I and J are to be placed in consecutively numbered shelves both higher numbered than the shelves in which A and B are kept
3. D, E and F are savouries and are to be placed in consecutively numbered shelves in increasing order after all the biscuits and candies.
4. K is to be placed in shelf number 16.
5. L and J are items of the same type, while H is an item of a different type

6. C is a candy and is to be placed in a shelf preceded by two empty shelves.
7. L is to be placed in a shelf preceded by exactly one empty shelf.

Q.1 In how many different ways can the items be arranged on the shelves?

1. 4
2. 2
3. 8
4. 1

Answer: 3

Q.2 Which of the following items is not a type of biscuit?

1. A
2. L
3. B
4. G

Answer: 4

Q.3 Which of the following can represent the numbers of the empty shelves in a possible arrangement?

1. 1,7,11,12
2. 1,5,6,12
3. 1,2,6,12
4. 1,2,8,12

Answer: 3

Q.4 Which of the following statements is necessarily true?

1. There are two empty shelves between the biscuits and the candies

2. All candies are kept before biscuits
3. All biscuits are kept before candies.
4. There are at least four shelves between items B and C.

Answer: 4

Solution: Total number of Biscuits = 5
Total number of Candies = 3
So Total number of Savouries = 12 – 5 – 3 = 4
From point iii) and iv) it is clear that D, E, F and K are 4 savouries and are kept in shelves numbered 13,14, 15 and 16 as there is no empty shelf between items of the same type.
From point II), V and VII) I, J and L are of the same type L being in the least numbered shelf among 3.
As from point VI,) C is candy so I, J and L must be Biscuits as there are only 3 candies.
From point V) H is not Biscuits so it must be a candy thus A and B must be Biscuits.
Now Item can be placed as given below.
Case 1) when all biscuits are placed after candies.
Case 2) When all candies are placed after biscuits.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Case 1			C	**H/G**	**G/H**		L	A	B	**I/J**	**J/I**		D	E	F
Case 2		L	A	B	**I/J**	**J/I**			C	**H/G**	**G/H**		D	E	F

Total 8 cases are possible.
All questions can be answered now.

1. There are two empty shelves between the biscuits and the candies.
2. All candies are kept before biscuits.
3. All biscuits are kept before candies.
4. There are at least four shelves between items B and C

A new game show on TV has 100 boxes numbered 1, 2, . . . , 100 in a row, each containing a mystery prize. The prizes are items of different types, a, b, c, . . . , in decreasing order of value. The most expensive item is of type a, a diamond ring, and there is exactly one of these. You are told that the number of items at least doubles as you move to the next type. For example, there would be at least twice

as many items of type b as of type a, at least twice as many items of type c as of type b and so on. There is no particular order in which the prizes are placed in the boxes.

Q.1 What is the minimum possible number of different types of prizes?

Answer: 2

Q.2 What is the maximum possible number of different types of prizes?

Answer: 6

Q.3 Which of the following is not possible?

1. There are exactly 45 items of type c.
2. There are exactly 30 items of type b
3. There are exactly 75 items of type e.
4. There are exactly 60 items of type d.

Answer: 1

Q.4 You ask for the type of item in box 45. Instead of being given a direct answer, you are told that there are 31 items of the same type as box 45 in boxes 1 to 44 and 43 items of the same type as box 45 in boxes 46 to 100.
What is the maximum possible number of different types of items?

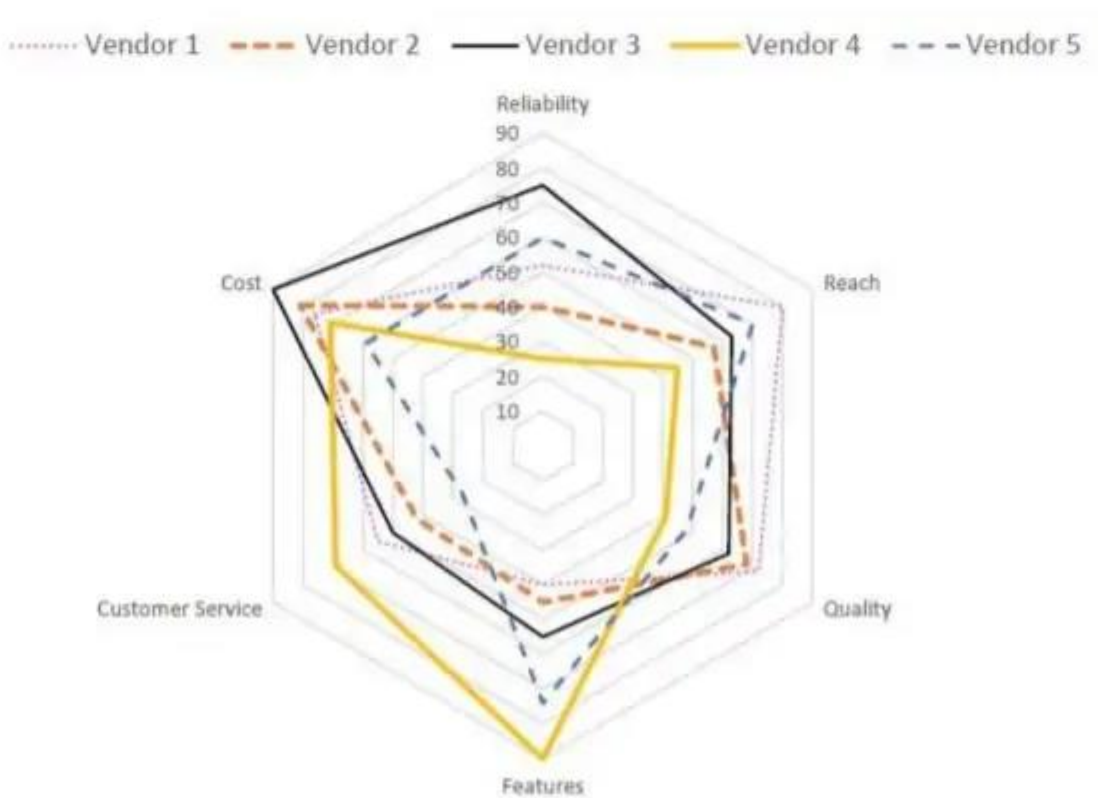
1. 5
2. 4
3. 3
4. 6

Answer: 5

Solution:

1. Minimum possible number is when there is 1 of type a and 99 of type b which is in accordance to the condition.
2. Maximum possible number is when 1 of a, 2 of b, 4 of c, 8 of d, 16 of e, 32 of f, Now left boxes woud be 100 – (1+2+...32) = 37
   Now if one more type is to be added then we need at least 64 which is not available thus maximum possible is 6.
3. Lets try to prove the given options possible using easy numbers.
   op1:never possible
   op2: 1,30,69 is possible
   op3: 1,2,4,18.75 is possible
   op4: 1,9,30,60 is possible.
4. There have to be then at least 31 + `1 + 43 = 75 gifts of same type,
   Thus maximum possible number of boxes = 5 when all types are lest 1,2,4,18,75

Five vendors are being considered for a service. The evaluation committee evaluated each vendor on six aspects – Cost, Customer Service, Features, Quality, Reach, and Reliability. Each of these evaluations are on a scale of 0 (worst) to 100 (perfect). The evaluation scores on these aspects are shown in the radar chart. For example, Vendor 1 obtains a score of 52 on Reliability, Vendor 2 obtains a score of 45 on Features and Vendor 3 obtains a score of 90 on Cost.



Q.1 On which aspect is the median score of the five vendors the least?

1. Reliability
2. Quality
3. Customer Service
4. Cost

Answer: 3

Q.2 A vendor's final score is the average of their scores on all six aspects. Which vendor has the highest final score?

1. Vendor 3
2. Vendor 2
3. Vendor 4
4. Vendor 1

Answer: 1

Q.3 List of all the vendors who are among the top two scorers on the maximum number of aspects is:

1. Vendor 1 and Vendor 2
2. Vendor 1 and Vendor 5
3. Vendor 2 and Vendor 5
4. Vendor 2, Vendor 3 and Vendor 4

Answer: 2

Q.4 List of all the vendors who are among the top three vendors on all six aspects is:

1. Vendor 1 and Vendor 3
2. Vendor 3
3. Vendor 1
4. None of the Vendors

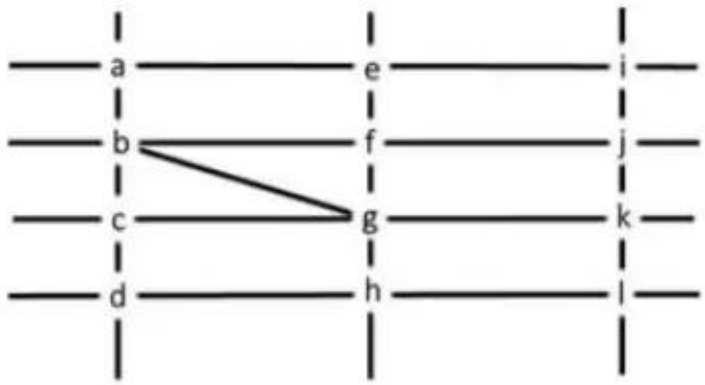
Answer: 2

Solution:
The scores of venders given in graph can be tabulated as below:

	Reliability	Reach	Quality	Features	Customer S	Cost	Total
Vendor 1	52	80	70	40	55	80	377
Vendor 2	40	60	70	45	40	80	335
Vendor 3	75	60	60	55	50	90	390
Vendor 4	25	45	40	90	70	70	340
Vendor 5	60	70	50	75	28	60	343

1. Median of reliability = 52; median of quality = 60; median of customer s = 50 median of cost = 80 Clearly the median of customer s is minimum.
2. The vender which has highest total will have highest average. vendor 3 has highest total thus highest average.
3. Vendor 1 and 5 have 3 top two scores each.
4. Clearly vendor 3

The figure below shows the street map for a certain region with the street intersections marked from a through l. A person standing at an intersection can see along straight lines to other intersections that are in her line of sight and all other people standing at these intersections. For example, a person standing at intersection g can see all people standing at intersections b, c, e, f, h, and k. In particular, the person standing at intersection g can see the person standing at intersection e irrespective of whether there is a person standing at intersection f.



Six people U, V, W, X, Y, and Z, are standing at different intersections. No two people are standing at the same intersection.
The following additional facts are known.

1. X, U, and Z are standing at the three corners of a triangle formed by three street segments.
2. X can see only U and Z.
3. Y can see only U and W.
4. U sees V standing in the next intersection behind Z
5. W cannot see V or Z.
6. No one among the six is standing at intersection d.

Q.1 Who is standing at intersection a?

1. V
2. W
3. No one
4. Y

Answer: 3

Q.2 Who can V see?

1. U and Z only
2. Z only

3. U only
4. U, W and Z only

Answer: 1

Q.3 What is the minimum number of street segments that X must cross to reach Y?

1. 1
2. 2
3. 3
4. 4

Answer: 2

Q.4 Should a new person stand at intersection d, who among the six would she see?

1. W and X only
2. U and W only
3. V and X only
4. U and Z only

Answer: 1

Solution:
X,U,Z are at ends of a triangle so they can be at any of b,c,f,g intersections.
Now X cannot be at g since he sees only 2 people.
UZV have to be in a straight line and x sees only U and z thus
X must be at b, V at e, Z at f, U at g.
Since Y can see W and W cannot see either V or Z thus
Y must be at k and W must be at at l.

–	V	–
X	Z	–
–	U	Y
–	–	W

Now all questions can be answered.

Six players – Tanzi, Umeza, Wangdu, Xyla, Yonita and Zeneca competed in an archery tournament. The tournament had three compulsory rounds, Rounds 1 to 3. In each round every player shot an arrow at a target. Hitting the centre of the target (called bull's eye) fetched the highest score of 5. The only other possible scores that a player could achieve were 4, 3, 2 and 1. Every bull's eye score in the first three rounds gave a player one additional chance to shoot in the bonus rounds, Rounds 4 to 6. The possible scores in Rounds 4 to 6 were identical to the first three.

A player's total score in the tournament was the sum of his/her scores in all rounds played by him/her. The table below presents partial information on points scored by the players after completion of the tournament. In the table, NP means that the player did not participate in that round, while a hyphen means that the player participated in that round and the score information is missing.

	Round-1	Round-2	Round-3	Round-4	Round-5	Round-6
Tanzi	–	4	–	5	NP	NP
Umeza	–	–	–	1	2	NP
Wangdu	–	4	–	NP	NP	NP
Xyla	–	–	–	1	5	–
Yonita	–	–	3	5	NP	NP
Zeneca	–	–	–	5	5	NP

The following additional facts are known.

1. Tanzi, Umeza and Yonita had the same total score
2. Total scores for all players, except one, were in multiples of three.
3. The highest total score was one more than double of the lowest total score
4. The number of players hitting bull's eye in Round 2 was double of that in Round 3.
5. .Tanzi and Zeneca had the same score in Round 1 but different scores in Round 3.

Q.1 What was the highest total score?

1. 25
2. 23
3. 24
4. 21

Answer: 1

Q.2 What was Zeneca's total score?

1. 21
2. 24
3. 22
4. 23

Answer: 2

Q.3 Which of the following statements is true?

1. Zeneca's score was 23.
2. Xyla was the highest scorer.
3. Xyla's score was 23.
4. Zeneca was the highest scorer

Answer: 2

Q.4 What was Tanzi's score in Round 3?

1. 3
2. 4
3. 1
4. 5

Answer: 1

Solution:
As from the table given we can see that Xyla had played all the six rounds in means he had scored 5 points in each of first 3 rounds.
Similarly Tanzi and Yonita each had hit one bull's eye score in first three rounds, Umeza and Zeneca had two bull's eye score in first 3 rounds while Wangdu didn't had any bull's eye score.
So this information can be tabulated as below: (Name of players have been represented by first letter of their name)

	R1	R2	R3	R4	R5	R6	Total
T	a	4	c	5	NP	NP	x
U				1	2	NP	x
W		4		NP	NP	NP	
X	5	5	5	1	5		
Y			3	5	NP	NP	x
Z	a		d	5	5	NP	

As number of player hitting bull's eye in round 2 is double that of the number in round 3. And 2 players have already scored 4 points in Round 2 so maximum possible people hitting bulls eye in Round 3 can be 2 and in round 2 can be 4.
Thus a = 5 as c and d can not be 5.
Possible score of U = 5+5+1+2 + b = 13+b as it should be multiple of 3 so b = 2 thus x = 15
Thus Tanzi's score in round 3 , c = 15 – 5 – 4 – a = 15 – 5 -4-5 = 1
Also W must have minimum score as his maximum possible score = 12 (if he scores 4 in each of first 3 rounds)Let it be m and X must have maximum possible score let it be n.
As m <= 12 and n >= 22
As n= 2m + 1
S n can be 23 or 25 .
But if n = 23 , m = 11 (which is not possible as only one of the all total score is not multiple of 3)
Thus n = 25 and m = 12
As Z has four scores of 5 so his 5th score will be either 1 or 4. But it can not be 1 as T's score was 1.
Now the complete table will look like,

	R1	R2	R3	R4	R5	R6	Total
T	5	4	1	5	NP	NP	15
U	2	5	5	1	2	NP	15
W	4	4	4	NP	NP	NP	12
X	5	5	5	1	5	4	25
Y	2	5	3	5	NP	NP	15
Z	5	5	4	5	5	NP	24

Now all the question can be answered.

Princess, Queen, Rani and Samragni were the four finalists in a dance competition. Ashman, Badal, Gagan and Dyu were the four music composers who individually assigned items to the dancers. Each dancer had to individually perform in two dance items assigned by the different composers. The first items performed by the four dancers were all assigned by different music composers. No dancer performed her second item before the performance of the first item by any other dancers. The dancers performed their second items in the same sequence of their performance of their first items.

The following additional facts are known.

1. No composer who assigned item to Princess, assigned any item to Queen.
2. No composer who assigned item to Rani, assigned any item to Samragni.
3. The first performance was by Princess; this item was assigned by Badal.
4. The last performance was by Rani; this item was assigned by Gagan.
5. The items assigned by Ashman were performed consecutively. The number of performances between items assigned by each of the remaining composers was the same.

Q.1 Which of the following is true?

1. The third performance was composed by Ashman.
2. The second performance was composed by Gagan.
3. The third performance was composed by Dyu.
4. The second performance was composed by Dyu.

Answer: 4

Q.2 Which of the following is FALSE?

1. Princess did not perform in any item composed by Dyu.
2. Queen did not perform in any item composed by Gagan.
3. Samragni did not perform in any item composed by Ashman.
4. Rani did not perform in any item composed by Badal.

Answer: 2

Q.3 The sixth performance was composed by:

1. Gagan
2. Dyu
3. Badal
4. Ashman

Answer: 3

Q.4 Which pair of performances were composed by the same composer?

1. The first and the sixth
2. The first and the seventh
3. The second and the sixth
4. The third and the seventh

Answer: 1

Solution:
First of all represent the dancers and composers by the first letter of their respective name. As there were total 8 performances . No dancer performed her second item before the

performance of the first item by any other dancers.
So from point v) The items assigned by A were performed consecutively . It means Items assigned by A were performed at no 4 and 5.
From point iv) The last performance was by Rani so she must have performed the 4th performance.
similarly from point iii) The first performance was by Princess; this item was assigned by Badal so 5th performance must be performed by P.
This can be represented in the table as given below:

Order of performance	Dancer	Composer
1	P	B
2		
3		
4	R	A
5	P	A
6		
7		
8	R	G

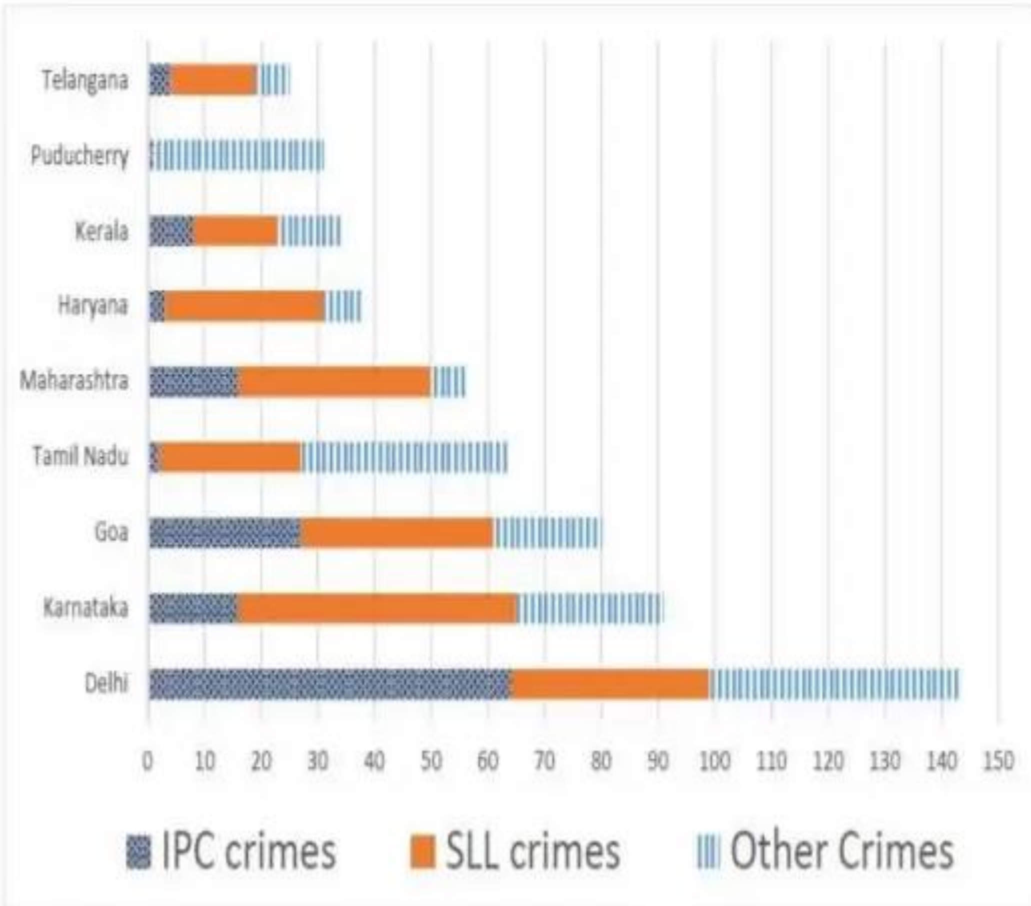
Now from point v) The number of performances between items assigned by each of the remaining composers was the same. this can not be 1 (because items assigned by A were consecutive) similarly this can not be 2 or 3 as well if The number of performances between items assigned by each of the remaining composers was 2 or 3 then B must assign performance 4 or 5 which is not possible . thus this no must be 4.
So B must assign performance 6 and g must assign performance no 3 . so the only performances left are 2 and 7 which must be assigned by D.
Now the complete table will look like –

Order of performance	Dancer	Composer
1	P	B
2	S	D
3	Q	G

4	R	A
5	P	A
6	S	B
7	Q	D
8	R	G

All the questions can be answered now.

The Ministry of Home Affairs is analysing crimes committed by foreigners in different states and union territories (UT) of India. All cases refer to the ones registered against foreigners in 2016.
The number of cases – classified into three categories: IPC crimes, SLL crimes and other crimes – for nine states/UTs are shown in the figure below. These nine belong to the top ten states/UTs in terms of the total number of cases registered. The remaining state (among top ten) is West Bengal, where all the 520 cases registered were SLL crimes.



The table below shows the ranks of the ten states/UTs mentioned above among ALL states/UTs of India in terms of the number of cases registered in each of the three category of crimes. A state/UT is given rank r for a category of crimes if there are (r-1) states/UTs having a larger number of cases registered in that category of crimes. For example, if two states have the same number of cases in a category, and exactly three other states/UTs have larger numbers of cases registered in the same category, then both the states are given rank 4 in that category. Missing ranks in the table are denoted by *

	IPC crimes	SLL crimes	Other Crimes
Delhi	*	*	*
Goa	*	4	*
Haryana	8	6	*
Karnataka	3	2	*
Kerala	*	9	*
Maharashtra	3	4	8
Puducherry	13	29	*
Tamil Nadu	11	7	*
Telangana	6	9	8
West Bengal	17	*	16

Q.1 What is the rank of Kerala in the 'IPC crimes' category?

Answer: 5

Q.2 In the two states where the highest total number of cases are registered, the ratio of the total number of cases in IPC crimes to the total number in SLL crimes is closest to

1. 1:9
2. 11:10
3. 3:2
4. 19:20

Answer: 1

Q.3 Which of the following is DEFINITELY true about the ranks of states/UT in the 'other crimes' category?
i) Tamil Nadu: 2
ii) Puducherry: 3

1. only ii)
2. both i) and ii)
3. neither i) , nor ii)
4. only i)

Answer: 2

Q.4 What is the sum of the ranks of Delhi in the three categories of crimes?

Answer: 5

Solution:
The information given in graph can be tabulated as below.

States	IPC crime	Rank in IPC Crime	SLL Crime	Rank in SLL crime	Other crimes	Rank in oth crimes
Delhi	64		34		46	
Goa	27	.	33	4	19	
Haryana	3	8	27	6	7	
Karnataka	16	3	49	2	26	
Kerala	8		14	9	12	
Maharashtra	16	3	33	4	6	8
Punducherry	1	13	0	29	30	
Tamil Nadu	2	11	24	7	34	
Telangana	4	6	15	9	6	8
West Bengal	0	17	520		0	16

Now the remaining rank can be assigned as below:

States	Total Crimes	IPC crime	Rank in IPC Crime	SLL Crime	Rank in SLL crime	Other crimes	Rank in c crimes
Delhi	144	64	**1**	34	**3**	46	**1**
Goa	79	27	**2**	33	4	19	**5**
Haryana	37	3	8	27	6	7	**7**
Karnataka	91	16	3	49	2	26	**4**

Kerala	34	8	**5**	14	9	12	**6**
Maharashtra	55	16	3	33	4	6	8
Punducherry	31	1	13	0	29	30	**3**
Tamil Nadu	64	2	11	24	7	38	**2**
Telangana	25	4	6	15	9	6	8
West Bengal	520	0	17	520	**1**	0	16

Now all the questions can be answered:
26th – Required ratio = 64/520 = 1:9 (approx)

The following table represents addition of two six-digit numbers given in the first and the second rows, while the sum is given in the third row. In the representation, each of the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 has been coded with one letter among A, B, C, D, E, F, G, H, J, K, with distinct letters representing distinct digits.

		B	H	A	A	G	F
+		A	H	J	F	K	F
	A	A	F	G	C	A	F

Q.1 Which digit does the letter A represent?

Answer: 1

Q.2 Which digit does the letter B represent?

Answer: 9

Q.3 Which among the digits 3, 4, 6 and 7 cannot be represented by the letter D?

Answer: 7

Q.4 Which among the digits 4, 6, 7 and 8 cannot be represented by the letter G?

Answer: 6

Solution:
As we can see that F + F gives F unit digit it is possible only when F = 0 So F has to be 0. Now H + H + carry (if it is there) gives F as unit digit it is possible when H = 5 (we have max 9+9 = 18 so we will never have a carry equal to 2 so H + H = 10 is only possibility) Thus H has to be 5. A also is necessarily 1 because maximum carryover can be 1. C will have to be 2 because 1 is already taken now. And only number possible for B is 9 then to get 1 below. Thus we get:

```
   9 5 1 1 G 0
   1 5 J 0 K 0
1  1 0 G 2 1 0
```

Now possible J, G, K are 3 ,4, 7 or 6,7,4 or 7,8,3

1. A is 1
2. B IS 9
3. D can never be 7 because J,G or K are always 7
4. G cannot be represented by 6

CAT 2019 Questions and Answers – Afternoon Slot

Data Interpretation – Logical Reasoning – Afternoon Slot – CAT 2019

In the table below the check marks indicate all languages spoken by five people: Paula, Quentin, Robert, Sally and Terence. For example, Paula speaks only Chinese and English.

	Arabic	Basque	Chinese	Dutch	English	French
Paula			✓		✓	
Quentin				✓	✓	
Robert	✓					✓
Sally		✓			✓	
Terence			✓			✓

These five people form three teams, Team 1, Team 2 and Team 3. Each team has either 2 or 3 members. A team is said to speak a particular language if at least one of its members speak that language.
The following facts are known.

1. Each team speaks exactly four languages and has the same number of members.
2. English and Chinese are spoken by all three teams, Basque and French by exactly two teams and the other languages by exactly one team.
3. None of the teams include both Quentin and Robert.
4. Paula and Sally are together in exactly two teams.
5. Robert is in Team 1 and Quentin is in Team 3.

Q.1 Who among the following four is not a member of Team 2?

1. Paula
2. Sally
3. Quentin
4. Terence

Answer: 3

Q.2 Who among the following four people is a part of exactly two teams?

5. Sally
6. Paula
7. Robert
8. Quentin

Answer: 1

Q.3 Who among the five people is a member of all teams?

9. Paula
10. Terence
11. Sally
12. No one

Answer: 1

Q.4 Apart from Chinese and English, which languages are spoken by Team 1?

13. Arabic and Basque
14. Basque and French
15. Arabic and French
16. Basque and Dutch

Answer: 3

Solution:
First , let represent all the five people and language spoken by then by first letter of alphabet of their name. For example English will be represented as E.
From the point (1) and (2) it is clear that there will be three members in each team and each team will speak exactly 4 languages.
As E and C are spoken by all the teams so either P or T (only these two can speak C) must be part of each team.
From point 5) R is part of T1 and Q is part of T3. P and S are together in exactly two teams.
If P and S are there in Team 1, then the three members of T1 will be P, S and R and together they can speak 5 languages (all except D) so they can’t form a

team . Same is the case of R, S and T.
Thus P and S are together in Team 2 and Team 3. And R, P and T are part of Team 1.
Now following table can be made.

	Members	Language
Team 1	R,P,T	A,F,C,E
Team 2	P,S,T	C,E,B,F
Team 3	Q,P,S	D,E,C,B

Now all the questions can be answered.

Students in a college are discussing two proposals —
A: a proposal by the authorities to introduce dress code on campus, and
B: a proposal by the students to allow multinational food franchises to set up outlets on college campus.

A student does not necessarily support either of the two proposals. In an upcoming election for student union president, there are two candidates in fray: Sunita and Ragini. Every student prefers one of the two candidates. A survey was conducted among the students by picking a sample of 500 students. The following information was noted from this survey.

1. 250 students supported proposal A and 250 students supported proposal B.
2. Among the 200 students who preferred Sunita as student union president, 80% supported proposal A.
3. Among those who preferred Ragini, 30% supported proposal A.
4. 20% of those who supported proposal B preferred Sunita.
5. 40% of those who did not support proposal B preferred Ragini.
6. Every student who preferred Sunita and supported proposal B also supported proposal A.
7. Among those who preferred Ragini, 20% did not support any of the proposals.

Q.1 Among the students surveyed who supported proposal A, what percentage preferred Sunita for student union president?

Answer: 64

Q.2 What percentage of the students surveyed who did not support proposal A preferred Ragini as student union president?

Answer: 84

Q.3 What percentage of the students surveyed who supported both proposals A and B preferred Sunita as student union president?

1. 25
2. 40
3. 20
4. 50

Answer: 4

Q.4 How many of the students surveyed supported proposal B, did not support proposal A and preferred Ragini as student union president?

1. 150
2. 40
3. 200
4. 210

Answer: 1

Solution:
As per question it is clear that a student can not prefer both Ragini and Sunita simultaneously. So on the basis of information given , table can be formed as given below:

	Sunita	**Ragini**	**Total**
A			**250**
B			**250**
Both A and B			
None			

Total			**500**

Now from point 2 it is clear that 200 students preferred Sunita so no of students who preferred Ragini = 500 – 200 = 300

No of students who preferred Sunita and supported proposal A = 80% of 200 = 160

From point 3) , no of students who preferred Ragini and supported proposal A = 30% of 300 = 90

From point 4) No of students who preferred Sunita and supported proposal B = 20% of 250 = 50

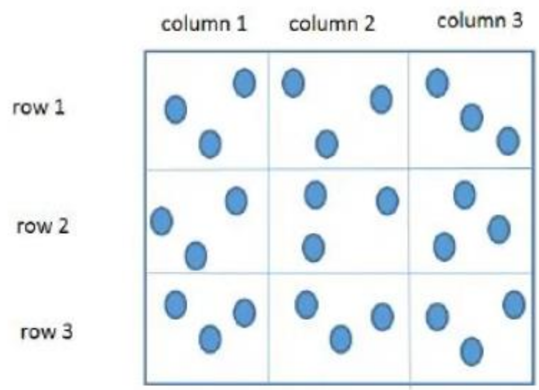
From point 6) No of students who preferred Sunita and supported proposal A and B both = 50

From point 7) no of students who preferred Ragini and didn’t supported any proposal = 20% of 300 = 60

Now the complete table can be formed as given below:

	Sunita	**Ragini**	**Total**
A	**160**	**90**	250
B	**50**	**200**	250
Both A and B	**50**	**50**	**100**
None	**40**	**60**	**100**
Total	**200**	**300**	**500**

1. No of surveyed who supported proposal A, percentage of students who Preferred Sunita for student union president = 160/250 *100 = 64%
2. No of the students surveyed who did not support proposal A Preferred Ragini as student union president = 300 – 90 = 210
   Required percentage = 210/250*100 = 84%
3. No of students who supported both proposals = 100
   No of the students surveyed who supported both proposals A and B and Preferred Sunita as student union president = 50
   Thus required % tage = 50/100 *100 = 50 %
4. No of the students surveyed supported proposal B, did not support proposal A and preferred Ragini as student union president
   = no of students who supported proposal B and preferred Ragini – no of students who supported proposal A and B and preferred Ragini
   = 200 – 50 = 150



	Column 1	Column 2	Column 3
Row 1	(2,4)	(6, 8)	(1, 3)
Row 2	(3,5)	(1,1)	(6, 20)
Row 3	(1,2)	(1,2)	(2,5)

Three pouches (each represented by a filled circle) are kept in each of the nine slots in a 3 × 3 grid, as shown in the figure. Every pouch has a certain number of one-rupee coins. The minimum and maximum amounts of money (in rupees) among the three pouches in each of the nine slots are given in the table. For example, we know that among the three pouches kept in the second column of the first row, the minimum amount in a pouch is Rs. 6 and the maximum amount is Rs. 8.

There are nine pouches in any of the three columns, as well as in any of the three rows. It is known that the average amount of money (in rupees) kept in the nine pouches in any column or in any row is an integer. It is also known that the total amount of money kept in the three pouches in the first column of the third row is Rs. 4.

Q.1 What is the total amount of money (in rupees) in the three pouches kept in the first column of the second row?

Answer: 13

Q.2 How many pouches contain exactly one coin?

Answer: 8

Q.3 What is the number of slots for which the average amount (in rupees) of its three pouches is an integer?

Answer: 2

Q.4 The number of slots for which the total amount in its three pouches strictly exceeds Rs. 10 is?

Answer: 3

Solution:
If assume the unknown number with a variable , following table can be formed.

	C1	C2	C3	
R1	2/4/a	6/8/b	1/3/c	24+a+b+c
R2	3/5/d	1/1/1	6/20/e	37+d+e
R3	1/2/1	1/2/g	2/5/h	14+g+h
	18+a+d	20+b+g	37+c+e+h	

Minimum value of a+b+c = (2+6+1) = 9 (when all of a, b and c are minimum possible)
Maximum value of (a+b+c) = (4+8+3) = 15 (when all of a, b and c are maximum possible)
Similarly Range (Minimum and Maximum value) of d+e = (9, 25) and g+h = (3, 7)
As sum of all rows and all columns must be multiple of 3 . So on solving we can see a+b+c = 12, d+e = 17 and g+h = 4
Now
Minimum value of a+d = (2+3) = 5 and maximum value of a+d = 4+5 =9
As sum of C1 = 18 + a +d
So a+d should be divisible by 3 . thus a+d can be either 6 or 9.
Similarly b+g can be 7 or 10. And c+h+e can be of the form 3k + 2
On solving we will see only a+d = 9 will satisfy all the conditions
a+d = 9 means a = 4 and d = 5
e = 12. -> c +h = 5. -> b+c =8
if h =3, then c=2, b=6, g=1
Finally, we get

	C1	C2	C3	
R1	2/4/4	6/8/6	1/3/2	36
R2	3/5/5	1/1/1	6/20/12	54
R3	1/2/1	1/2/1	2/5/3	18
	27	27	54	108

The first year students in a business school are split into six sections. In 2019 the Business Statistics course was taught in these six sections by Annie, Beti, Chetan, Dave, Esha, and Fakir. All six sections had a common midterm (MT) and a common endterm (ET) worth 100 marks each. ET contained more questions than MT. Questions for MT and ET were prepared collectively by the six faculty members. Considering MT and ET together, each faculty member prepared the same number

of questions.

Each of MT and ET had at least four questions that were worth 5 marks, at least three questions that were worth 10 marks, and at least two questions that were worth 15 marks. In both MT and ET, all the 5-mark questions preceded the 10-mark questions, and all the 15- mark questions followed the 10-mark questions.

The following additional facts are known.

1. Annie prepared the fifth question for both MT and ET. For MT, this question carried 5 marks.
2. Annie prepared one question for MT. Every other faculty member prepared more than one question for MT.
3. All questions prepared by a faculty member appeared consecutively in MT as well as ET.
4. Chetan prepared the third question in both MT and ET; and Esha prepared the eighth question in both.
5. Fakir prepared the first question of MT and the last one in ET. Dave prepared the last question of MT and the first one in ET.

Q.1 The second question in ET was prepared by:

1. Chetan
2. Esha
3. Beti
4. Dave

Answer: 4

Q.2 How many 5-mark questions were there in MT and ET combined?

1. 13
2. 10

3. 12
4. Cannot be determined

Answer: 1

Q.3 Who prepared 15-mark questions for MT and ET?

1. Only Dave, Esha and Fakir
2. Only Beti, Dave, Esha and Fakir
3. Only Esha and Fakir
4. Only Dave and Fakir

Answer: 1

Q.4 Which of the following questions did Beti prepare in ET?

1. Tenth question
2. Ninth question
3. Fourth question
4. Seventh question

Answer: 1

Solution:
As both MT and ET has atleast 4 questions of 5 marks, atleast 3 ques of 10 marks, and 2 questions of 15 marks
Marks covered by these = 5×4 + 10×3 + 15×2 = 80
Marks left = 20
20 can be divided as (5,5,5,5) (5,5,10) (5,15) (10,10)
Order of question = 5 marks, 10 marks, 15 marks
Since it is given that 5th question is a 5 mark question case of 10,10 marks is rued out
As everyone prepared an equa number of questions the number has to be a factor of 6 greater than 18 and the only possible number here is 24.
Hence the only possible cases are (5,5,5,5) (5,15)Thus ET has 13 questions and MT has 11 questions

Q.NO	1	2	3	4	5	6	7	8	9	10	11	12	1

ET MARKS	5	5	5	5	5	5	5	5	10	10	10	15	1
ET QUESTION	D	D	C	C	A	A	A	E	E	B	B	F	F
MT MARKS	5	5	5	5	5	10	10	10	15	15	15	–	–
MT QUESTIONS	F	F	C	C	A	B	B	E	E	D	D		

Ten players, as listed in the table below, participated in a rifle shooting competition comprising of 10 rounds. Each round had 6 participants. Players numbered 1 through 6 participated in Round 1, players 2 through 7 in Round 2,..., players 5 through 10 in Round 5, players 6 through 10 and 1 in Round 6, players 7 through 10, 1 and 2 in Round 7 and so on. The top three performances in each round were awarded 7, 3 and 1 points respectively. There were no ties in any of the 10 rounds. The table below gives the total number of points obtained by the 10 players after Round 6 and Round 10

Player No.	Player Name	Points after Round 6	Points after Round 10
1	Amita	8	18
2	Bala	2	5
3	Chen	3	6
4	David	6	6
5	Eric	3	10
6	Fatima	10	10
7	Gordon	17	17
8	Hansa	1	4
9	Ikea	2	17
10	Joshin	14	17

The following information is known about Rounds 1 through 6:

1. Gordon did not score consecutively in any two rounds.
2. Eric and Fatima both scored in a round.

The following information is known about Rounds 7 through 10:

1. Only two players scored in three consecutive rounds. One of them was Chen. No other player scored in any two consecutive rounds
2. Joshin scored in Round 7, while Amita scored in Round 10.
3. No player scored in all the four rounds.

Q.1 What were the scores of Chen, David, and Eric respectively after Round 3?

1. 3, 3, 0
2. 3, 3, 3
3. 3, 6, 3
4. 3, 0, 3

Answer: 2

Q.2 Which three players were in the last three positions after Round 4?

1. Hansa, Ikea, Joshin
2. Bala, Chen, Gordon
3. Bala, Ikea, Joshin
4. Bala, Hansa, Ikea

Answer: 1

Q.3 Which player scored points in maximum number of rounds?

1. Ikea
2. Chen
3. Amita
4. Joshin

Answer: 1

Q.4 Which players scored points in the last round?

1. Amita, Chen, Eric
2. Amita, Bala, Chen
3. Amita, Eric, Joshin
4. Amita, Chen, David

Answer: 1

Solution:
Team playing in different round can be tabulated as given below:
NP : Not played in that round

Player	R1	R2	R3	R4	R5	R6	Points after round 6	R7	R8	R9	R10	Poi afte rou
1 – A		NP	NP	NP	NP		8					18
2 – B			NP	NP	NP	NP	2					5
3 – C				NP	NP	NP	3	NP				6
4 – D					NP	NP	6	NP	NP			6
5 – E						NP	3	NP	NP	NP		10
6 – F							10	NP	NP	NP	NP	10
7 – G	NP						17	0	NP	NP	NP	17
8 – H	NP	NP					1			NP	NP	4
9 – I	NP	NP	NP				2				NP	17
10 – J	NP	NP	NP	NP			14					17

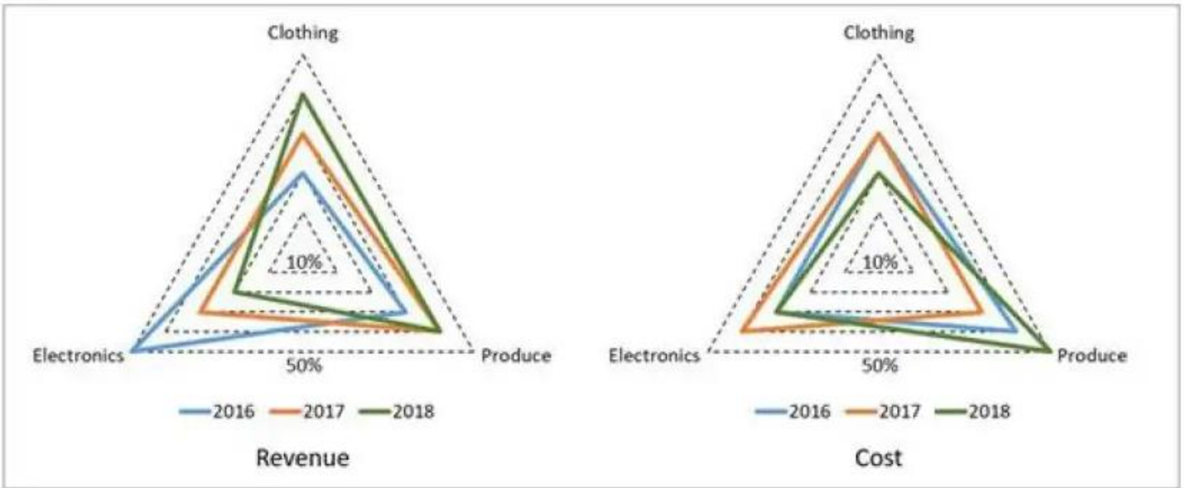
Now as B had scored 2 points till round 6 and he had played only in round 1 and in round 2 till that thus he must have scored 1 – 1 points in each round.
So A can score 1 in round 6 and 7 in round 1 as he had played only in two rounds and had 8 points.
Similarly, Joshin (J) must have scored 7 points each in round 5 and round 6.
Now from the information known about Rounds 7 through 10: from point 1 and 2, C must score 1 points each in round 8, 9 and 10 as hi points has been increased 3 (from 3 to 6) and J must score 3 points in round 7.
Now the only possibility for I is to score 1, 7 and 7 points in round 7, 8 and 9 respectively.
Now A can not score in two consecutive rounds and his points has been increased from 8 to 18 so it is the only possibility that he score 7 points in round 7 and 3 points in round 10. Thus B will score 3 points in round 9 and H in round 8.
Now if we fill these data in the table, the following table can be made

Player	R1	R2	R3	R4	R5	R6	Points after round 6	R7	R8	R9	R10	Poi afte rou
1 – A	7	NP	NP	NP	NP	1	8	7	0	0	3	18
2 – B	1	1	NP	NP	NP	NP	2	0	0	3	0	5
3 – C	0/3	3/0	0	NP	NP	NP	3	NP	1	1	1	6
4 – D	3/0	0/3	0	3	NP	NP	6	NP	NP	0	0	6
5 – E	0	0	3	0	0	NP	3	NP	NP	NP	7	10
6 – F	0	0	7	0	3	0	10	NP	NP	NP	NP	10
7 – G	NP	7	0	7	0	3	17	0	NP	NP	NP	17
8 – H	NP	NP	1	0	0	0	1	0	3	NP	NP	4
9 – I	NP	NP	NP	1	1	0	2	1	7	7	NP	17
10 – J	NP	NP	NP	NP	7	7	14	3	0	0	0	17

Now all the question can be answered:

1. Score of Chen, David, and Eric respectively after Round 3 =3, 3,3
2. option a)
3. option a)
4. option a)

A large store has only three departments, Clothing, Produce, and Electronics. The following figure shows the percentages of revenue and cost from the three departments for the years 2016, 2017 and 2018. The dotted lines depict percentage levels. So for example, in 2016, 50% of store's revenue came from its Electronics department while 40% of its costs were incurred in the Produce department.



In this setup, Profit is computed as (Revenue – Cost) and Percentage Profit as Profit/Cost × 100%.
It is known that

1. The percentage profit for the store in 2016 was 100%.
2. The store's revenue doubled from 2016 to 2017, and its cost doubled from 2016 to 2018.
3. There was no profit from the Electronics department in 2017.
4. In 2018, the revenue from the Clothing department was the same as the cost incurred in the Produce department.

Q.1 What was the percentage profit of the store in 2018?

Answer: 25

Q.2 What was the ratio of revenue generated from the Produce department in 2017 to that in 2018?

1. 4 : 3
2. 16 : 9
3. 9 : 16
4. 8 : 5

Answer: 4

Q.3 What percentage of the total profits for the store in 2016 was from the Electronics department?

Answer: 70

Q.4 What was the approximate difference in profit percentages of the store in 2017 and 2018?

1. 25.0
2. 33.3
3. 15.5
4. 8.3

Answer: 4

Solution:
Let the total revenue in 2016, 2017 and 2018 be 100x, 100y and 100z . The total cost in 2016, 2017 and 2018 be 100a, 100b and 100c.
The information given can be tabulated as below
REVENUE

	2016	2017	2018
Clothing	20x	30y	40z
Produce	30x	40y	40z
Electronics	50x	30y	20z

COST

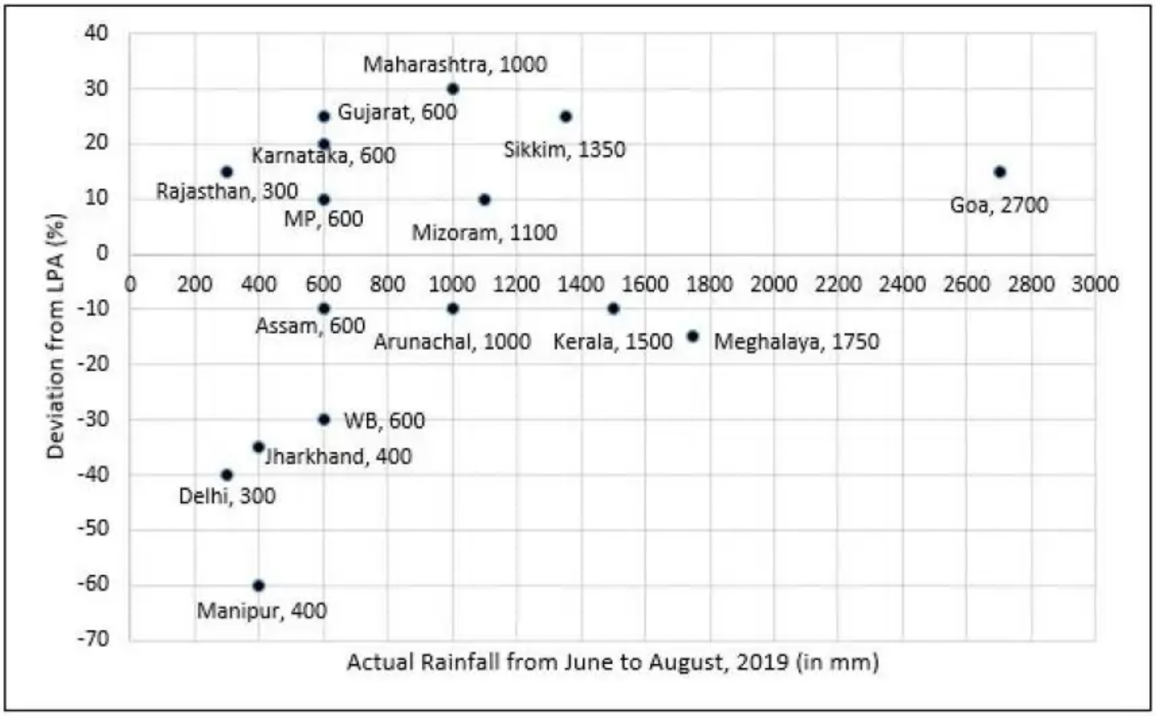
	2016	2017	2018
CLOTHING	30a	30b	20c
PRODUCE	40a	30b	30c
ELECTRONICS	30a	40b	30c

As revenue doubled in 2017 so 100y = 2(100x)
Or y = 2x
Also cost doubled in 2018 so 100c = 2(100a)

Or $c = 2a$
It is given that Profit in electronics in 2017 = 0
Which mean $30y = 40b$
Percentage profit in 2016 = `100 -> $x = 2a$
In2018… -> $40z = 50c$
Thus $z = 2.5a$, $x = 2a$, $y = 4a$, $b = 3a$, $c = 2a$

1. profit in 2018 = $(250a – 200a)/200a \times 100 = 25$
2. Rev produce in 2017/rev produce in 2018 = $40y/40z = 8/5$
3. profit in 2016 = 100a. Profit from produce = 70a -> 70%
4. profit in 2017 = $400a – 300a / 300a = 33.33\%$
   Profit in 2018 = 25%
   Difference = 8.3

To compare the rainfall data, India Meteorological Department (IMD) calculated the Long Period Average (LPA) of rainfall during period June-August for each of the 16 states. The figure given below shows the actual rainfall (measured in mm) during June-August, 2019 and the percentage deviations from LPA of respective states in 2018. Each state along with its actual rainfall is presented in the figure.



Q.1 If a 'Heavy Monsoon State' is defined as a state with actual rainfall from June-August, 2019 of 900 mm or more, then approximately what percentage of 'Heavy Monsoon States' have a negative deviation from respective LPAs in 2019?

1. 42.86
2. 75.00
3. 14.29
4. 57.14

Answer: 1

Q.2 If a 'Low Monsoon State' is defined as a state with actual rainfall from June-August, 2019 of 750 mm or less, then what is the median 'deviation from LPA' (as defined in the Y-axis of the figure) of 'Low Monsoon States'?

1. 10%
2. -20%
3. -10%

4. -30%

Answer: 3

Q.3 What is the average rainfall of all states that have actual rainfall of 600 mm or less in 2019 and have a negative deviation from LPA?

1. 500 mm
2. 460 mm
3. 367 mm
4. 450 mm

Answer: 2

Q.4 The LPA of a state for a year is defined as the average rainfall in the preceding 10 years considering the period of June-August. For example, LPA in 2018 is the average rainfall during 2009-2018 and LPA in 2019 is the average rainfall during 2010-2019. It is also observed that the actual rainfall in Gujarat in 2019 is 20% more than the rainfall in 2009. The LPA of Gujarat in 2019 is closest to?

1. 490 mm
2. 525 mm
3. 475 mm
4. 505 mm

Answer: 1

Solution:

1. Negative deviation as well as rainfall greater than 900 are Arunachal, Kerala, Meghalaya
   Rainfall greater than 900 and positive deviations are Maharashtra, Mizoram, Sikkim, Goa
   Hence % = 3/7 x 100 = 42.86
2. As we have a total of 9 states with low monsoon and 5 states with negative deviation among them, the state of assam will have the median value = -10%

3. As We can see that there are 5 states (Asam, WB, Jharkhand, Delhi and Manipur) with rainfall less than 600 and negative deviation.
   So Required Average of states with rainfall less than 600 and negative deviation is (600 + 600 + 400 + 300 + 400)/5 = 460
4. Gujrat in 2018 has rainfall of 600 anad deviation of 25% and 2019 is 20% more than 2009 2009 rainfall is 600/1.2 = 500mm.
   As deviation is +25% so average 2009 – 2018 is 600/1.25 = 480
   LPA 2019 = (480×10 – 500 + 600)/10 = 490mm

Three doctors, Dr. Ben, Dr. Kane and Dr. Wayne visit a particular clinic Monday to Saturday to see patients. Dr. Ben sees each patient for 10 minutes and charges Rs. 100/-. Dr. Kane sees each patient for 15 minutes and charges Rs. 200/-, while Dr. Wayne sees each patient for 25 minutes and charges Rs. 300/-. The clinic has three rooms numbered 1, 2 and 3 which are assigned to the three doctors as per the following table.

Room No.	Monday & Tuesday	Wednesday & Thursday	Friday & Saturday
1	Ben	Wayne	Kane
2	Kane	Ben	Wayne
3	Wayne	Kane	Ben

The clinic is open from 9 a.m. to 11.30 a.m. every Monday to Saturday.

On arrival each patient is handed a numbered token indicating their position in the queue, starting with token number 1 every day. As soon as any doctor becomes free, the next patient in the queue enters that emptied room for consultation. If at any time, more than one room is free then the waiting patient enters the room with the smallest number. For example, if the next two patients in the queue have token numbers 7 and 8 and if rooms numbered 1 and 3 are free, then patient with token

Q.1 What is the maximum number of patients that the clinic can cater to on any single day?

1. 12
2. 30

3. 15
4. 31

Answer: 4

Q.2 The queue is never empty on one particular Saturday. Which of the three doctors would earn the maximum amount in consultation charges on that day?

1. Dr. Ben
2. Dr. Kane
3. Both Dr. Wayne and Dr. Kane
4. Dr. Wayne

Answer: 2

Q.3 Mr. Singh visited the clinic on Monday, Wednesday, and Friday of a particular week, arriving at 8:50 a.m. on each of the three days. His token number was 13 on all three days. On which day was he at the clinic for the maximum duration?

1. Friday
2. Same duration on all three days
3. Wednesday
4. Monday

Answer: 4

Q.4 On a slow Thursday, only two patients are waiting at 9 a.m. After that two patients keep arriving at exact 15 minute intervals starting at 9:15 a.m. — i.e. at 9:15 a.m., 9:30 a.m., 9:45 a.m. etc. Then the total duration in minutes when all three doctors are simultaneously free is?

1. 30
2. 10
3. 0
4. 15

Answer: 3

Solution:

1. As clinic is open for 150 mins max patients for each doctor wi be as follows
   Ben = 150/10 = 15
   Kane = 150/15 = 10
   Wayne = 150/25 = 6
   Total = 15 + 10 + 6 = 31
2. On a day with max patients
   Ben would have = 15×100 = 1500
   Kane would have = 10×200 = 2000
   Wayne would have 6×300 = 1800
   Maximum amount can be earned by Dr. Kane
3. On each day , it can be seen that in first 60 minutes a total of 12 patient can be seen by the doctors and 13th will be in a room in which Dr. Wayne will be seeing him.
   To stay for the maximum time in the clinic the 13th no patient must go in the room of Dr. Wayne.
   As 12th and 13th no of patient will visited by one of the doctors Dr Ben or Dr Wayne . So for 13th no of patent to visit Dr Wayne , Dr Wayne must be in the room which is numbered higher than Dr Ben's room number. It is happing only on Monday when Dr Ben is in room 1 and Dr Wayne is in room 3.
   So Monday is correct answer.
4. At 9 AM 2 patient are waiting till 9:15 again 2 patients would be waiting. At 9:30 none of the patients would be waiting. Hence all 3 will never be free at same time. Hence 0.

CAT 2019 Questions and Answers – Morning Slot

Quantitative Aptitude – Morning Slot – CAT 2019

Q. In a class, 60% of the students are girls and the rest are boys. There are 30 more girls than boys. If 68% of the students, including 30 boys, pass an examination, the percentage of the girls who do not pass is?

Answer: 20%

Solution: let total number of students in the class = 100x
Number of girls = 60% of 100x = 60x
Number of boys = 100x – 60x = 40x
Given, 60x – 40x = 30
So 20x = 30
x = 30/20
thus number of students = 100x = 100*30/20 = 150
number of boys = 40x = 40*30/20 = 60
number of girls = 150 – 60 =90
number of students who do not pass the exams = 32% of 100x = 32x = 32*30/20 = 48
number of boys failed= 60 -30 = 30
so number of girls failed = 48 – 30 = 18
required percentage = 18/90 *100 = 20%

Q. The wheels of bicycles A and B have radii 30 cm and 40 cm, respectively. While traveling a certain distance, each wheel of A required 5000 more revolutions than each wheel of B. If bicycle B traveled this distance in 45 minutes, then its speed, in km per hour, was?

1. 14π
2. 18π
3. 12π
4. 16π

Answer: 16π

Solution: Let number of revolutions of wheels of bicycle B =x
Distance traveled by bicycle A Distance traveled by bicycle B
So 2 πR(Base A) (x+5000) = 2 ΠR(Base B) *x
30*(x+5000) = 40x
150000= 10x
x = 15000
thus distance traveled by bicycle B = 2 π *40 *15000 cm = 1200000 π cm = 12 π km
time = 45 min = 45/60 hr = 3/4 hr
speed = distance /time = 12 π /(3/4) = 16 π

Q. Meena scores 40% in an examination and after review, even though her score is increased by 50%, she fails by 35 marks. If her post-review score is increased by

20%, she will have 7 marks more than the passing score. The percentage score needed for passing the examination is?

1. 60
2. 75
3. 80
4. 70

Answer: 70

Solution: Let the total Maximum marks in exam = 100x
Meena's score = 40% of 100x = 40x
Her marks after review = 40x+ 50% of 40x = 60x
Her marks after post review = 60x + 20% of 60x = 72x
As per question 72x – 7 = 60x+ 35
12x = 42
x = 42/12 = 7/2
so passing marks = 60x + 35 = 60*7/2 + 35 =245
total marks = 100x = 350
Required percentage score needed for passing the examination = 245/350 = 70%

Q. Let x and y be positive real numbers such that log(base 5) (x + y) + log(base 5) (x − y) = 3, and log(base 2)y − log(base 2)x = 1 − log(base 2)3. Then xy equals?

1. 150
2. 100
3. 25
4. 250

Answer: 150

Solution: Given, log(base5) (x + y) + log(base5) (x − y) = 3
Or log(base5) (x + y)*(x-y) =3
Or x^2 –y^2 = 5^3 = 125————-1)
log(base2) y − log(base2) x = 1 − log(base2) 3= log(base2) 2 – log(base2) 3
log(base2) y/x = log(base2) 2/3
y/x = 2/3
y = 2x/3
from eq 1) x^2 – (2x/3)^2 = 125
x^2 – (4x^2/9) = 125

$5x^2 = 125*9$ or $x^2 = 225$
$x = 15$
$y= 2x/3 = 30/3 = 10$
$xy = 15*10 =150$

Q. On selling a pen at 5% loss and a book at 15% gain, Karim gains Rs. 7. If he sells the pen at 5% gain and the book at 10% gain, he gains Rs. 13. What is the cost price of the book in Rupees?

1. 95
2. 100
3. 80
4. 85

Answer: 80

Solution: let the CP of pen = p and that of book = b
So as per question 0.15 b – 0.05 p = 7
Or 15b – 5p = 700 ————-1)
Similarly 10b + 5p = 1300 ——2)
Adding both equations 25b = 2000
Or b = 2000/25 = 80

Q. The product of the distinct roots of |x^2 − x − 6| = x + 2 is?

1. −16
2. -8
3. -24
4. -4

Answer: −16

Solution: given, |x^2 − x − 6| = x + 2
Or I (x-3)*(x+2)I = (x+2)
Case 1) When x > 3
Then (x-3)*(x+2)= (x+2) or x -3 =1 or x = 4
Case 2) when – 2 <= x < 3, -(x-3)*(x+2)= (x+2)
-(x-3)*(x+2) – (x+2) =0
(x+2)(x-3+1) =0
(x-2)*(x+2) =0

x = 2 or -2

case 3) when x < - 2

(x-3)*(x+2) = (x+2)

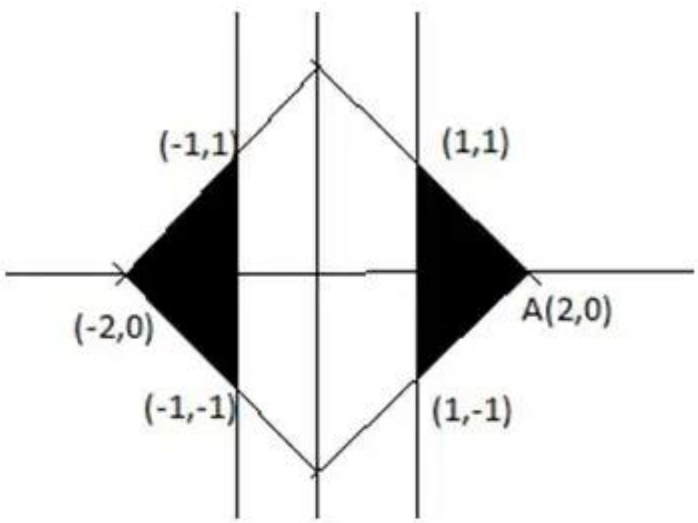
x = 4 (not possible as x < -2

so required product = 4*2*(-2) = -16

Q. Let S be the set of all points (x, y) in the x-y plane such that | x | + | y | ≤ 2 and | x | ≥ 1. Then, the area, in square units, of the region represented by S equals?

Answer: 2

Solution: the graph of the two functions can be drawn as below:



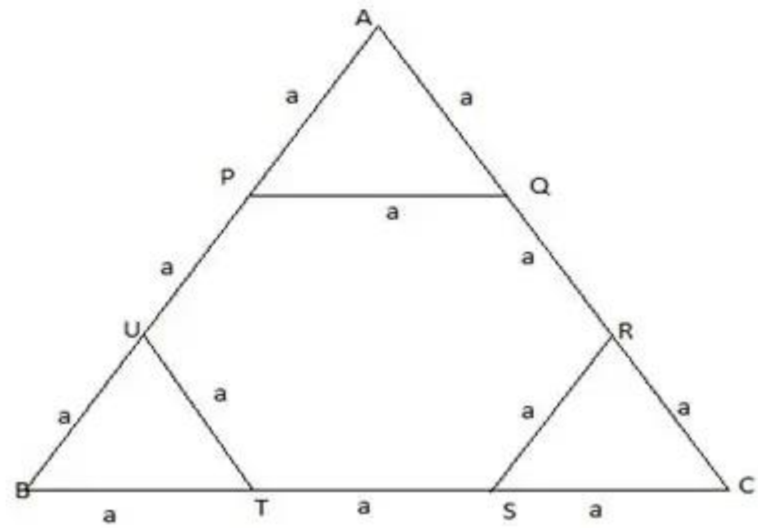
Area of the shaded region = 2*(area of one shaded region) = 2*1/2 *1*2 = 2 unit

Q. Corners are cut off from an equilateral triangle T to produce a regular hexagon H. Then, the ratio of the area of H to the area of T is?

1. 3 : 4
2. 2 : 3
3. 5 : 6
4. 4 : 5

Answer: 2 : 3

Solution: In given case , figure can be drawn as below



Let side of equilateral triangle ABC = 3a
So side of hexagon = a
Area of triangle = (root3 /4)*(3a)^2 = 9a^2 *(root3/4)
Area of hexagon with side a = 6*(root3 /4)*(a)^2
Ratio of areas of hexagon to that of triangle = { 6*(root3 /4)*(a)^2 } / { 9a^2 *(root3/4)} = 6/9 = 2/3
Thus required ratio = 2 : 3

Q. The number of the real roots of the equation 2cos (x (x + 1)) = 2^x + 2^-x is?

1. 1
2. 0
3. 2
4. infinite

Answer: 1

Solution: As we know maximum value of cos A = 1 at A =0
So maximum value of 2cos (x (x + 1)) = 2*1 =2
Minimum value of 2^x + 2^(-x) = 2 (as the minimum value of k + 1/k = 2 at k = 1) at x = 0
Thus there is only one possible case when 2cos (x (x + 1)) = 2^x + 2^-x at x =0
So no of real solution =1

Q. Three men and eight machines can finish a job in half the time taken by three machines and eight men to finish the same job. If two machines can finish the job in 13 days, then how many men can finish the job in 13 days?

Answer: 13

Solution: Let a man can finish the job alone in M days.
Given two machines can finish the job in 13 days so one machine can finish the job in 13*2 = 26 days
As given that Three men and eight machines can finish a job in half the time taken by three machines and eight men to finish the same job
So 3/M + 8/26 = 2(8/M + 3/26)
3/M + 4/13 = 16/M + 3/26
16/M – 3/M = 4/13 – 3/13
13/M = 1/13
M = 169
So the number of men required to finish the job in 13 days = 169/13 = 13

Q. Consider a function f satisfying f(x+y) = f(x) f(y) where x, y are positive integers, and f(1) = 2 if f(a+1) + f(a+2)+…+f(a+n)+16 (2^n – 1) then a is equal to?

Answer: 3

Solution: Given, f(x+y) = f(x)*f(y), and f(1) =2
f(a+1) + f(a+2) + f(a+3) + …..+f(a+n) = 16 (2^n -1)————1)
putting n =1
f(a+1) = 16
f(a)*f(1) = 16
or f(a) = 8 as f(1) =2
Putting n =2 in eq 1)
F(a+1) + f(a+2) =16*(2^2 -1)
16 + f(a)*f(2) = 16*3 = 48
8*(f2) = 48 -16 = 32
Or f(2) = 4
By putting n = 3 , in eq 1 we get,
f(a+1) + f(a+2) + f(a+3) = 16*(2^3 -1)
16 + 32 + f(a)*f(3) = 16*7 = 112
F(a)*f(3) = 112 – 16 – 32 = 64
8*f(3) = 64
F(3) = 8
As we know f(a) = 8 so a = 3

Q. If the rectangular faces of a brick have their diagonals in the ratio 3 : 2√3 : √15, then the ratio of the length of the shortest edge of the brick to that of its longest edge is?

1. $2 : \sqrt{5}$
2. $1 : \sqrt{3}$
3. $\sqrt{2} : \sqrt{3}$
4. $\sqrt{3} : 2$

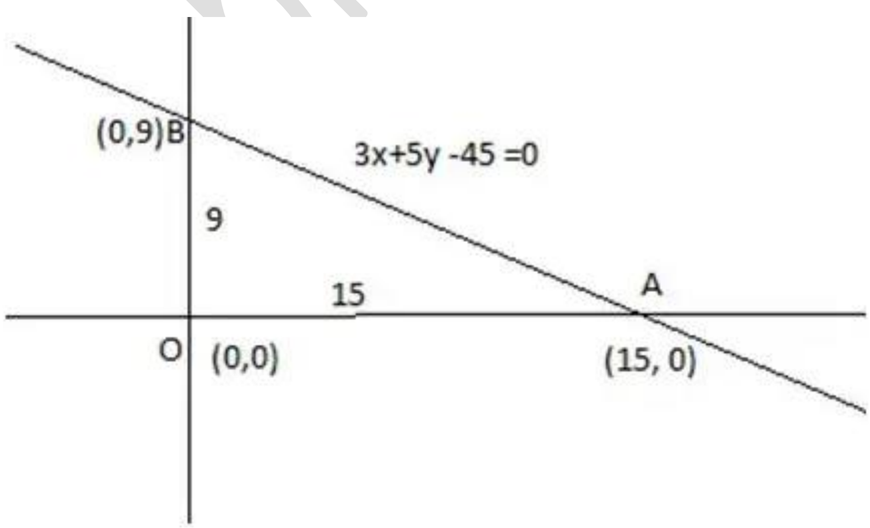
Answer: $1 : \sqrt{3}$

Solution: Let the size of bricks are $l*b*h$ such that $l > b > h$
As we know diagonals = $(l^2 + b^2)^{1/2}$, $(l^2 + h^2)^{1/2}$, and $(h^2 + b^2)^{1/2}$
Thus ratio of squares of diagonals = $(l^2 + b^2) : (l^2 + h^2) : (h^2 + b^2) = (\sqrt{15})^2 : (2\sqrt{3})^2 : 3^2$
Or $(l^2 + b^2) : (l^2 + h^2) : (h^2 + b^2) = 15 : 12 : 9 = (9 + 6) : (9 + 3) : (3 + 6)$
By comparing we can say $l^2 = 9$, $h^2 = 3$ and $b^2 = 6$
So $l = 3$ and $h = \sqrt{3}$
Required ratio of $h/l = \sqrt{3}/3 = 1 : \sqrt{3}$

Q. Let T be the triangle formed by the straight line $3x + 5y – 45 = 0$ and the coordinate axes. Let the circumcircle of T have radius of length L, measured in the same unit as the coordinate axes. Then, the integer closest to L is ?

Answer: 9

Solution: given eq of straight line is $3x + 5y – 45 = 0$, the line cuts x axis at
Put $y = 0$, $3x – 45 = 0$ or $x = 15$, so $(15, 0)$
Put $x = 0$, $5y – 45 = 0$,or $y = 9$
Thus the line cut y –axis at $(0,9)$



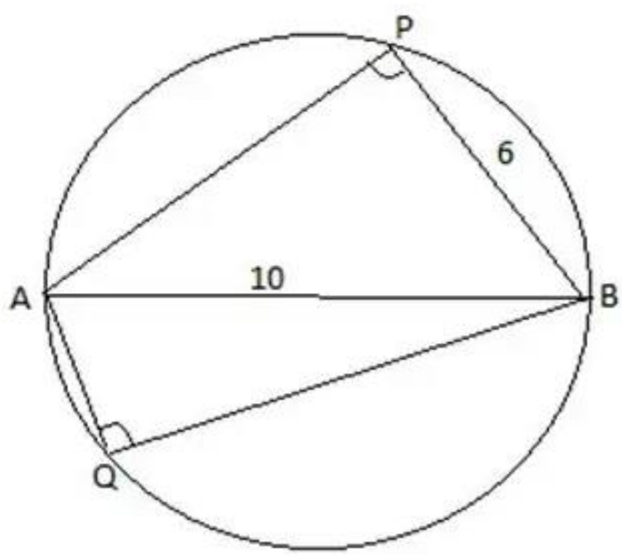
Thus we can say OAB is the triangle T which is right angled triangle so AB will be dia of triangle.
Diameter AB = (9^2 + 15^2)^1/2 = (81+225)^1/2 = (306)^1/2 = 17.54 (approx)
So radius = 17.54/2 = 9 (approx)

Q. AB is a diameter of a circle of radius 5 cm. Let P and Q be two points on the circle so that the length of PB is 6 cm, and the length of AP is twice that of AQ. Then the length, in cm, of QB is nearest to?

1. 9.3
2. 8.5
3. 9.1
4. 7.8

Answer: 9.1

Solution: **See the figure,**



Given AB is diameter = 5*2 = 10 , BP =6 And AQ = AP/2
Angle P and Q will be right angled (angle in semi circle is always equals to 90 degree)
Thus in right angled triangle APB , AP = (AB^2 – BP^2)^1/2 = (10^2 – 6^2)^1/2 = 8
So AQ = 8/2 = 4

Now in right angled triangle AQB, BQ = (AB^2 – AQ^2)^1/2 = (10^2 – 4^2)^1/2 = (84)^1/2 = 9.1 approx

Q. A chemist mixes two liquids 1 and 2. One litre of liquid 1 weighs 1 kg and one litre of liquid 2 weighs 800 gm. If half litre of the mixture weighs 480 gm, then the percentage of liquid 1 in the mixture, in terms of volume, is?

1. 70
2. 80
3. 75
4. 85

Answer: 80

Solution: weight of half litre of the liquid 1 and liquid 2 will be 500 and 400 gm respectively.
So required ratio of liquid 1 an 2 in mixture =(480n-400)/(500 -480) =80/20 = 4:1
So the percentage of liquid 1 in the mixture= 4/(4+1) *100 = 80

Q. The income of Amala is 20% more than that of Bimala and 20% less than that of Kamala. If Kamala's income goes down by 4% and Bimala's goes up by 10%, then the percentage by which Kamala's income would exceed Bimala's is nearest to?

1. 28
2. 31
3. 29
4. 32

Answer: 31

Solution: **Let the income of Amala (A) = 100x , income of Bimala (B) = 100x/1.2 = 83.33 x and**
Income of Kamala = 100x/0.8 = 125x
When Kamala's income goes down by 4% and Bimala's goes up by 10%,
K's new income = 125x – 4% of 125x = 120x
B's new income = 83.33x + 10% of 83.33x = 91.67 x

the percentage by which Kamala's income would exceed Bimala's = (120x – 91.67x)/91.67x *100
= (28.33/91.67) *100 = 31 (approx)

Q. For any positive integer n, let f(n) = n(n + 1) if n is even, and f(n) = n + 3 if n is odd. If m is a positive integer such that 8f(m + 1) – f(m) = 2, then m equals?

Answer: 10

Solution: **Case 1) If m is odd, then m+1 will be even**
So f(m) = m+3 and f(m+1) = m(m+1)
Given, 8f(m + 1) – f(m) = 2
Or 8* (m+2)(m+1)- (m+3) = 2
8m^2 + 24m + 16 – m – 3 =2
8m^2 + 23m – 11 = 0
No integer solution so m is not odd means m is even.
Case 2) if m is even , m+1 = odd
So f(m+1) = m+3 and f(m) = m(m+1)
Given, 8f(m + 1) – f(m) = 2
Or 8(m+1 + 3) – m(m+1) =2
8m + 32 – m^2 –m =2
m^2 -7m -30 =0
(m+3)*(m-10)=0
M = 10 or -3
As m is even so m =10

Q. Ramesh and Gautam are among 22 students who write an examination. Ramesh scores 82.5. The average score of the 21 students other than Gautam is 62. The average score of all the 22 students is one more than the average score of the 21 students other than Ramesh. The score of Gautam is?

1. 48
2. 53
3. 51
4. 49

Answer: 51

Solution: **Let the score of Gautam =x**
Total marks of all the students = 21*62 +x
As per question The average score of all the 22 students is one more than the average score of the 21 students other than Ramesh,
Or (21*62 +x)/22 -1 = (21*62 +x – 82.5)/21
(21*62 + x -22)/22 = (21*62 +x – 82.5)/21
On solving x =51

Q. At their usual efficiency levels, A and B together finish a task in 12 days. If A had worked half as efficiently as she usually does, and B had worked thrice as efficiently as he usually does, the task would have been completed in 9 days. How many days would A take to finish the task if she works alone at her usual efficiency?

1. 18
2. 12
3. 36
4. 24

Answer: 18

Solution: **let usual efficiency of A = 2a and that of B = b**
So total work = 12*(2a+b) = 24a+12b————1)
In 2nd case when efficiency of A is halved and efficiency of B get tripled ,
new efficiency of A = 2a/2 = a
New efficiency of B = b*3 =3b
Total work = 9(a+3b) = 9a+27b ——————-2)
From eq 1) and 2)
24a+12b = 9a + 27b
15a = 15b
Or a=b
So total work = 24a+12b = 24a+12a = 36a
Time taken by A alone to complete the work = 36a/2a = 18 days

Q. The number of solution to the equation |x| (6x^2 + 1) = 5x^2 is?

Answer: 5

Solution: **case 1) If x >0**

X*(6x^2 +1) = 5x^2
6x^3 -5x^2 +x = 0
x(6x^2 -5x +1) = 0
x(6x^2 -3x -2x +1) =0
x(2x -1)*(3x -1) =0
x = 0, ½ or 1/3
number of solutions = 3
case 2) if x < 0
– X*(6x^2 +1) = 5x^2
6x^3 + 5x^2 +x = 0
x(6x^2 +5x +1) = 0
x(6x^2 +3x +2x +1) =0
x(2x +1)*(3x +1) =0
x = 0, -1/2 or -1/3
Thus x can take 5 different values 0,1/2, 1/3, -1/2 and -1/3
Total number of solutions = 5

Q. Amala, Bina, and Gouri invest money in the ratio 3 : 4 : 5 in fixed deposits having respective annual interest rates in the ratio 6 : 5 : 4. What is their total interest income (in Rs) after a year, if Bina's interest income exceeds Amala's by Rs 250?

1. 7250
2. 6350
3. 7000
4. 6000

Answer: 7250

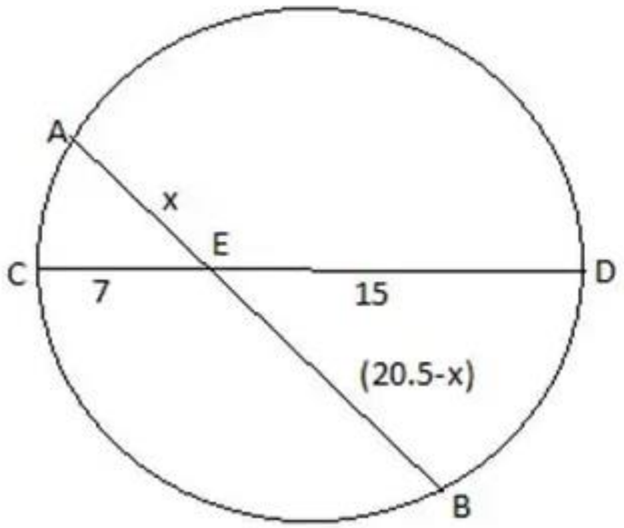
Solution: **Ratio of their interest at the end of a year = 3*6 : 4*5 : 5*4 = 18 : 20:20**
As per question 20x -18x = 250
2x = 250
X = 125
So total interest = (18+20+20)*x = 58*125 = 7250

Q. In a circle of radius 11 cm, CD is a diameter and AB is a chord of length 20.5 cm. If AB and CD intersect at a point E inside the circle and CE has length 7 cm, then the difference of the lengths of BE and AE, in cm, is?

1. 3.5
2. 1.5
3. 0.5
4. 2.5

Answer: 0.5

Solution: **As per question following figure can be drawn,**



As we know AE*BE = CE*DE
X(20.5 –x) = 7*15 = 105
20.5x –x^2 = 105
x^2 -20.5x + 105 = 0
x^2 -10.5x – 10x +105 =0
(x -10)*(x-10.5) =0
So x = 10 or 10.5
Thus if AE = 10 then BE = 10.5 and vice versa
Required difference = (10.5 -10) = 0.5

Q. The product of two positive numbers is 616. If the ratio of the difference of their cubes to the cube of their difference is 157:3, then the sum of the two numbers is?

1. 85
2. 50
3. 95
4. 58

Answer: 50

Solution: **Let the number be a and b.**
So ab = 616
Given, (a^3 –b^3)/(a-b)^3 = 157/3
(a-b)*(a^2 + b^2 +ab)/(a-b)*(a^2 + b^2 -2ab) = 157/3
Let a^2 + b^2 =k
So (k+ab)/(k-2ab) = 157/3
3k + 3ab = 157k – 314ab
154k = 117ab = 317*616
k = 317*616/154 = 1268
As we know (a+b)^2 = (a^2 + b^2) + 2ab = k + 2ab = 1268 + 2*616
(a+b)^2 =2500 = 50^2
So a+b = 50

Q. With rectangular axes of coordinates, the number of paths from (1,1) to (8,10) via (4,6), where each step from any point (x, y) is either to (x, y+1) or to (x+1, y), is?

Answer: 3920

Solution: **dimension of rectangle with ends of diagonal being(1,1) and (4,6) = 3*5**
thus number of paths from (1,1) to (4,6) = (5+3)!/5!3! =56
dimension of rectangle with ends of diagonal being(8,10) and (4,6) = 4*4
thus number of paths from (4,6) to (8,10) = (4+4)!/4!4! =70
so total number of paths from (1,1) to (8,10) via (4,6) = 56*70 =3920

Q. A person invested a total amount of Rs 15 lakh. A part of it was invested in a fixed deposit earning 6% annual interest, and the remaining amount was invested in two other deposits in the ratio 2 : 1, earning annual interest at the rates of 4% and 3%, respectively. If the total annual interest income is Rs 76000 then the amount (in Rs lakh) invested in the fixed deposit was?

Answer: 9

Solution: **Final interest at the end of the year = 76000,**
Interest rate = 76000/1500000 *100 = 76/15 = 5 1/15
Combine interest rate from amount deposited at 4% and 3% interest rate = (4*2 + 3)/(2+1) =11/3 %
Let the amount ratio of amount deposited in fixed deposit and other deposit be x:y so
x/y = (76/15 -11/3)/(6 – 76/15)
x/y = (76-55)/(90 -76) = 19:14
amount deposited in 6% = 19/33 *15 =8.63 lakh = 9 lakh

Q. If (5.55)^x = (0.555)^y = 1000, then the value of 1/x – 1/y is?

1. 2/3
2. 3
3. 1
4. 1/3

Answer: 1/3

Solution: **given (5.55)^x = (0.555)^y = 1000 =10^3**
Taking log with respect to 10 (that is base 10)
x log 5.55 = y log (0.555) = 3 log 10 = 3
x log 5.55 = 3
x = 3/log5.55
1/x = log 5.55/3————1)
y log (0.555) = 3
y log (5.55/10) = 3
y log 5.55 – y log 10 = 3
y log 5.55 – y = 3
y = 3 /(log 5.55 -1)
1/y = (log 5.55 -1)/3————-2)
So from eq 1) & 2
1/x -1/y = 1/3

Q. If the population of a town is p in the beginning of any year then it becomes 3+2p in the beginning of the next year. If the population in the beginning of 2019 is 1000, then the population in the beginning of 2034 will be?

1. (997)2^14 + 3
2. (997)^15 – 3
3. (1003)^15 + 6
4. (1003)2^15 – 3

Answer: (1003)2^15 – 3

Solution: **Given as population of the town is p in the beginning of any year then it becomes 3+2p in the beginning of the next year**
Population in 2019 = 1000 = (1003)*2^0 -3
So in 2020 it will be = 3 + 2*1000 = 2003 = (1003)*2^1 -3
In 2021 it will be = 3 + 2*2003 = 6009 = (1003)*2^2 -3
In 2022 it will be = 3 + 2*6009 = 12021 = ((1003)*2^3 –3
…
Thus in the year 2034 the population will be (1003)*2^15 -3

Q. If a(base1)+a(base2)+a(base3)+….+ a(base n) = 3(2^(n+1) – 2), for every n≥1, then a(base11) equals ?

Answer: 6144

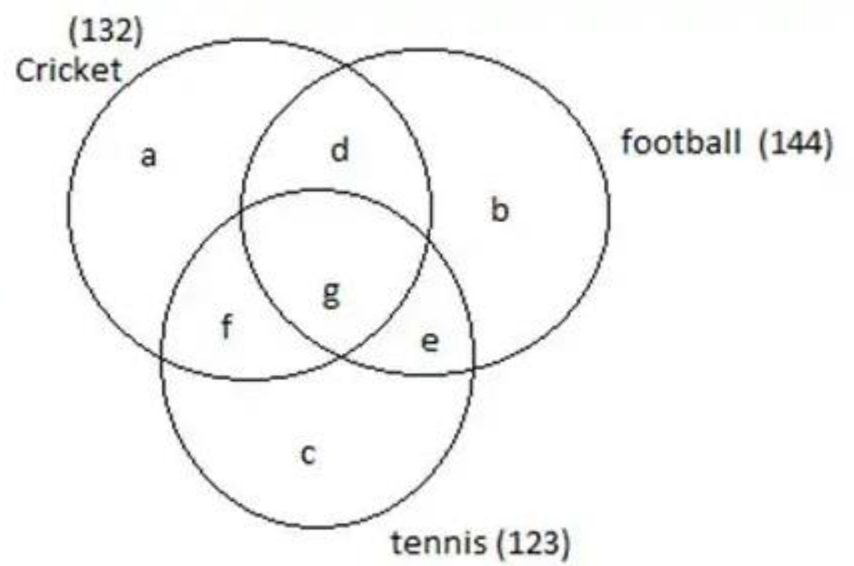
Solution: **Given, a(base1)+a(base2)+a(base3)+ a(base4) + ……….+ a(base n) = 3*(2^(n+1) -2)**
Put n =1
a(base1) = 3*(2^2 -2) = 6
Put n =2
a(base1)+a(base2) = 3*(2^3 -2) = 18
Or a(base2) = 12
Put n =3
a(base1)+a(base2)+a(base3) = 3*(2^4 -2) = 42
a(base3) = 42 – a(base2) – a(base1) = 42 – 12 – 6 =24
we can see that a1, a2 , a3 form a GP with common ratio 2 so
a(base11) = a(base1)*2^10 = 6*1024 = 6144

Q. A club has 256 members of whom 144 can play football, 123 can play tennis, and 132 can play cricket. Moreover, 58 members can play both football and tennis, 25 can play both cricket and tennis, while 63 can play both football and cricket. If every member can play at least one game, then the number of members who can play only tennis is?

1. 32
2. 38
3. 43
4. 45

Answer: 43

Solution:



As per question a+b+c + (d+e+f) + g =256—————-1)
From figure , a+b+c + 2(d+e+f) + 3g = 132+144+123 = 399 ———-2)
Also g+e = 58 ———x)
f+g = 25—————y)
and d+g = 63————z)
adding all three , d+e+f + 3g = 58+25 + 63 = 146 —————-3)
from eq 2) and 3) , a+b+c + d+e+f = 399 – 146
a+b+c + d+e+f = 253————4)
from eq 1 and eq 4) g = 256 – 253 =3
so from eq x) , y) and z) d= 60, e = 55 and f = 22
Number of people playing tennis = 123
So g + f + e + c = 123
3+22 + 55 + c = 123
Or c = 43
the number of members who can play only tennis = 43

Q. If m and n are integers such that (√2)^19 * 3^4 * 4^2 * 9^m * 8^n = 3^n * 16^m (4√64) then m is?

1. -20
2. -24
3. -16
4. -12

Answer: -12

Solution: **Given, √2^19 3^4 4^2 9^m 8^n=3^n 16^m ∜64**
Or 2^(19/2)×3^4×2^4×3^2m×2^3n= 3^n×2^4m×2^(6/4)
2^(19/2+4+3n)×3^(4+2m)=3^n×2^((4m+6/4))
Comparing both sides,
n = 4+2m
19/2 +4 + 3n = 4m + 6/4
Or (19 + 8)/2 + 3(4+2m) = 4m + 3/2
27/2 + 12 + 6m = 4m + 3/2
6m -4m = 3/2 – 27/2 -12
2m = -24
Thus m = -12

Q. In a race of three horses, the first beat the second by 11 metres and the third by 90 metres. If the second beat the third by 80 metres, what was the length, in metres, of the racecourse?

Answer: 880

Solution: **Let the length of race = x**
When the first beat the second by 11 metres and the third by 90 metres, distance traveled by 2nd and 3rd horse at that time will be x -11 and x -90 respectively.
When the second beat the third by 80 metres traveled by 2nd and 3rd horse at that time will be x and x -80 respectively.
Ratio of speed of 2nd and 3rd horse = ratio of distance traveled = (x-11)/(x-90) = x/(x-80)

(x-11)*(x-80) = x(x-90)
By solving we get x = 880

Q. Two cars travel the same distance starting at 10:00 am and 11:00 am, respectively, on the same day. They reach their common destination at the same point of time. If the first car travelled for at least 6 hours, then the highest possible value of the percentage by which the speed of the second car could exceed that of the first car is?

1. 25
2. 30
3. 10
4. 20

Answer: 20

Solution: **For the highest possible value of the percentage by which the speed of the second car could exceed that of the first car the time taken by both cars should be minimum as their difference is constant (or we can say the ratio of time taken by the first car to that of 2nd car should be maximum) which is possible only when time is taken by 1st car = 6 hr and that of 2nd car = 6-1 = 5 hr**
As we know v1/v2 = t2/t1
Required percentage = (6-5)/5 *100 = 20%

Q. One can use three different transports which move at 10, 20, and 30 kmph, respectively. To reach from A to B, Amal took each mode of transport 1/3 of his total journey time, while Bimal took each mode of transport 1/3 of the total distance. The percentage by which Bimal's travel time exceeds Amal's travel time is nearest to?

1. 19
2. 21
3. 20
4. 22

Answer: 22

Solution: **let total distance = 180x**
Total time taken by Bimal = 60x/10 + 60x/20 + 60x/30 = 11x hr
Let time taken by Amal in each mode of transport is same so distance

traveled in each mode will be in the ratio of speed that is 10:20:30= 1:2:3
So distance traveled in each mode = (1/6 *180x = 30x) , (2/6 *180x= 60x) and (3/6 *180x = 90x)
So total time taken = 3*(30x/10) = 9x
Thus The percentage by which Bimal's travel time exceeds Amal's travel time = (11-9)/9 *100 = 22.22 = 22 (approx)

Q. If a(base1), a(base2), ... are in A.P., then, 1/√a(base1)+√a(base2) + 1/√a(base2)+√a(base3) + ... + 1/√a(base n)+√a(base n + 1) is equal to?

1. n-1/√a(base1)+√a(base n)
2. n/√a(base1)+√a(base n + 1)
3. n-1/√a(base1)+√a(base n – 1)
4. n/√a(base1)-√a(base n + 1)

Answer: n/√a(base1)+√a(base n + 1)

Solution: **The best method to this problem is to use hit and trial method , for this put n =1 in the question you will get the first term only option a) is equal to that so option a) is correct.**
Alternative method)
As given a(base1) , a(base2) ,a(base3) , a(base4) , ...,a(base n) are in AP.
So a(base2) – a(base1) = a(base3) – a(base2)= a(base4) – a(base3) = ...= a(base n) – a(base n-1) = d (common difference)
Now 1/(√a1+√a2) + 1/(√a2+√a3) + 1/(√a3+√a4) + 1/(√a4+√a5)+⋯.
= 1/(√a1+√a2)×(√a1-√a2)/(√a1-√a2)+1/(√a2+√a3)×(√a2-√a3)/(√a2-√a3)+1/(√a3+√a4)×(√a3-√a4)/(√a3-√a4)+⋯.+⋯.1/(√(a(n-1))+√an)×(√an-√(a(n+1)))/(√an-√(a(n+1)))
= (√a1-√a2)/(a1-a2)+(√a2-√a3)/(a2-a3)+(√a1-√a2)/(a1-a2)+⋯..+(√an-√(a(n+1)))/(an-a(n+1))
= (√a1-√a2)/(-d)+(√a2-√a3)/(-d)+(√a3-√a4)/(-d)+⋯..+(√an-√(a(n+1)))/(-d)
= (√a1-√an)/(-d)
= (√a1-√(a(n+1)))/(-d)×(√a1+√(a(n+1)))/(√a1+√(a(n+1)))
= 1/(√a1+√an)× (a(n+1) –a1)/d ——1)
Now as we know a(n+1) = a1 + nd

So a(n+1) – a1= nd
Putting this value of a(n+1) – a1in eq 1)
We get required sum = n/(√a1+√(a(n+1)))

CAT 2019 Questions and Answers – Afternoon Slot

Quantitative Aptitude – Afternoon Slot – CAT 2019

Q. How many factors of 2^4 x 3^5 x 10^4 are perfect squares which are greater than 1?

Answer: 44

Solution: 24 x 35 x 104 = 2^4×3^5×(2^4×5^4)=2^8×3^5×5^4
Perfect square factors of the number will be of the form 2^a×3^b×5^c
Where a can be 0, 2, 4, 6 or 8 . b can be 0, 2 or 4 and c can be 0, 2 or 4
So total number of square factors = 5*3*3 = 45
But when a=b=c =0 factor will be 1.
Thus perfect squares which are greater than 1= 45 -1 = 44

Q. Let f be a function such that f (mn) = f (m) f (n) for every positive integers m and n. If f (1), f (2) and f (3) are positive integers, f (1) < f (2), and f (24) = 54, then f (18) equals?

Answer: 12

Solution: **Given f (mn) = f (m) f (n)and (1), f (2) and f (3) are positive integers.**
As we know F(2*1) = f(2)= f(2)*f(1), so f(1) = 1
F(4) = f(2) ^ 2
F(6) = f(3) * f(2)
F(24) = f(4) * f(6) = f(2)^3 * f(3) = 54, only f(2) = 3 and f(3) =2 satisfies

the equation , so we get
F(18) = f(9) * f(2) = f(3)^2 * f(2) = 4*3 = 12

Q. A cyclist leaves A at 10 am and reaches B at 11 am. Starting from 10:01 am, every minute a motor cycle leaves A and moves towards B. Forty-five such motor cycles reach B by 11 am. All motor cycles have the same speed. If the cyclist had doubled his speed, how many motor cycles would have reached B by the time the cyclist reached B?

1. 15
2. 23
3. 20
4. 22

Answer: 15

Solution: **Let speed of motor cycles be m and that of cyclist be c.**
Since there are 45 motorcycles reaching in 1 hour, so the latest motorcycle must start by 10:15 from A.
Now, cyclist doubles its speed, so it reaches B at 10:30, so maximum motorcycles that can start are from 10:01 to 10:15, so 15 is the correct answer.

Q. A man makes complete use of 405 cc of iron, 783 cc of aluminium, and 351 cc of copper to make a number of solid right circular cylinders of each type of metal. These cylinders have the same volume and each of these has radius 3 cm. If the total number of cylinders is to be kept at a minimum, then the total surface area of all these cylinders, in sq cm, is?

1. 8464π
2. 928π
3. 1026(1 + π)
4. 1044(4 + π)

Answer: 1026(1 + π)

Solution: **As cylinders have the same volume and each of these has radius 3 cm. So volume of each cylinder will be equal to HCF of (405, 783 and 351) which is 27.**
So volume of each cylinder = 27
No of cylinders = [405/27] + [783/27] + [351/27] = 15 + 29 + 13 =57

Using V = πr^2 h
27 = 22/7 *9 *h
So h = 3/ π cm
total surface area of all these cylinders = 57*(Surface area of one cylinder) = 57*2* πr(h+r)=57*2π*3 (3/π+3)=1026(1+π)

Q. Let A be a real number. Then the roots of the equation x^2 − 4x – log(base2)A = 0 are real and distinct if and only if?

1. A < 1/16
2. A > 1/8
3. A > 1/16
4. A < 1/8

Answer: A > 1/16

Solution: **As we know for Real and distinct roots , discriminant > 0**
(-4)^2 – 4*1*(– log2A) > 0
16+4log2A> 0
So, A > 2^-4
A > 1/16

Q. Let a, b, x, y, be real numbers such that a^2 + b^2 = 25, x^2 + y^2 = 169, and ax+by = 65. if k = ay-bx, then?

1. k>5/13
2. k=0
3. k=5/13
4. 0 < k < = 5/13

Answer: k=0

Solution: **As a,b, x , y are real and as we know 3^2 + 4^2 = 25 or 5^2 + 0= 25 also 13^2 + 0= 169 and 5^2 + 12^2 = 169**
ax+ by = 65 is possible only when (a,b) = (0,5) and (x,y)= (0,13)
Thus k = 0*13 – 0*5 =0

Q. What is the largest positive integer n such that n^2+7n+12 / n^2-n-12 is also a positive ineteger?

1. 6
2. 16
3. 8
4. 12

Answer: 12

Solution: **Solution: Given, (n^2+ 7n+12)/(n^2-n-12)=(n^2+ 3n+4n+12)/(n^2-4n +3n-12)=((n+3)(n+4))/(n-4)(n+3) =(n+4)/(n-4) is an integers From the option we can see largest possible value of n =12**

Q. Let ABC be a right-angled triangle with hypotenuse BC of length 20 cm. If AP is perpendicular on BC, then the maximum possible length of AP, in cm, is?

1. 10
2. 8√2
3. 6√2
4. 5

Answer: 10

Solution: **Let AB = a and AC = b**
A^2 + b^2 = 400 by pythagoras
Let AP = x and BP = y, so CP= 20-y
So, by Pythagoras
X^2 + y^2 = a^2 and b^2 = x^2 + (20-y)^2
Maximum possible value of AP occurs when a = b, so a= b=10 root 2
On solving, we get AP = 10 units

Q. The strength of a salt solution is p% if 100 ml of the solution contains p grams of salt. Each of three vessels A, B, C contains 500 ml of salt solution of strengths 10%, 22%, and 32%, respectively. Now, 100 ml of the solution in vessel A is transferred to vessel B. Then, 100 ml of the solution in vessel B is transferred to vessel C. Finally, 100 ml of the solution in vessel C is transferred to vessel A. The strength, in percentage, of the resulting solution in vessel A is

1. 12
2. 15
3. 14
4. 13

Answer: 14

Solution: **Volume of solution in each vessels = 500ml**
Salt in each vessels , in A = 10% of 500 = 50 ml
In B = 22 % of 500 = 110 ml
In C = 32% of 500 = 160 ml
When 100 ml of the solution in vessel A is transferred to vessel B, salt in B = 110 + 10% of 100 = 110 + 10 = 120 ml
% tage of salt in B = 120/600 = 20%
So When 100 ml of the solution in vessel B is transferred to vessel C = 160 + 20% of 100 = 160 + 20 = 180
% tage of salt in C = 180/600 *100 = 30 %
Now when 100 ml of the solution in vessel C is transferred to vessel A , volume of solution in A = 400+100 = 500
Salt in A = 10% of 400 + 30% of 100 = 40 + 30 = 70
% tage of salt in A = 70/500 *100 = 14 %

Q. A shopkeeper sells two tables, each procured at cost price p, to Amal and Asim at a profit of 20% and at a loss of 20%, respectively. Amal sells his table to Bimal at a profit of 30%, while Asim sells his table to Barun at a loss of 30%. If the amounts paid by Bimal and Barun are x and y, respectively, then (x −y) / p equals ?

1. 1.2
2. 1
3. 0.50
4. 0.7

Answer: 1

Solution: **Let Cost price each table = p**
For Amal:
Cost price = p + 20% of p = 6p/5
Selling price = 6p/5 + 30% of 6p/5 = 7.8p/5= 1.56p
For Asim:
Cost price = p – 20% of p = 0.8p
Selling price = 0.8 p – 30% of 0.8p = 0.56p
x-y/p = 1.56p-0.56p/p = 1

Q. Mukesh purchased 10 bicycles in 2017, all at the same price. He sold six of these at a profit of 25% and the remaining four at a loss of 25%. If he made a total profit of Rs. 2000, then his purchase price of a bicycle, in Rupees, was?

1. 2000
2. 6000
3. 4000
4. 8000

Answer: 4000

Solution: **Let the price of each bicycles = p , total CP = 10p**
SP of 6 bicycles = 6p +25% of 6p = 7.5 p
SP of 4 bicycles = 4p – 25% of 4p = 4p – p = 3p
Thus total SP = 7.5p + 3p = 10.5 p
Profit = 10.5p – 10p = 0.5p
Given, 0.5p = 2000
p = 4000

Q. How many pairs (m, n) of positive integer satisfy the equation m^2+105=n^2 ?

Answer: 4

Solution: **Given m^2 + 105 = n^2**
n^2 – m^2 = 105
(n-m) * (n+m) = 105
105 can be written as 105*1 = 21*5 = 15*7 = 35*3
So, only 4 cases possible to get values of n, m as positive. Thus number of solution = 4

Q. In 2010, a library contained a total of 11500 books in two categories – fiction and nonfiction. In 2015, the library contained a total of 12760 books in these two categories. During this period, there was 10% increase in the fiction category while there was 12% increase in the non-fiction category. How many fiction books were in the library in 2015??

1. 6000
2. 6160
3. 5500

4. 6600

Answer: 6600

Solution: **In 2010:**
Fiction = x
Non fiction = 11500-x
In 2015:
Fiction = 1.1x
Non fiction = 1.2(11500-x)
But in 2015, total books are 12760
So, 1.1x + 1.2(11500-x) = 12760
On solving, we get Number of fiction books in the library in 2015 is 1.1x = 6600

Q. John gets Rs 57 per hour of regular work and Rs 114 per hour of overtime work. He works altogether 172 hours and his income from overtime hours is 15% of his income from regular hours. Then, for how many hours did he work overtime?

Answer: 12

Solution: **let the number of overtime hours for john = x**
So no regular hours = 172 –x
Income from overtime hours = (x)*114
Income from regular hours = (172-x)*57
Total income = 114x + (172 –x)*57 = 172*57 + 57x
As per question 15% of (172 – x) *57 = 114x
15/100 (172 +x)= 2x
15*172* – 15x = 200x
215x = 15*172
x = 12

Q. John jogs on track A at 6 kmph and Mary jogs on track B at 7.5 kmph. The total length of tracks A and B is 325 metres. While John makes 9 rounds of track A, Mary makes 5 rounds of track B. In how many seconds will Mary make one round of track A?

Answer: 48

Solution: **Since distance = speed * time, so**
Let length of track a be a and that of b be 325-a
9a/6 = 5(325-a)/7.5 (same time)
67.5a = 9750-30a
A = 100 and B = 225 metres
Time taken by mary = 100/7.5*5/18 = 48 sec

Q. Let a(base1), a(base2), ... be integers such that a(base1)-a(base2)+a(base3)-a(base4)+...+(-1)^(n-1) a(base n)=n, for all n≥1. Then a(base51)+a(base52)+...+a(base1023) equals?

1. 1
2. −1
3. 0
4. 10

Answer: 1

Solution: **Given , a(base1) – a(base2) + a(base3) – a(base4)+ ......+ (-1)^(n-1) a(base n) = n**
Put n = 1, a(base1) = 1
Put n =2 , a(base1) – a(base2) = 2 or 1 – a(base2) = 2
Thus a(base2) = -1
Put n =3, a(base1) – a(base2) + a(base3) = 3, by solving a(base3) = 1
Similarly you will get a(base4) = -1, a(base5) = 1 ..and so on
Thus we can say all odd numbered = 1 all even numbered = -1
We are now asked to find out
a(base51) + a(base52) + ...+ a(base1023) = 1 + (-1) + 1 + (-1)...
Starting with a(51), if the total number of terms is even: all terms will cancel out and the result will be 0.
So,
a(51) + a(52) = 0
a(51) + a(52) + a(53) + a(54) = 0

a(51) + a(52) + a(53) + a(54) … a(1022)= 0
a(51) + a(52) + a(53) + a(54) … a(1022) + a(1023)= 0 + a(1023) = 0 + 1 = 1
So, our answer for this sum would be 1.

Q. In an examination, Rama's score was one-twelfth of the sum of the scores of Mohan and Anjali. After a review, the score of each of them increased by 6. The revised scores of Anjali, Mohan, and Rama were in the ratio 11:10:3. Then Anjali's score exceeded Rama's score by?

1. 24
2. 26
3. 35
4. 32

Answer: 32

Solution: **Let score of Rama = r, mohan = m and Anjali = a**
As score was one-twelfth of the sum of the scores of Mohan and Anjali.
So 12r = m + a……(1)
Similarly after score of each of them increased by 6, score of scores of Anjali, Mohan, and Rama
Becomes in the ratio 11 : 10 :3
Let 11k = r+6, m+6 = 10k and a+6 = 3k, putting values of the 3 in equation 1, we get
a – r = 40 – 8 = 32

Q. The quadratic equation x^2 + bx + c = 0 has two roots 4a and 3a, where a is an integer. Which of the following is a possible value of b^2 + c?

1. 3721
2. 549
3. 361
4. 427

Answer: 549

Solution: **Sum of roots = -b**
4a + 3a = -b

b^2 = 49a^2
similarly product of roots = c
or 12a^2 = c
thus b^2 + c = 49a^2 + 12a^2 = 61a^2
as a is integers so b^2 + c can be 61, 61*4 , 61*9 ....so on
so option b) 549 that is 61*9 is correct.

Q. Amal invests Rs 12000 at 8% interest, compounded annually, and Rs 10000 at 6% interest, compounded semi-annually, both investments being for one year. Bimal invests his money at 7.5% simple interest for one year. If Amal and Bimal get the same amount of interest, then the amount, in Rupees, invested by Bimal is?
Answer: 20920

Solution: **Total amount invested by Amal = 12000(1+0.08) + 10000(1+0.06/2)^2 = 12960+ 10609 = 23569**
Bimal invests p amount at si
So, interest for bimal = p*7.5*1/100
Interest are same for a and b, so we get
23569-22000 = p*7.5*1/100
So, p = 20920

Q. The real root of the equation 2^6x + 2^(3x+2)-21=0 is?

1. log(base2)3 / 2
2. log(base2)9
3. log(base2)27
4. log(base2)7 / 3

Answer: log(base2)3 / 2

Solution: **Let 2^(3x) = k**
So given equation 2^6x + 2^(3x+2) – 21 =0
Or (2^3x)^2 + 4*2^3x -21 =0
Or k^2 + 4k -21 =0
(k+7)*(k-3) =0
k = -4 or 3

k= -4 is not possible
so k =3
or 2^3x = 3
taking log of both sides 3x * log 2 = log 3
3x = log 3 / log 2
3x = log(base2)3
Or x = (log(base2)3) /3
Option a) (log(base2)3) /3

Q. The number of common terms in the two sequences: 15, 19, 23, 27, ... , 415 and 14, 19, 24, 29, . . . , 464 is?

1. 18
2. 19
3. 21
4. 20

Answer: 20

Solution: **Common difference of first series 15, 19, 23, 27...= 4**
Common difference of 2nd series 14, 19, 24, 29 .. =5
So common difference of the series formed by common terms = 4*5 = 20
First common term = 19
So series = 19, 39 , 59, ... last term < 415
nth term = 19+20(n-1) = 20n – 1 < 415
so 20n < 416
n < 416/20 = 20.8
so n = 20

Q. Let A and B be two regular polygons having a and b sides, respectively. If b = 2a and each interior angle of B is 3/2 times each interior angle of A, then each interior angle, in degrees, of a regular polygon with a + b sides is?

Answer: 150

Solution: **Each interior angle of n sided polygon = (n-2)*180/n**
(b-2)*180/b = 3/2 (a-2)*180/a and b = 2a

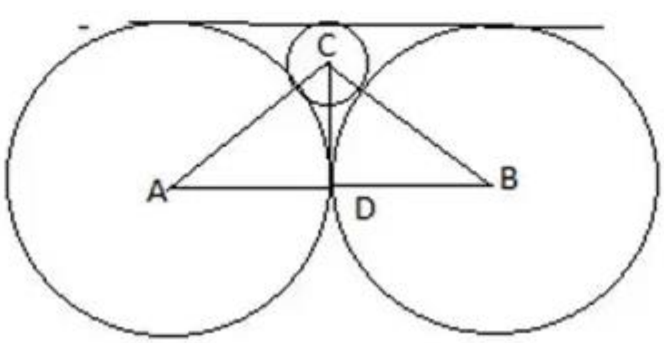
So, 2a-2/2 = (a-2)*3/2
2a – 2 = 3a – 6
a = 4 and b = 8
So, a + b = 12, a 12 sided polygon
Each interior angle = (12-2)*180/12 = 150 degrees

Q. Two circles, each of radius 4 cm, touch externally. Each of these two circles is touched externally by a third circle. If these three circles have a common tangent, then the radius of the third circle, in cm, is?

1. π/3
2. 1/√2
3. √2
4. 1

Answer: 1

Solution: **See the figure,**



In above figure , AD=BD =4 , let radius of 3rd circle = r
So AC = 4+r, CD = 4-r
Using Pythagoras theorem in right angled triangle ADC,
AC^2 = AD^2 + CD^2
(4+r)^2 = 4^2 + (4-r)^2
16+ r^2 + 8r = 16 + 16 + r^2 – 8r

16r = 16
r =1

Q. The salaries of Ramesh, Ganesh and Rajesh were in the ratio 6:5:7 in 2010, and in the ratio 3:4:3 in 2015. If Ramesh's salary increased by 25% during 2010-2015, then the percentage increase in Rajesh's salary during this period is closest to?

1. 7
2. 9
3. 10
4. 8

Answer: 7

Solution: **Let us say that the salaries of Ramesh, Ganesh, and Rajesh were 60, 50, 70 in 2010.**
In 2015, Ramesh's salary became 60*1.25 = 75.
In 2015, Rajesh's salary was same as Ramesh.
So, %increase in Rajesh's salary = 5/70 * 100 = 7.14%

Q. Sequence and series – If (2n+1)+(2n+3)+(2n+5)+…+(2n+47)=5280, then what is value of 1+2+3+…+n?

Answer: 4851

Solution: **On solving, we get**
48n + 576 = 5280
N = 98
Hence, n(n+1)/2 = 98*99/2 = 4851

Q. In an examination, the score of A was 10% less than that of B, the score of B was 25% more than that of C, and the score of C was 20% less than that of D. If A scored 72, then the score of D was?

Answer: 80

Solution: **Let the score of B =x**
Score of A = x – 10% of x = 0.9x

As per question , score of B = 25% more than C = 5/4 C
And score of C = 20% less than D = 4/5 D
Or D = 5/4 C
So, B = D
Since A = 72, Therefore D = 72/0.9 = 80

Q. In a six-digit number, the sixth, that is, the rightmost, digit is the sum of the first three digits, the fifth digit is the sum of first two digits, the third digit is equal to the first digit, the second digit is twice the first digit and the fourth digit is the sum of fifth and sixth digits. Then, the largest possible value of the fourth digit is?

Answer: 7

Solution: **the smallest possible value of first digit = 1**
So 3rd digit = 1, 2nd digit = 1*2 = 2
5th digit = 1+2= 3
6th digit = 1+2+1 =4
4th digit = 3+4 =7
When value of first digit = 2
So 3rd digit = 2, 2nd digit = 2*2 = 4
5th digit = 1+4= 5
6th digit = 2+2+4=8
4th digit = som of 5th and 6th

Q. Anil alone can do a job in 20 days while Sunil alone can do it in 40 days. Anil starts the job, and after 3 days, Sunil joins him. Again, after a few more days, Bimal joins them and they together finish the job. If Bimal has done 10% of the job, then in how many days was the job done?

1. 13
2. 12
3. 15
4. 14

Answer: 13

Solution: **In 3 days, Anil does 3/20 of work**

Let a and s work for x days, then total work done = 3x/40
So, 3/20 + 3x/40 = 9/10
15/20 = 3x/40
X = 10
So, total no. of days = 13

Q. If 5^x – 3^y = 13438 and 5^(x-1) + 3^(y+1) = 9686, then x+y equals?

Answer: 13

Solution: **Given,**
5^x – 3^y = 13438——(1)
5^(x-1) + 3^(y+1) = 9686—-(2)
From equation 2, we get
5^x /5 + 3. 3^y = 9686
Multiplying equation 1 by 3 and adding, we get
5^x = 15625
So, x = 6
Putting x in equation 1, we get
3^y = 2187
Y = 7
So, x+y = 13

Q. The average of 30 integers is 5. Among these 30 integers, there are exactly 20 which do not exceed 5. What is the highest possible value of the average of these 20 integers?

1. 3.5
2. 5
3. 4.5
4. 4

Answer: 4.5

Solution: **Sum of all 30 integers =5*30 = 150**
Minimum possible sum of remaining 10 integers = 10*6 = 60
(as all remaining 10 integers are greater than 5 so their sum will be minimum when they all are equal and each have value =6)

So some of 20 numbers = 150 – 60 = 90
Thus required avg = 90/20 = 4.5

Q. If x is real number, then n $\sqrt{\log_e \frac{4x-x^2}{3}}$ is a real number if and only if?

1. $1 \le x \le 2$
2. $-3 \le x \le 3$
3. $-1 \le x \le 3$
4. $1 \le x \le 3$

Answer: $1 \le x \le 3$

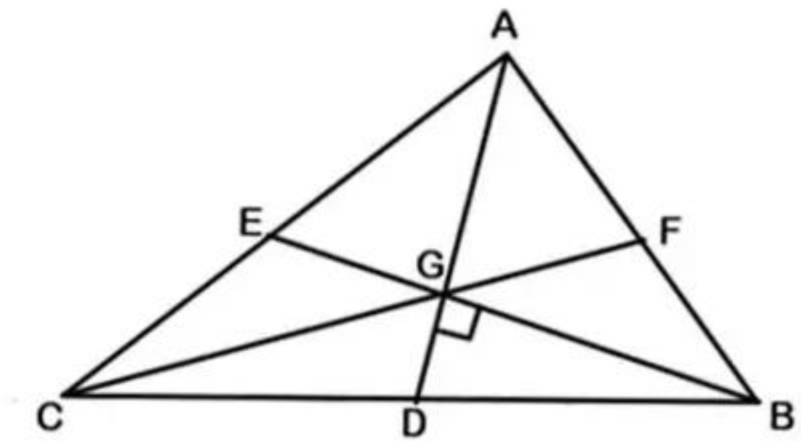
Solution: **As we know that any value under square root must be greater than 0 . So**
Log(base e) 4x-x^2/3 ≥ 0
So, 4x-x^2/3≥ 1
x^2-4x +3 ≤ 0
On solving, we get
S belongs to [1,3]

Q. In a triangle ABC, medians AD and BE are perpendicular to each other, and have lengths 12 cm and 9 cm, respectively. Then, the area of triangle ABC, in sq cm, is?

1. 80
2. 68
3. 72
4. 78

Answer: 72

Solution:



Draw the third median CF. As We know that the :
1. The intersection point of medians i.e. centroid (G) divides each median into 2:1.
2. All three medians divide the triangle into 6 triangle having equal area.
So Area of Triangle ABC = 6* Area of one small triangle—————-1)
Now Given AD = 12 and GD:AG = 1:2 So GD = 1/3 *12 =4
BE = 9 and BG:GE = 2:1 So BG = 2/3 *9 = 6
As BG is perpendicular to GD,
Area of triangle BGD = ½ ×GB × GD = ½ × 6 × 4 =12
Hence, from eq 1) area of triangle ABC = 6 × 12 = 72

Q. The base of a regular pyramid is a square and each of the other four sides is an equilateral triangle, length of each side being 20 cm. The vertical height of the pyramid, in cm, is?

1. $8\sqrt{3}$
2. $10\sqrt{2}$
3. 12
4. $5\sqrt{5}$

Answer: $10\sqrt{2}$

Solution: **As we know that the square pyramid of edge length a has height h=1/2 sqrt(2)* a,**
So, h = ½ * root 2* 20 = 10 root 2

Q. Two ants A and B start from a point P on a circle at the same time, with A moving clock-wise and B moving anti-clockwise. They meet for the first time at 10:00 am when A has covered 60% of the track. If A returns to P at 10:12 am, then B returns to P at?

1. 10:18 am
2. 10:25 am
3. 10:27 am
4. 10:45 am

Answer: 10:27 am

Solution: **ratio of speed of A and B = ratio of distance covered by them = 60%/40% = 3/2**
Let the speed of A = 3v , speed of B = 2v
Let the circumference = 10x
As They meet for the first time at 10:00 am when A has covered 60% of the track, so distance remain to cover for A and B will be 40% (4x) and 60% (that is 6x) respectively.
Given , 4x/3v = 12 min or x/v = 9 min
So 6x/2v = 3*(x/v) = 3*9 = 27 min
Thus B will return at P at 10:27 am.