

# C2C MENTORS

## CAT 2019 SLOT - 1

### VARC



#### Question 1

Answer: C

Option A: It has been mentioned that food metabolism is used to maintain body temperature. But it cannot be inferred that heat is lost due to food metabolism.

Option B: The colder temperature of plumage results in slight heat gain from the surrounding air. Hence this option is incorrect.

Option C: In the last paragraph of the passage, it has been mentioned that heat is very important for the breeding of Emperor Penguins. So it can be inferred that this conserved heat might be used in the reproductive process of Emperor Penguins. Hence C is the answer.

Option D: Consider the line: "Since their outer plumage is.....thermal convection—the transfer of heat via the movement of a fluid (in this case, the air)." It is clear that the process of thermal convection is responsible for heat gain and not heat loss.

Hence D is incorrect.

#### Question 2

Answer: B

The primary findings of the study conclude that Emperor Penguins reduce the heat loss by keeping the temperature of the outer surface of their plumage lower than the surrounding air. In fact, they gain a little heat from the surrounding air through thermal convection.

Option A: If the plumage did not allow thermal convection, it would contradict the findings of the study. Hence A is not the answer.

Option B: Since the transfer of heat takes place through the plumage, variation in the average temperature of feet will not affect the conclusions of the study.

Hence B is the answer.

Option C: The average temperature of plumage should be lower than that of the air. It has been mentioned in the passage that the temperatures of the plumage on their heads, chests and backs were -1.84, -7.24 and -9.76 degrees Fahrenheit respectively. If the temperature of the air is -10 degrees Fahrenheit, Penguins would not be able to gain the heat. Hence, this will negate the study findings.

Option D: All the temperatures mentioned in this option are higher than the temperature of the air, but the study assumes the surrounding air temperature to be higher. This option will also negate the study finding

#### Question 3

Answer: D

The word "paradoxically" has been used by the author to indicate the two contradictory characteristics mentioned in the statement.

Option A: This option states the exact opposite conclusion mentioned in the passage. As per the passage, penguins keep their plumage colder to keep their body warmer.

Hence A is incorrect.

Option B: It has been mentioned that the penguins lose heat through radiation and gain heat through convection. Hence B is incorrect.

Option C: Although this statement is true, it does not contain self-contradictory parts. It has been mentioned that the heat loss and heat gain happen through the given processes but one has no relation to the other. Hence C is not the answer.

Option D: This statement combines two contradictory qualities. The penguins are keeping their plumage colder, which is responsible for the heat gain from the surrounding air and making their body warmer.

Hence D is the answer.

#### Question 4

Answer: A

Option A: Consider the sentence: "As the cold Antarctic air cycles around their bodies, slightly warmer air comes into

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air temperature. Hence, "slightly warmer air" refers to the Antarctica air that surrounds the plumage and "at a slightly colder temperature" refers to the fall in temperature due to heat loss. Option B: The process of convections and not radiation is involved in this case. Hence the first part of the option is incorrect. B is not the answer.

Option C: The passage does not mention air trapped in plumage. Hence this option is rejected.

Option D: "slightly warmer air" refers to the Antarctica air and not the air inside the penguins' bodies.

Hence D is incorrect.

### Question 5

#### Answer C

Option A: The startups Casper and Glossier are certainly breaking the trend of choice anxiety. Yet, the author argues that they are turning into something that they intended to disrupt. Hence, this does not capture the purpose of the author.

Option B: The author argues that even these startups are targeting select few mid-range customers rather than the lower classes. Hence, this option directly contradicts the author's claim.

Option C: These startups initially started as an exception to offering a wide variety of choices. Yet, due to limited customers, and want of steep growth, they might transform into a type of company that they intended to disrupt. Hence, this option correctly resounds the authors fear and captures his purpose of argument.

Hence C is correct

Option D: This option is largely vague and can have multiple interpretations. One interpretation can be that these startups are targeting a selected band of customers and do not have offering for lower-class customers. Hence, there is no uniform distribution.

### Question 6

#### Answer: D:

Option A: Paragraph 1 says "choice fatigue is one reason so many people gravitate toward lifestyle influencers on Instagram". Hence, as per the passage, a company with wide range of products and a lifestyle influencer is likely to perform better than a company with only wide range of products. Hence, this statement negates the claim of the author.

Option B: "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." The author argues that variety of products are offered only for a certain class of consumers other than the lower class. If variety of options indeed helped the poor, then his argument is weakened.

Option C: "Research has consistently held that people who are presented with a few options make better, easier decisions than those presented with many". "Americans have lost the ability to sort through the sheer volume". Clearly, people are overwhelmed by options and prefer lesser variety.

Hence, option C is contradictory.

Option D: This option is largely vague and leaves unanswered questions behind. Also, the author doesn't make any comparison between the growth of these two type of companies. The author only says that, as the company targets only few consumers, for the want of growth they are likely to expand to variety of products. As there is no information about their growths, this option neither strengthens nor weakens the claim.

### Question 7

#### Answer: C

Option A: Paragraph 1 says "Since Americans have lost the ability to sort through the sheer volume of the consumer choices available to them" Since the product options are overwhelming, they are unable to sort through the options. Hence, option A can be inferred from the passage.

Option B: Paragraph 1 says "Research has consistently ..... industry unto itself." As people experience choice anxiety due to overwhelming options, they are unable to trust products while selecting. Hence, they look-out for celebrities and curators to make a decision.

Option C: There is no such comparison in the passage that shows people's preference towards products by startups. Hence, option C cannot be inferred.

Option D: Paragraph 1 says "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". Due to our inability to sort, we depend on influencers or we are vulnerable to snazzy ads to purchase products. Hence, D can be inferred.

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Question 8

Answer: A

The author principally argues for lesser choices. He says that choice anxiety is overwhelming and people make better decisions with lesser choices.

He is also critical about companies targeting only certain band of well-off customers and critiques them for not offering products for consumers of lower classes. Hence, a product group with lesser variety, and targeted to lower class customers would be most acceptable to the author

Question 9

Answer: A

By "Depth", the author suggests a scenario that adds value or supplies additional information which supports his claim.

Option A: If the startup products grow exponentially and are self-sufficient and do not expand to other products, this scenario directly contradicts the author's probable prediction of these companies. Hence, it would add the least depth to the author's argument.

A is the correct answer.

Option B: Lets consider that startups with few product options already exist. In such a case, these startups are no exceptions. For the sake of steep growth and surviving, they might have to expand into different product categories. Hence it adds some depth to the author's prediction.

Option C: "There may be no way to opt-out of stuff by buying into the right thing." The author is clearly displeased with startups ending up with overwhelming variety. Losing regular customers for better growth further invigorates the author's claim against numerous choices. Hence, it adds some value to his criticism.

Option D: If the government doubles their tax rates, as these startups are dependent on select customers for income, they might have to venture into other products and varieties to accentuate their returns and keep the company afloat. Hence, their fate would likely end up the way author predicted it to be

Question 10

Answer: C "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."

Option A: The option implies that the clients are made to feel at home. While the phrase "Residents of upscale residential developments" is used to capture the intent of social dominance of a particular class. Hence this option is incorrect.

Option B: The option implies that jingoism of a certain class might lead to topophobia. The option is yet again unrelated.

Option C: Residents of upscale residential developments intend to promote their community by reinforcing sectarian differences. This exclusivism (Practice of being exclusive/important) is clearly captured in the option. Hence C is correct.

Option D: Sensitive response indicates a considerate response where other's sentiments are considered. While these residents are inconsiderate and consider themselves superior. Also, the option doesn't capture the purpose clearly.

Question 11

Answer: B:

Option A: The entire passage deals with "TOPOPHILIA" and "TOPOGRAPHY" is unrelated

Option C: An illustration of topophobia doesn't represent the author's view on topophilia

Option D: The option speaks about glossophilia (Love of language) and is unrelated to topophilia

Option B: "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". Despite a negative tone, the author says that one form of topophilia is patriotism. Even though not wholesome, it comes "closest" to the author's understanding of topophilia among the given options.

Hence B is correct.

Question 12

Answer: D "As Tuan noted, purely aesthetic responses often are suddenly revealed, but their intensity rarely is

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longlasting. Topophilia is difficult to design for and impossible to quantify". The author says that people's response to aesthetics is shortlived and usually subsides overtime. Hence, it is difficult to design or quantify. Option A: "Amomie" means lack of morals or ethics. It is unrelated to the passage.

Option B: An objective analysis by architects does not explain the reason as to why it is difficult to quantify topophilia.

Option C: This statement is in the form of an opinion and does not explain the above statement.

Option D: Since every person has different topophilic attractions and have different responses to aesthetics. Capturing topophilia in the form of design is impossible. This option elaborates and explains the reason for quantifying topophilia. Hence option D is correct.

### Question 13

Answer: A "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."

Option B speaks about topography, while

Option C speaks about dread towards people.

Option D is unrelated to topophobia. Hence, all of them are incorrect. Option A clearly captures the essence of the last sentence in the passage.

### Question 14

Answer: D

Option A: "new urbanism seeks to... Although motivated by good intentions, such attempts to create places rich in meaning are perhaps bound to disappoint." The author says new urbanism that tries to induce sense of place is bound to fail. Since there is no mention of clients, irrespectively new urbanism is going to fail. Hence, it is contradicting the author.

Option B: "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." This option is contradicting the

Option C: The author lists out three ways of experiencing topophilia but doesn't emphasize about any one way. Hence,.

Option D: "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.." Clearly, the author has a negative intonation when he says "darker affiliation". He presents patriotism as a darker manifestation of topophilia.

Hence, this statement is correct and does not contradict the author.

Hence option D is correct.

### Question 15

Answer: A

Cecil Sharp says "One man sings a song, and then others sing it after him, changing what they do not like". This signifies that folk music is constantly evolving. Hence, this adaptability contributes to its plurality. Hence the author is going to agree with option B

"Just as the effusive ..... on countless record labels" This indicates that - "Just as the radical views of Morris became popular and mainstream, similarly folk music which is considered parochial is becoming popular and conformist. This popularity is being rejoiced by media as "folk is hip again". Hence, option C correctly captures this sentiment.

"For the early-20th-century composers .... tradition itself." This line captures the idea that folk is also inspired by various philosophies and schools of thought. Hence, we can infer that folk is intellectually relevant in contemporaryOption D is in coherence with the author's views. Option A says that folk forms exhibit homogeneity. The author in the entire passage describes the diversity of folk and says it paves way for vivid imagination. "The very obscurity and anonymity of folk music's origins open up space for rampant imaginative fancies". Cecil Sharp cites an analogy of an oak tree to show the constant transformation of folk. Hence, this option is contradicting author's opinion and he is least likely to agree with it.

### Question 16

Answer: C

"Just as the effusive floral prints of the radical William Morris now cover genteel sofas, so the revolutionary intentions

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of many folk historians and revivalists have led to music that is commonly regarded as parochial and conservative. Here the author compares two aspects. We know that William Morris is a radical conservationist as per para 1. (genteel refers to respectable/gentlemanly, genteel sofas refers to people in respectable place in life) As the footprints/views of William Morris becomes more popular i.e. as conservative folk forms once considered radical became more mainstream, similarly folk music which is considered parochial is now being revived by revivalists. The primary purpose is to show an analogy that a radical folk form became more mainstream/acceptable over time. This expression is best captured in option C

### Question 17

Answer: B

"Free of the taint of manufacture" ..... been contested territory." The phrase "Free of the taint of manufacture" is likely to have emerged post-industrialisation when conservationists (conserving status quo especially natural resources) fancied a pre-industrial age and expressed nostalgic attachment towards it.

Hence the main point of the first paragraph can be summarised as "Conservationists envisioned a cosy folk form inspired by preindustrial times". Hence option B is the correct answer

### Question 18

Answer: A

"In the late 1960s, purists were suspicious of folk songs recast in rock idioms." Purists oppose any alteration or adaptation of original folk form and they criticized the adaptations by rock too.

Hence, option B can be inferred

Folk music was inspired by revolutionary intentions in 1940s, various philosophies and school of thoughts in 1960s, Freedom of expression (Bob Dylan) and psychedelia. This shows a constant transformation of folk reinforcing the beliefs of Cecil Sharp.

Option C is correct.

Option D can be rightly inferred from the lyrical freedom of Bob Dylan and revolutionary intentions in 1940s. Option A: "In the late 1960s, purists were suspicious of folk songs recast in rock idioms. Electrification, however, comes in many forms." Even though the electrification of folk by rock was rejected by purists, electrification came in many forms and not individually by Rock alone. Hence, electrification of folk music is not caused by rock alone. Hence option A cannot be inferred.

### Question 19

Answer: B

Option A and option D both signify the inspiration of folk music from two different times. Folk is not limited to immediate past or to any specific time-line. This contributes to the plurality of folk music.

Option C talks about "fluidity". Fluidity indicates flexibility or different modes of oral rendition. For example different vocal styles can be generated by pitch, rhythm, style of rendition.

Hence, the variance in oral transmission of music can lead to various iterations of one original form. Hence, this again contributes to the diversity and plurality of folk music.

Option B: Popularity or unpopularity is an opinion. An opinion in no way contributes to the diversity of a folk form. It might be regarded as diverse opinions but does not inherently contribute to the diversity of folk itself.

Hence, option B does not contribute to folk's plurality.

### Question 20

Answer: A

The passage says "describes his own hard-knocks upbringing and the way he marvelled 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."

Hence, option B and option C depicts the similarities of Hanna Diyab's life and Aladdin's character

Option D: "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."



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". Since Diyab is a middle eastern man who came to France, his cross-culture experience would make him ideal to embody the character of Aladdin.

Hence, option D gives evidence for the claim aladdin is based on hana diyab's life.

Option A: Even though Diyab narrated the story, he might have read it somewhere or heard it from someone else, it doesn't necessarily give any insight about its relationship with his life.

Question 21

Answer: A

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," The above statement indicates that the primary reason for scholars to go back to aladdin is the intrigue about middle easterners coming to paris.

Option B and D have references from third paragraph which is unrelated to the context.

While option C is one of the reasons, the primary reason as per the author is option A(traveller's experience indicates middleeasteners experience in france).

Option A can be considered as one of primary importance as he says "that speaks to the world today" highlighting the importance of middle-easteners coming to paris

Question 22

.Answer: C:

The narrative sensibility of Diyab's travelogue indicates similarity in characters of Aladdin and Diyab in terms of sensibility, being considerate.

Hence, option A strengthens the passage's claim about Aladdin's character having ties with that of Diyab

Option B, Galland's acknowledgement again indicates that Aladdin might be predated than 1712 and might have some roots associated with Diyab

Option D, The affluence in the story of Aladdin and Diyab's travelogue have major similarities. This suggests that Aladdin maybe based on Diyab's life experiences. Hence, it supports the passage's claim about authorship.

As per option C, the french fairy tales inform us about the probable cause/motive behind writing Aladdin but doesn't lead to information regarding its authorship.

Question 23

Answer: A

"Galland wrote in his diary that he first heard the tale from a Syrian storyteller from Aleppo named Hanna Diyab Since he heard the story, option B is incorrect.

Also, the first paragraph implies that - While Arabian nights predates to medieval times, the earliest appearance of Aladdin is in 1712.

Hence, option C and D are incorrect. "Transmit" means passing from one person to another. This can imply that Diyab told it to Galland.

Also, Aladdin is one of the stories of "Arabian Nights" (Others include Alibaba & 40 thieves, Sindbad). Hence option A is correct.

Question 24

Answer: C

The second paragraph says that there are 2 possible motivations for writing the story of Aladdin, first being french fairy tales and second being French orientalism.

He goes on to say, if aladdin is actually based on the life of hanna Diyab, then the idea of french orientalism is inversed. "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." French Orientalism implies an intrigue of French towards Middle-eastern luxuries, while Diyab coming to france shows an interest of middle-easteners in France. Hence, the script is inversed if Aladdin's story is based on Hanna Diyab.

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The question is looking for option which invalidates the inversion. This implies that the script shouldn't be inverted. This occurs when Aladdin's story is not based on Diyab.

Option C says that Diyab's travelogue doesn't bear any resemblance to Galland's Aladdin. This implies that Aladdin is not based on Diyab.

Hence, the inversion of script doesn't occur/invalidated. None of the other options invalidate the script. Hence, option C is correct

Question 25

Answer 2

Explanation:

Option 4 and option 5 are related as both statement start with a suffix.

While option 3 is a continuation of the idea in option 3

Option 5 says that the suffix signifies pride, while option 3 elaborates on this and explains how it is displayed as pride to friends and

families alike. Hence 53 is a logical block.

Among all the statements, 4 is the only one which doesn't have a pronoun or a tone indicating the presence of a preceding statement.

While 4 opens the statement, it must be succeeded by 1 as the terms cannot be explained at the end.

The logical coherence of this para jumble is 4(Introduction of terms)-1(Explanation of terms)-5(Consequence of terms(Pride))-

3(Elaboration of consequence)

Statement 2 speaks about modernism and that every phenomenon can be easily grasped. It is unrelated to the context of the passage

and a misfit.

Hence, option 2 is the odd one out

Question 26

Answer:2341

Statement 1 displays a contrast of 2 kinds of reading. Logically these reading types must be defined before their negatives are discussed.

This indicates that both statement 2 and 4 necessarily precede statement 1 Statement 4 and 1 form a logical block as statement 4 introduces the idea of developmental disorders while statement 1 cites example of such disorders.

Statement 4 cannot be opening as it has a phrase "like mind reading". While, Statement 3 can neither be an opening nor closing statement. Hence, statement 2 is a good introductory statement as it starts by describing mind reading and statement 3 extends the idea of mindreading.

As 3 doesn't fit anywhere else, it has to necessarily follow statement 2 Hence, the correct order is 2341

Question 27

Answer:3241

Statement 3 and 2 form a natural block. While statement 3 describes "carpe diem", statement 4 explains how every language has subtle differences in its essence and interpretation.

Statement 4 says "its an example of" suggesting to the logical block 32 which shows misinterpretation of metaphor.

Hence, 324 forms a block. While statement 1 can serve as both opening as concluding closing statement.

Both the sequences 3241 and 1324 seem accurate. Although CAT 2019, considered 3241 as the final answer to this parajumble with statement 1 concluding the paragraph.

Question 28

Answer:3241

Statement 1 suggests that we will live under mob-rule until a specific event occurs. Hence, it cannot be the opening statement.

Statement 2 is a suggestion to deal with criticism. Statement 3 is a good opening statement as it sets the agenda for the passage.

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Statement 4 says that in the upcoming future, repetitive criticism will not be permitted. 41 makes a logical block as statement 4 talks about a specific event, where mob frenzy attitude is curtailed by eliminating repetitive criticism. Until this occurs, we will live under mob-rule.

Statement 3 opens the passage that we need to learn to deal with criticism. While statement 2 extends the idea as to how one has to deal with criticism on a personal level.

Then, the author speaks about curtailing mob culture by censoring repetitive criticism. Hence, the correct logical order is 3241

### Question 29

Answer: A

In this context, "Psychoanalytical analytical technique" implies that the advertising agencies are adapting methods to tap into the unconscious mind of the consumers. They are conducting detailed interviews to identify hidden motivations. Here, subliminal advertising represents some portion of the ad being difficult to comprehend or simply put, when one of the motives of the ad is so subtle that it is difficult to be understood by a layman. While supraliminal advertising can be clearly conceived by most people.

Packard claims that the 'Hidden persuaders' use supraliminal advertising to entice customers by tapping into consumers without their knowledge. (....can be persuaded by supraliminal messages without their knowledge.) Option B and D say that the method is subliminal, hence, it is incorrect Option C says that people are well aware about being persuaded, hence incorrect.

Option A is a wholesome summary of the method of persuasion.

### Question 30

Answer: D

The paragraph says that humans think about past occurrences suddenly without any immediate stimuli. The author also says that thinking/thoughts about a certain distant past is a necessity before one can speak about it.

He says that thoughts are a pre-requisite before one talks about it. He also gives an example that various human-like symbols might have emerged without any immediate stimuli.

Option A and C: There is no mention of specificity to humans in the passage Option B :

"All speech acts" is a false generalisation. The passage says that speaking about distant past requires thinking about it first

Option D : It clearly captures the essence of the passage and says that one needs to think about distant past events before talking about them Hence option D is correct.

### Question 31

Answer: 4123

Explanation:

Statement 1 says "this collaborative filtering". Here "this" refers to a likely preceding statement which explains about collaborative

filtering. While statement 1 is an example of collaborative filtering.

Statement 2 starts with "these algorithms". This doesn't look like an opening statement as it describes a certain algorithm ("these").

Statement 3 is explaining about the flaw in the algorithm

Statement 4 makes for a good opening statement

Statement 41 makes a logical block as the example in 1 refers to collaborative filtering of statement 4

Statement 2 must appear soon after the logical block of 41 as it contains the phrase "these algorithms". While statement 2 explains the

problem in the algorithm, statement 3 extends the idea of the problem.

Statement 4 : Introduces collaborative filtering

Statement 1 : Given an example of collaborative filtering

Statement 2 : Speaks about the drawback in the algorithm

Statement 3 : Gives an example of the drawback Hence the logically coherent order is 4123



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Question 32

Answer:2

Statement 34 makes a logical block as statement 4 speaks about "this prejudice" against deaf people. While statement 3 highlights the prejudice by saying that they were considered to be dumb and not allowed to sign a will.

The idea of sign language is continued in statement 1 where the pronoun "he" refers to pedro and the statement discusses about the origin of the sign language.

Statement 5 is a good opening statement as it introduces the idea of discrimination against deaf and this idea is continued by an example in statement 3.

Hence these statements can be arranged in the order 5341. Statement 2 is a good standalone opening statement.

Yet, this statement cannot be succeeded by any of the other statements as it is a misfit in the paragraph. Hence statement 2 is the odd one out

Question 33

Answer A

The passage says that pure science intends to discover without any end-goal in mind. While engineers use these benefits for practical applications.

The author says that the science behind these practical applications are often considered false by pure science since they are approximated or not applied as per ideal conditions.

In any case, even though they are rejected, these approximated science theories find lot of practical applications in everyday life.

Option A is correct. By diluting science, these theories are put into practical benefits. Hence, option A is correct Option B is incorrect as no such implication can be drawn from the passage

Option C is incorrect. Linear relationship indicates that, if a certain theory is rejected by pure science, it is bound to be rejected by applied science too.

This is clearly not the case as engineers use rejected theories for practical benefits. Option D speaks only about engineers and has no reference to sciences or the main point of the paragraph.

The paragraph intends to compare the functionalities of scientists and engineers while option D is specific to engineers and does not encapsulate the essence of the paragraph.

Hence, by way of elimination Option A is the most suitable summary

Question 34

Answer:1

Statement 1 says that actors who do not fit within a certain category such as "humour", "action" etc will face certain difficulty Statement 2 has a negative tone. It starts with "others" indicating that the preceding statement is likely to have a positive tone.

Statement 4 is a good opening statement as it sets the agenda for the passage by saying that there are opposing views with regard to effects of identities in organisations.

Statement 5 is a favourable view to complex identities, a positive tone. Hence 52 is a logical block. Statement 3 cannot open the paragraph as the succeeding statement 4 will be disconnected to the central idea of statement 1.

Statement 3 can neither be a conclusion as it is too generic.

Hence, statement 3 can logically occur only after statement 4 and before the logical block 52. 4 - Idea of organisational identity introduced 3 - One of the features of organisational identities explained 52 - Two opposing views expressed Statement 1 is unrelated to organisational identity as it speaks about stereotyping the actors. Hence statement 1 is odd one out

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### DILR



Question 35

Answer: A

The total number of biscuits = 5, the total number of candies = 3 and the total number of savouries =  $12 - (3 + 5) = 4$

Representing the candies as C, biscuits as B and savouries as S.

K is to be placed in shelf number 16. D, E and F are savouries and are to be placed in consecutively numbered shelves in increasing order after all the biscuits and candies.

Since there is no empty shelf between the items of same type, D, E, F and K are savouries and placed at 13, 14, 15 and 16 respectively. This can be tabulated as follows

Shelf No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item Code													D	E	F	K
Item Type													S	S	S	S

The shelf 12 will be empty. It is given that items are to be placed such that all items of same type are clustered together. From 1, A and B are to be placed in consecutively numbered shelves in increasing order.

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

Hence C and L are items of different types. Since C is a candy, L will be a biscuit. From 5, L and J are items of the same type, while H is an item of a different type.

Since I and J are clustered together, I, J and L are biscuits and H is a candy.

So C, H are candies and I, J, L are biscuits. It is given that A, B are placed consecutively.

Hence A and B are items of same types. So A, B should be biscuits because if they are candies, there will be 4 candies.

Hence, I, J, L, A, B are biscuits and C, H and G are candies.

Now there are two empty shelves before C and exactly one empty shelf before L, then the different cases can be tabulated as follows:

Case 1:

Shelf No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item Code	---	L	A	B	I/J	J/I	---	---	C	H/G	G/H	---	D	E	F	K
Item Type	---	B	B	B	B	B	---	---	C	C	C	---	S	S	S	S

Case 2:

Shelf No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item Code	---	---	C	H/G	G/H	---	L	A	B	I/J	J/I	---	D	E	F	K
Item Type	---	---	C	C	C	---	B	B	B	B	B	---	S	S	S	S

The number of arrangements for the first case =  $2 \times 2 = 4$  The number of arrangements for the second case =  $2 \times 2 = 4$  The total number of arrangements =  $4 + 4 = 8$

Question 36

Answer: D

Shelf No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item Code	---	---	C	H/G	G/H	---	L	A	B	I/J	J/I	---	D	E	F	K
Item Type	---	---	C	C	C	---	B	B	B	B	B	---	S	S	S	S

G is a candy. Hence D is the answer.

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Question 37

Answer: c

Shelf No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item Code	—	—	C	H/G	G/H	—	L	A	B	I/J	J/I	—	D	E	F	K
Item Type	—	—	C	C	C	—	B	B	B	B	B	—	S	S	S	S

From the table(case 2), only 1,2,6 and 12 are empty in the same arrangement. Hence, C is the answer.

Question 38

Answer: d

Shelf No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Item Code	—	—	C	H/G	G/H	—	L	A	B	I/J	J/I	—	D	E	F	K
Item Type	—	—	C	C	C	—	B	B	B	B	B	—	S	S	S	S

Option A and C are wrong as candies can come before biscuits and vice versa. B is not necessarily true as there can be one empty shelf too as shown in the table. Option D is true as there are at least 4 shelves between B and C. Hence D is the answer

Question 39

Answer: A

	Round-1	Round-2	Round-3	Round-4	Round-5	Round-6
<b>Tanzi</b>	-	4	-	5	NP	NP
<b>Umeza</b>	-	-	-	1	2	NP
<b>Wangdu</b>	-	4	-	NP	NP	NP
<b>Xyla</b>	-	-	-	1	5	-
<b>Yonita</b>	-	-	3	5	NP	NP
<b>Zeneca</b>	-	-	-	5	5	NP

It is given that 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, which means Tanzi scored Bull's eye only once in the first 3 rounds because she participated only once in round 4 to 6.

Similarly, Umeza scored Bull's eye exactly 2 times in the first 3 rounds. Wangdu did not score Bull's eye in the first three rounds and so on. Now from 1, Tanzi, Umeza and Yonita had the same total score.

So, Total score of Tanzi will be  $4+5+5+a=14+a$ , (She scored Bull's eye(a score of 5) in exactly one round and a is the unknown score)

Total score of Umeza =  $1+2+5+5+b = 13+b$  (She scored Bull's eye(a score of 5) in exactly 2 rounds and b is the unknown score) Total score of Yonita =  $3+5+5+c=13+c$  (She scored Bull's eye(a score of 5)

in exactly one round and c is the unknown score)

Now  $14+a=13+b=13+c$ ,

Also it is given that total scores for all players, except one, were in multiples of three, so these three will have to be a multiple of 3

. So, (a,b,c) can be either (1,2,2) or (4,5,5) in the same order.

But the value (5,5) for b and c is not possible.

(Umeza scored Bull's eye in exactly 2 rounds and Yonita

in exactly 1 round) Hence,  $a=1, b=2$  and  $c=2$ . So each of Tanzi,

Umeza and Yonita had total score of 15.

Tabulating the data, we have

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	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	1/5	4	1/5	5	NP	NP	15
Umeza	5/5/2	5/5/2	5/5/2	1	2	NP	15
Wangdu	1/2/3/4	4	1/2/3/4	NP	NP	NP	6-12
Xyla	5	5	5	1	5	1/2/3/4/5	22-26
Yonita	2/5	2/5	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	-

From 5, Tanzi and Zeneca had the same score in Round 1 but different scores in Round 3. Zeneca score Bull's eye 2 times in round 1 to 3. If Tanzi scored 1 in round 1, then Zeneca also has to score 1 in round 1, which means both Tanzi and Zeneca scores in round 3 will be 5, which violates 5.

Hence Tanzi scored 5 in round 1 and Zeneca also scored the same in round 1. So the new table is:

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	5	4	1	5	NP	NP	15
Umeza	5/5/2	5/5/2	5/5/2	1	2	NP	15
Wangdu	1/2/3/4	4	1/2/3/4	NP	NP	NP	6-12
Xyla	5	5	5	1	5	1/2/3/4/5	22-26
Yonita	2/5	2/5	3	5	NP	NP	15
Zeneca	5	5/(2/3/4)	5/(2/3/4)	5	5	NP	-

From 4, the number of players hitting bull's eye in Round 2 was double of that in Round 3. So, in round 3 either 1 or 2 Bull's eye can be scored and in round 2, 2 or 4 Bull's eye can be scored.

Case 1: If only 1 Bull's eye is scored in the round 3, then in round 3 Umeza will score 2 and Zeneca will score 2/3/4 in round 3, which means both will score 5 in round 2.

So minimum Bull's eye in round 2 will be 3. (Umeza, Zeneca and Xyla) Hence this case is rejected. Case 2: 2 Bull's eye were scored in round 3 and 4 Bull's eye were scored in round 2. So in round 2 Umeza, Yonita and Zeneca scored 5. This can be tabulated as:

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	5	4	1	5	NP	NP	15
Umeza	5/2	5	5/2	1	2	NP	15
Wangdu	1/2/3/4	4	1/2/3/4	NP	NP	NP	6-12
Xyla	5	5	5	1	5	1/2/3/4/5	22-26
Yonita	2	5	3	5	NP	NP	15
Zeneca	5	5	(2/3/4)	5	5	NP	-

In round 3, 2 Bull's eye can only be scored by Xyla and Umeza

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	5	4	1	5	NP	NP	15
Umeza	2	5	5	1	2	NP	15
Wangdu	1/2/3/4	4	1/2/3/4	NP	NP	NP	6-12
Xyla	5	5	5	1	5	1/2/3/4/5	22-26
Yonita	2	5	3	5	NP	NP	15
Zeneca	5	5	(2/3/4)	5	5	NP	22-24

The highest scorer can be either Xyla or Zeneca. The lowest scorer will be Wangdu.

1. Consider Zeneca is the highest scorer. From 3, the highest total score was one more than double of the lowest total

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score. So the only possible score for Zeneca is 23 and that for Wangdu is 11. ( $11 \times 2 + 1 = 23$ ) But this will violate condition 2, since both Zeneca and Wangdu do not have their scores as multiples of three in this case. Hence, Xyla will be the highest scorer. The only possible total score for Xyla will be 25, and that for Wangdu is  $12(4+4+4)$ . ( $12 \times 2 + 1 = 25$ ) Since Xyla already has non-multiple of 3 as total score. Zeneca will have 24 as the total score. The complete table is:

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	5	4	1	5	NP	NP	15
Umeza	2	5	5	1	2	NP	15
Wangdu	4	4	4	NP	NP	NP	12
Xyla	5	5	5	1	5	4	25
Yonita	2	5	3	5	NP	NP	15
Zeneca	5	5	4	5	5	NP	24

The highest score is 25.

Question 40

Answer: D

Zeneca total score is 24.

Question 41

Answer: D

Xyla was the highest scorer.

Question 42

Answer: D Tanzi scored 1 in round 3

Question 43

Answer: 1

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

The value of F can only be 0 as  $F+F=F$  can only hold if  $F=0$ . Also, A can only be 1 (in the second column) because to get a carry of more than 1, B has to be a double-digit number which is not possible.

(A carry is a digit that is transferred from one column of digits to another column of more significant digits.)

So the data can be tabulated as follows:

		B	H	1	1	G	0
+		1	H	J	0	K	0
	1	1	0	G	C	1	0

Since the last row in the third column is 0, the carry to the second column must have been 1,

Hence  $B+1+1=11 \Rightarrow B=9$  In the 4th column,

$H+H=10$  since a carry 1 has gone to the 3rd column.

Hence  $H=5$ .  $G+K$  must be 11 and the carry 1 goes to the next column, so  $C=1+1=2$ .

Now, G,K can take values (3,8), (4,7) and (5,6) in any order.

From 5th column  $G=J+1 \Rightarrow J=G-1$  Case:  $G=3$  and  $K=8$ , here  $J=2$

which is not possible as  $C=2$  Case:  $G=8$  and  $K=3$ ,  $J=7$ ,

a possible case. Case:  $G=4$  and  $K=7$ ,  $J=3$  possible

Case:  $G=7$  and  $K=4$ ,  $J=6$  possible



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Case: G=5 and K=6, J=4 not possible as H =5. Case: G=6 and K=5, J=5 both J and K are same, not possible. Hence the cases can be tabulated as follows:

		9	5	1	1	8	0
+		1	5	7	0	3	0
	1	1	0	8	2	1	0

		9	5	1	1	7	0
+		1	5	6	0	4	0
	1	1	0	7	2	1	0

		9	5	1	1	4	0
+		1	5	3	0	7	0
	1	1	0	4	2	1	0

The letter A represents 1.

Question 44

Answer:9

The letter B represents 9.

Question 45

Answer:7

In all possible cases 7 is already represented by a letter other than D. Hence 7 is the answer

Question 46

Answer:6

From the table it is clear that 6 cannot be represented by G.

Question 47

Answer: A

The data can be tabulated as follows(approximately):

Parameters	Vendor 1	Vendor 2	Vendor 3	Vendor 4	Vendor 5
Reliability	52	40	75	26	60
Reach	80	58	63	46	70
Quality	72	69	62	40	48
Features	40	45	56	90	75
Customer Services	55	41	50	70	28
Cost	77	81	90	71	50

Customer Services: 28,41,50,55,70 (The median is 50) Cost: 50,71,77,81,90 (The median is 77)

Reliability: 26, 40, 52, 60, 75 (The median is 52)

Quality: 40, 48, 62, 69, 72 (The median is 62)

Features: 40, 45, 56, 75, 90 (The median is 56)

Reach: 46, 58, 63, 70, 80 (The median is 63)

Hence the customer services has the lowest median.

Question 48

Answer: D

The average of the vendor will be highest which has highest total score. Hence vendor 3 has the highest average.

Question 49

Answer: B

Top 3 on Reliability: Vendor 3, Vendor 5

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Top 3 on Reach: Vendor 1, Vendor 5 Top 3 on Quality: Vendor 1, Vendor 2

Top 3 on Features: Vendor 4, Vendor 5

Top 3 on Customer Services: Vendor 4, Vendor 1

Top 3 on Cost: Vendor 3, Vendor 2 Vendor 1: 3 times Vendor 2: Only once Vendor 3: 2 times Vendor 4: 2 times Vendor 5: 3 times

Here 1 and 5 comes 3 times. Hence B is the answer.

Question 50

Answer: C

Top 3 on Reliability: Vendor 3, Vendor 5, Vendor 1

Top 3 on Reach: Vendor 1, Vendor 5, Vendor 3

Top 3 on Quality: Vendor 1, Vendor 2, Vendor 3

Top 3 on Features: Vendor 4, Vendor 5, Vendor 3

Top 3 on Customer Services: Vendor 4, Vendor 1, Vendor 3

Top 3 on Cost: Vendor 3, Vendor 2, Vendor 1 Only Vendor 3 ranks among top 3 in all the six parameters.

Question 51

Answer: 5

States	IPC Crimes	SLL Crimes	Other Crimes	Total Crimes
Telangana	3-4	14-15	6-7	24-25
Puducherry	1	0	30	31
Kerala	7-8	15-16	10-11	33-34
Haryana	3-4	25-26	9-10	37-38
Maharashtra	15-16	35-36	5-6	55-56
Tamilnadu	2-3	25-26	35-36	62-64
Goa	25-26	35-36	18-19	80
Karnataka	15-16	48-49	25-26	91
Delhi	63-64	35-36	42-43	142-143
West Bengal	0	520	0	520

	IPC crimes	SLL crimes	OtherCrimes
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
WestBengal	17	*	16

Rank of Delhi in IPC crimes category = 1, The rank of Karnataka and Maharashtra is 3(from table), then the rank of Goa can only be 2.

The rank of Telangana is 6 which has less | IPC crimes than Kerala, which means the rank of Kerala can be less than or equal to 5.

Now, there are two states with 3 ranks, so there will be no rank 4, there can only be rank 5 which is Kerala.

Question 52

Answer: D

The highest cases are registered in West Bengal and Delhi.

The total number of IPC crimes = 63-64

The total number of SLL crimes = 520+35-36 = 555-556

Hence the ratio =  $(63-64)/(555-556) = 0.11$  (Approximately) = 1:9

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Question 53

Answer: A

From the table, the rank of Tamilnadu in other crimes is 2. The states which are not in the table will have crimes less than Telangana(i.e 24-25) From the table the rank of Pudducherry in other crimes is 3.

Question 54

Answer:5

The rank of Delhi in IPC crimes should be 1 because the states which are not in table cannot crime more than that of Telangana which is 24-25.

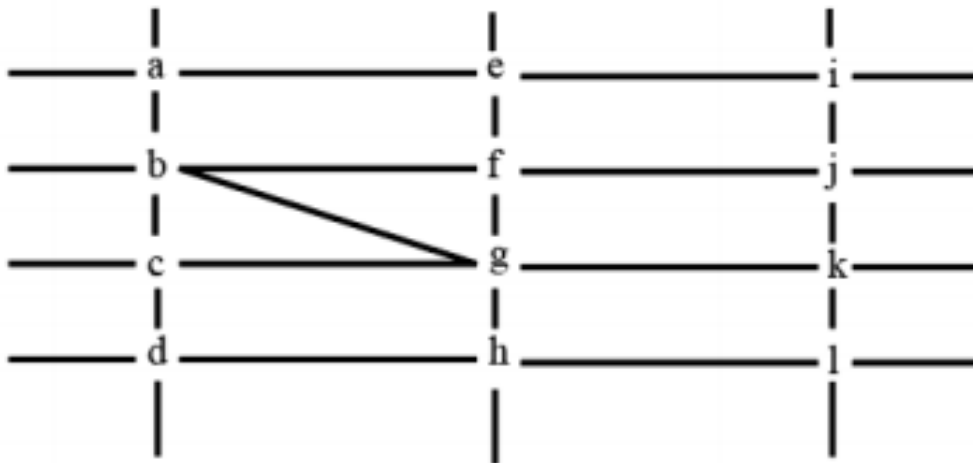
Similarly Delhi Rank in Other crimes will be 1. Now in SLL crimes clearly West Bengal has rank 1. It is given that Karnataka has rank 2.

The rank 3 can go to either Goa, Delhi and Maharashtra but Goa and Maharashtra already have rank 4. So Delhi will have rank 3. Also no state outside of the table can be ranked 3 in SLL crimes as maximum number of crime should be less than that of Telangana(24-25).

Here the number of SLL crimes is 35-36. Hence the sum of the ranks =  $1+3+1=5$

Question 55

Answer: C



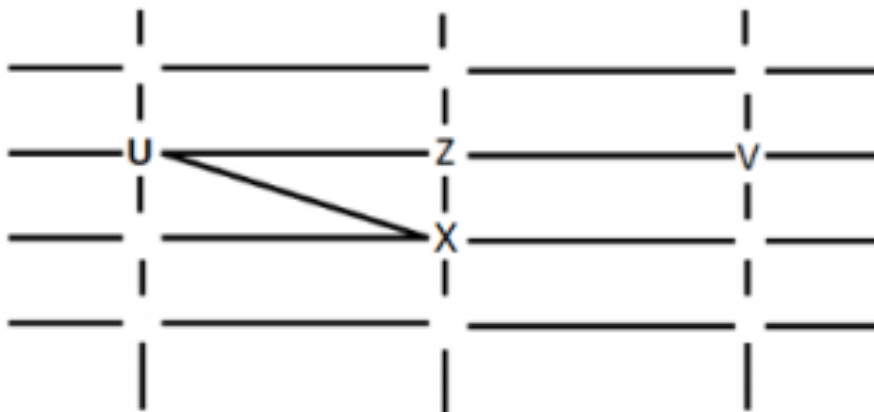
From 1, X, U, and Z are standing at the three corners of a triangle formed by three street segments.

From 2, X can see only U and Z.

From 4, U sees V standing in the next intersection behind Z.

Also, no one among the six is standing at intersection d. Only cases possible are:

1.



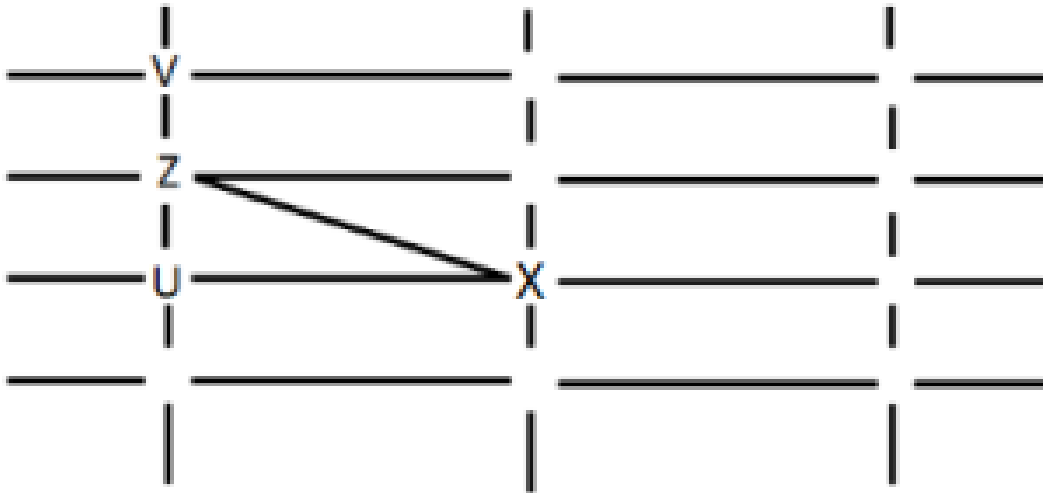
W cannot see V or Z. So W can only be at the intersection a. Since Y can see only U and W, Y can only be at c where X can see him. Hence this case is rejected.

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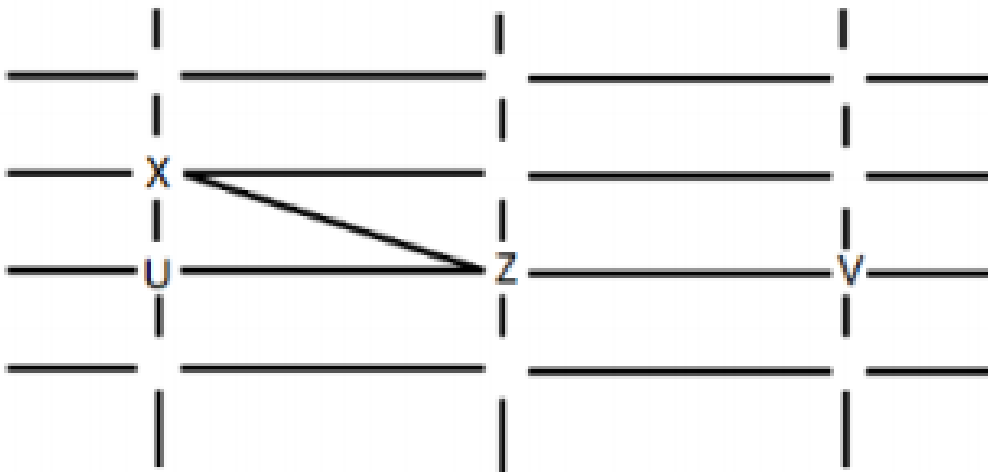


2.



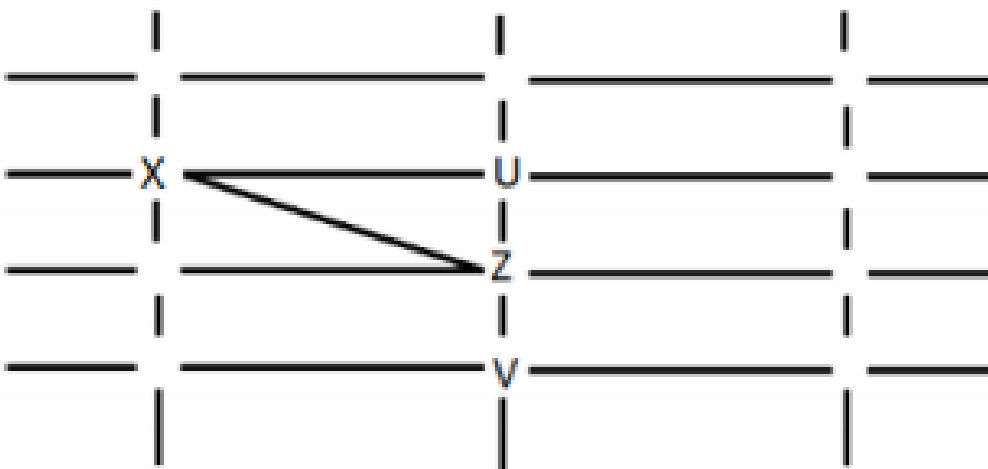
Y can only see U and W. Y cannot be placed anywhere. Hence this case is also rejected.

3.



Y can only see U and W. Y cannot be placed anywhere. Hence this case is also rejected

4.



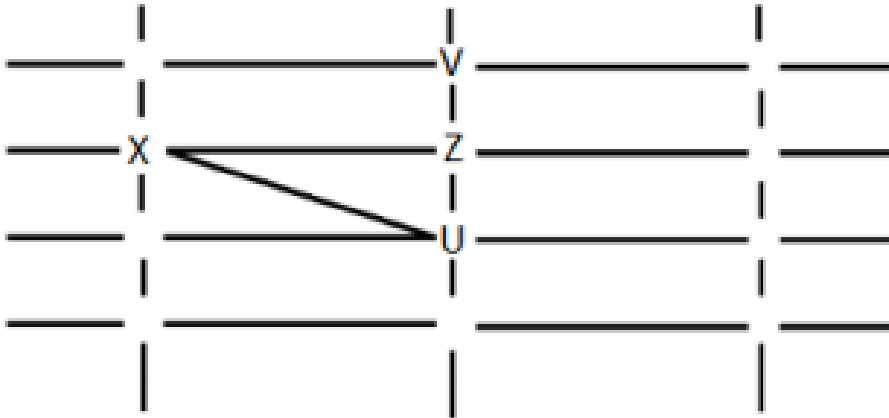
W cannot see V or Z. W can only be placed at i. Y can see only U and W. Y can only be placed at j or e, where he can see more people than U and W. Hence this case is also rejected.

# C2C MENTORS

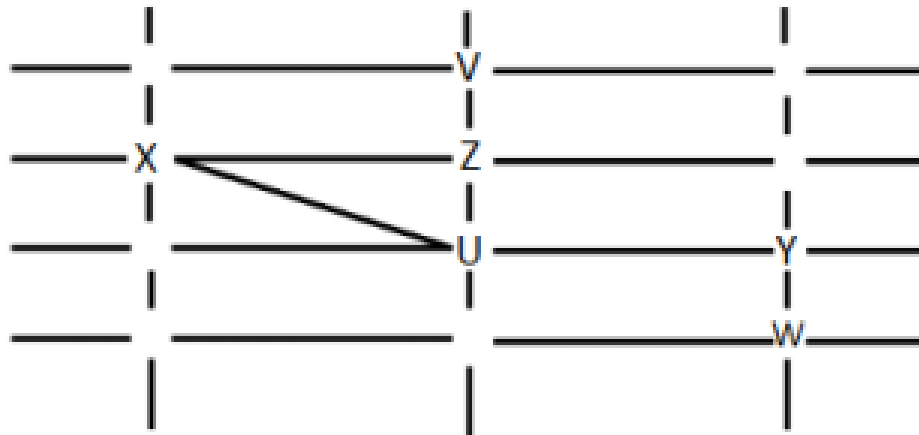
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5.



W cannot see V or Z. Y can only see U and W. Hence W and Y can only be placed as shown:



No one is standing at the intersection A. Hence C is the answer

Question 56

Answer: C

V can see U and Z only. Hence C is the answer.

Question 57

Answer: C

To reach Y, X has to go from b to g and g to k, i.e. 2 streets

Question 58

Answer: A

If a new person stands at d(left down corner), they can see W and X only. Hence A is the answer.

Question 59

Answer: A

	1st Performance				2nd Performance			
Finalists	Princess							Rani
Composers	Badal							Gagan

Since the dancers performed their second items in the same sequence of their performance of their first items. The table will be as follows:



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	1st Performance				2nd Performance			
Finalists	Princess			Rani	Princess			Rani
Composers	Badal							Gagan

The items assigned by Ashman were performed consecutively. The number of performances between items assigned by each of the remaining composers was the same.

Also, the first items performed by the four dancers were all assigned by different music composers. Badal can come only at the place as shown in the table.

	1st Performance				2nd Performance			
Finalists	Princess			Rani	Princess			Rani
Composers	Badal		Gagan			Badal		Gagan

Then Ashman can only compose for the following performances.

	1st Performance				2nd Performance			
Finalists	Princess			Rani	Princess			Rani
Composers	Badal		Gagan	Ashman	Ashman	Badal		Gagan

Hence Dyu will compose for the following performances:

	1st Performance				2nd Performance			
Finalists	Princess			Rani	Princess			Rani
Composers	Badal	Dyu	Gagan	Ashman	Ashman	Badal	Dyu	Gagan

From (i) No composer who assigned item to Princess, assigned any item to Queen.

From (ii) No composer who assigned item to Rani, assigned any item to Samragni.

Hence Dyu will compose for Samragni 1st Performance and Gagan will compose for Queen 1st Performance. Also, Badal will compose for Samragni 2nd Performance and Dyu will compose for Queens 2nd Performance. Hence, the complete table is as follows:

	1st Performance				2nd Performance			
Finalists	Princess	Samragni	Queen	Rani	Princess	Samragni	Queen	Rani
Composers	Badal	Dyu	Gagan	Ashman	Ashman	Badal	Dyu	Gagan

The second performance was composed by Dyu. Hence A is the answer.

Question 60

Answer: D

Option A: Samragni did not perform in any item composed by Ashman.

This statement is true.

Option B: Princess did not perform in any item composed by Dyu.

This is also true.

Option C: Rani did not perform in any item composed by Badal.

This statement is true.

Option D: Queen did not perform in any item composed by Gagan. This statement is false. Hence D is the answer.

Question 61

Answer: A

The sixth performance was composed by Badal. Hence C is the answer.

Question 62

Answer: D

The first and the sixth items were composed by Badal. Hence D is the answer.

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Question 63

Answer:2

It is given that the most expensive item is a diamond ring of type a and there is exactly one of these. Since the item b should be at least twice. The minimum number of items will be obtained when  $a=1$  and  $b=99$ , which means there are only two different types of items

Question 64

Answer:6

Explanation: It is given that the most expensive item is a diamond ring of type a and there is exactly one of these. Since the number of items of type b should be at least twice of that of a and the number of items of type c should be at least twice of that of b and so on.

So the maximum number of different types of items of a, b and c will be obtained when  $a=1$ ,  $b=2$ ,  $c=4$ ,  $d=8$ ,  $e=16$ ,  $f=69$ .

Hence the maximum number of different types of items will be 6.

If the number of items is 7, then the minimum number of prizes should be  $1+2+4+8+16+32+64=127$  which is more than 100.

Hence 6 is the answer

Question 65

Answer: C

Option A: There are exactly 75 items of type e.  $a=1, b=2, c=4, d=8$ ,  $e=85$ . Here the maximum value of  $e=85$ . Hence it can take the value 75. An example of such case is  $a=1, b=2, c=4, d=18$ ,  $e=75$

Option B: There are exactly 30 items of type b.  $a=1, b=30$  and  $c=69$ . Hence this case is also possible.

Option C: There are exactly 45 items of type c.

Since the value of d should be at least 90, it means that d is not present because  $45+90$  will be more than 100 (maximum number of items). Only a, b and c are present. The maximum value of  $b=22$  and  $a=1$ , but  $45+22+1=68$ , which is less than 100. So this case is not possible.

Option D: There are exactly 60 items of type d.  $d=60, c=30, b=9$  and  $a=1$ .  $a+b+c+d=100$ . Hence this case is possible. C is the answer.

Question 66

Answer: A

The total number of items from 1 to 100, which are of same type as in box 45 =  $31+1+43=75$

Now to maximize the number of items,  $a=1, b=2, c=4, d=18$  and  $e=75$  (given)

There can be maximum 5 types of items.

If we consider number of items to be 6, then minimum number of items of 5th type will be 16,  $1+2+4+8+16+75=106$  which is more than 100.

Question 67

Answer: A

Let the speed of cars be a and b and the distance = d

Minimum time taken by 1st car = 6 hours,

For maximum difference in time taken by both of them, car 1 has to start at 10:00 AM and car 2 has to start at 11:00 AM.

Hence, car 2 will take 5 hours.

$$\text{Hence } a = \frac{d}{6} \text{ and } b = \frac{d}{5}$$

$$\frac{\frac{d}{5} - \frac{d}{6}}{\frac{d}{6}} \times 100 = \frac{\frac{d}{30}}{\frac{d}{6}} \times 100 = 20$$

Hence the speed of car 2 will exceed the speed of car 1 by

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Question 68

Answer A

We have,  $\frac{1}{\sqrt{a_1} + \sqrt{a_2}} + \frac{1}{\sqrt{a_2} + \sqrt{a_3}} + \dots + \frac{1}{\sqrt{a_n} + \sqrt{a_{n+1}}}$

$$\begin{aligned} \text{Now, } \frac{1}{\sqrt{a_1} + \sqrt{a_2}} &= \frac{\sqrt{a_2} - \sqrt{a_1}}{(\sqrt{a_2} + \sqrt{a_1})(\sqrt{a_2} - \sqrt{a_1})} \quad (\text{Multiplying numerator and denominator by } \sqrt{a_2} - \sqrt{a_1}) \\ &= \frac{\sqrt{a_2} - \sqrt{a_1}}{a_2 - a_1} \\ &= \frac{\sqrt{a_2} - \sqrt{a_1}}{d} \quad (\text{where } d \text{ is the common difference}) \end{aligned}$$

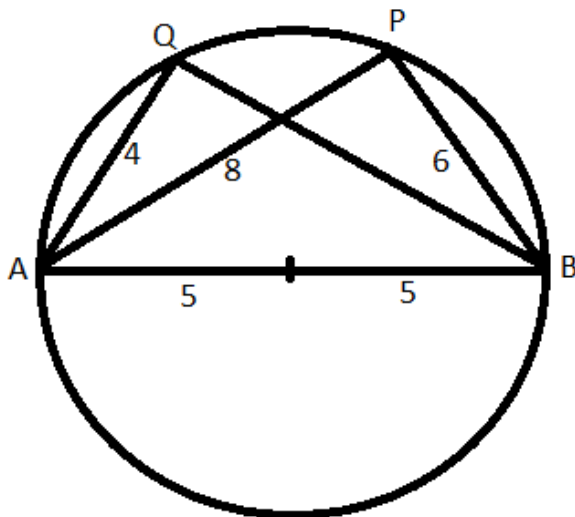
Similarly,  $\frac{1}{\sqrt{a_2} + \sqrt{a_3}} = \frac{\sqrt{a_3} - \sqrt{a_2}}{d}$  and so on.

Then the expression  $\frac{1}{\sqrt{a_1} + \sqrt{a_2}} + \frac{1}{\sqrt{a_2} + \sqrt{a_3}} + \dots + \frac{1}{\sqrt{a_n} + \sqrt{a_{n+1}}}$

$$\begin{aligned} \text{can be written as } &\frac{1}{d} (\sqrt{a_2} - \sqrt{a_1} + \sqrt{a_3} - \sqrt{a_2} + \dots + \sqrt{a_{n+1}} - \sqrt{a_n}) \\ &= \frac{n}{nd} (\sqrt{a_{n+1}} - \sqrt{a_1}) \quad (\text{Multiplying both numerator and denominator by } n) \\ &= \frac{n(\sqrt{a_{n+1}} - \sqrt{a_1})}{a_{n+1} - a_1} \quad (a_{n+1} - a_1 = nd) \\ &= \frac{n}{\sqrt{a_1} + \sqrt{a_{n+1}}} \end{aligned}$$

Question 69

Answer C



Since AB is a diameter, AQB and APB will right angles.

In right triangle APB,  $AP = \sqrt{10^2 - 6^2} = 8$

Now,  $2AQ = AP \Rightarrow AQ = 8/2 = 4$

In right triangle AQB,  $QB = \sqrt{10^2 - 4^2} = 9.165 \approx 9.1$  (Approx)

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Question 70

Answer A

$$\text{We have, } (5.55)^x = (0.555)^y = 1000$$

Taking log in base 10 on both sides,

$$x(\log_{10} 555-2) = y(\log_{10} 555-3) = 3$$

$$\text{Then, } x(\log_{10} 555-2) = 3 \dots (1)$$

$$y(\log_{10} 555-3) = 3 \dots (2)$$

From (1) and (2)

$$\Rightarrow \log_{10} 555 = \frac{3}{x} + 2 = \frac{3}{y} + 3$$

$$\Rightarrow \frac{1}{x} - \frac{1}{y} = \frac{1}{3}$$

Question 71

Answer A

Assuming the income of Bimla = 100a, then the income of Amala will be 120a.

And the income of Kamala will be  $120a \times 100/80 = 150a$

If Kamala's income goes down by 4%, then new income of Kamala =  $150a - 150a(4/100) = 150a - 6a = 144a$

If Bimla's income goes up by 10 percent, her new income will be  $100a + 100a(10/100) = 110a$

$\Rightarrow$  Hence the Kamala income will exceed Bimla income by  $(144a - 110a) \times 100/110a = 31$

Question 72

Answer c

Distance covered by A in 1 revolution =  $2\pi \times 30 = 60\pi$

$$\pi \times 30 = 60\pi$$

Distance covered by B in 1 revolution =  $2\pi \times 40 = 80\pi$

$$\text{Now, } (5000+n)60 = 80n$$

$$\Rightarrow 15000 = 4n - 3n \Rightarrow n = 15000$$

Then distance travelled by B =  $15000 \times 80\pi \text{ cm} = 12 \text{ km}$

Hence, the speed =  $(12\pi \times 60)/45 = 16\pi$

Question 73

Answer A

$$\text{We have, } |x^2 - x - 6| = x + 2$$

$$\Rightarrow |(x-3)(x+2)| = x+2$$

$$\text{For } x < -2, (3-x)(-x-2) = x+2$$

$$\Rightarrow x-3=1 \Rightarrow x=4 \text{ (Rejected as } x < -2)$$

$$\text{For } -2 \leq x < 3, (3-x)(x+2) = x+2 \Rightarrow x=2, -2$$

$$\text{For } x \geq 3, (x-3)(x+2) = x+2 \Rightarrow x=4$$

Hence the product =  $4 \times 2 \times 2 = -16$

# C2C MENTORS

## CAT 2019 SLOT - 1



Question 74

Answer 880

Assuming the length of race course =  $x$  and the speed of three horses be  $a, b$  and  $c$  respectively.

$$\text{Hence, } \frac{x}{a} = \frac{x-11}{b} \dots\dots(1)$$

$$\text{and } \frac{x}{a} = \frac{x-90}{c} \dots\dots(2)$$

$$\text{Also, } \frac{x}{b} = \frac{x-80}{c} \dots\dots(3)$$

$$\text{From 1 and 2, we get, } \frac{x-11}{b} = \frac{x-90}{c} \dots\dots(4)$$

$$\text{Dividing (3) by (4), we get, } \frac{x-11}{x} = \frac{x-90}{x-80}$$

$$\Rightarrow (x-11)(x-80) = x(x-90)$$

$$\Rightarrow 91x - 90x = 880 \Rightarrow x = 880$$

Question 75

Answer D

The population of town at the beginning of 1st year =  $p$

The population of town at the beginning of 2nd year =  $3+2p$

The population of town at the beginning of 3rd year =  $2(3+2p)+3 = 2*2p+2*3+3 = 4p+3(1+2)$

The population of town at the beginning of 4th year =  $2(2*2p+2*3+3)+3 = 8p+3(1+2+4)$

$$2^{n-1}p + 3(2^{n-1} - 1) = 2^{n-1}(p + 3) - 3$$

Similarly population at the beginning of the  $n$ th year =

The population in the beginning of 2019 is 1000, then the population in the beginning of 2034 will be

$$(2^{2034-2019})(1000 + 3) - 3 = 2^{15}(1003) - 3$$

Question 76

Answer 3

$$f(x+y) = f(x)f(y)$$

$$\text{Hence, } f(2) = f(1+1) = f(1)*f(1) = 2*2 = 4$$

$$f(3) = f(2+1) = f(2)*f(1) = 4*2 = 8$$

$$f(4) = f(3+1) = f(3)*f(1) = 8*2 = 16$$

$$f(x) = 2^x$$

$$\text{Now, } f(a+1) + f(a+2) + \dots + f(a+n) = 16(2^n - 1)$$

$$\text{On putting } n=1 \text{ in the equation we get, } f(a+1) = 16 \Rightarrow f(a)*f(1) = 16 \text{ (It is given that } f(x+y) = f(x)f(y))$$

$$2^a * 2 = 16$$

$$a = 3$$

Question 77

Answer D

Assuming the investment of Amala, Bina, and Gouri be  $300x, 400x$  and  $500x$ , hence the interest incomes will be  $300x*6/100 = 18x, 400x*5/100 = 20x$  and  $500x*4/100 = 20x$

Given, Bina's interest income exceeds Amala by  $20x - 18x = 2x = 250 \Rightarrow x = 125$

Now, total interest income =  $18x + 20x + 20x = 58x = 58*125 = 7250$

Question 78

Answer 10

Assuming  $m$  is even, then  $8f(m+1) - f(m) = 2$



# C2C MENTORS

## CAT 2019 SLOT - 1



$m+1$  will be odd

So,  $8(m+1+3)-m(m+1)=2$

$\Rightarrow 8m+32-m^2-m=2$

$m=10, -3$

Rejecting the negative value, we get  $m=10$

Assuming  $m$  is odd,  $m+1$  will be even.

then,  $8(m+1)(m+2)-m-3=2$

Solving this,  $m = -2.26$  and  $-0.60$

Hence, the value of  $m$  is not integral. Hence this case will be rejected.

Question 79

Answer C

Assume the numbers are  $a$  and  $b$ , then  $ab=616$

We have,  $\frac{a^3-b^3}{(a-b)^3} = \frac{157}{3}$

$$\Rightarrow 3(a^3 - b^3) = 157(a^3 - b^3 + 3ab(b-a))$$

$$\Rightarrow 154(a^3 - b^3) + 3 \times 157 \times ab(b-a) = 0$$

$$\Rightarrow 154(a^3 - b^3) + 3 \times 616 \times 157(b-a) = 0 \quad (ab=616)$$

$$\Rightarrow a^3 - b^3 + (3 \times 4 \times 157(b-a)) \quad (154 \times 4 = 616)$$

$$\Rightarrow (a-b)(a^2 + b^2 + ab) = 3 \times 4 \times 157(a-b)$$

$$\Rightarrow a^2 + b^2 + ab = 3 \times 4 \times 157$$

Adding  $ab=616$  on both sides, we get

$$a^2 + b^2 + ab + ab = 3 \times 4 \times 157 + 616$$

$$\Rightarrow (a+b)^2 = 3 \times 4 \times 157 + 616 = 2500$$

$$\Rightarrow a+b=50$$

Question 80

Answer A

Assume the total distance between A and B as  $d$  and time taken by Amal =  $t$

Since Amal travelled  $\frac{1}{3}^{rd}$  of his total journey time in different speeds

$$d = \frac{t}{3} \times 10 + \frac{t}{3} \times 20 + \frac{t}{3} \times 30 = 20t$$

$$\text{Total time taken by Bimal} = \frac{d_1}{s_1} + \frac{d_2}{s_2} + \frac{d_3}{s_3}$$

$$= \frac{20t}{3} \times \frac{1}{10} + \frac{20t}{3} \times \frac{1}{20} + \frac{20t}{3} \times \frac{1}{30} = \frac{20t(6+3+2)}{3 \times 30} = \frac{11}{9}t$$

$$\text{Hence, the ratio of time taken by Bimal to time taken by Amal} = \frac{\frac{11}{9}t}{t} = \frac{11}{9}$$

$$\text{Therefore, Bimal will exceed Amal's time by } \frac{\frac{11}{9}t - t}{t} \times 100 = 22.22$$

# C2C MENTORS

## CAT 2019 SLOT - 1



Question 81

Answer C

Assuming the maximum marks = 100a, then Meena got 40a

After increasing her score by 50%, she will get  $40a(1+50/100)=60a$

Passing score =  $60a+35$

Post review score after 20% increase =  $60a*1.2=72a$

=>Hence,  $60a+35+7=72a$

=> $12a=42$  => $a=3.5$

=> maximum marks = 350 and passing marks =  $210+35=245$

=> Passing percentage =  $245*100/350 = 70$

Question 82

Answer 9

Assuming the amount invested in the ratio 2:1 was 200x and 100x, then the fixed deposit investment =  $1500000-300x$

Hence, the interest =  $200x*4/100 = 8x$  and  $100x*3/100=3x$

Interest from the fixed deposit =  $(1500000-300x)*6/100 = 90000-18x$

Hence the total interest =  $90000-18x+8x+3x=90000-7x=76000$

=>  $7x=14000$  =>  $x=2000$

Hence, the fixed deposit investment =  $1500000-300*2000 = 900000 = 9$  lakhs

Question 83

Answer D

Assume the number of members who can play exactly 1 game = I

The number of members who can play exactly 1 game = II

The number of members who can play exactly 1 game = III

$I+2II+3III=144+123+132=399....(1)$

$I+II+III=256.....(2)$

=>  $II+2III=143.....(3)$

Also,  $II+3III=58+25+63=146 .....(4)$

=>  $III = 3$  (From 3 and 4)

=>  $II = 137$

=>  $I = 116$

The members who play only tennis =  $123-58-25+3 = 43$

Question 84

Answer 6144

11th term of series =  $a_{11}$  = Sum of 11 terms - Sum of 10 terms =  $3(2^{11+1} - 2) - 3(2^{10+1} - 2)$

=  $3(2^{12} - 2 - 2^{11} + 2) = 3(2^{11})(2 - 1) = 3*2^{11} = 6144$

Question 85

Answer 2

$$2 \cos(x(x+1)) = 2^x + 2^{-x}$$

he maximum value of LHS is 2 when

$\cos(x(x+1))$  is 1 and the minimum value of RHS is 2 using  $AM \geq GM$

Hence LHS and RHS can only be equal when both sides are 2. For LHS,  $\cos x(x+1)=1 \Rightarrow x(x+1)=0 \Rightarrow x=0,-1$

For RHS minimum value,  $x=0$

Hence only one solution  $x=0$

# C2C MENTORS

## CAT 2019 SLOT - 1



Question 86

Answer C

Assuming A completes a units of work in a day and B completes B units of work in a day and the total work = 1 unit

Hence,  $12(a+b)=1$ .....(1)

Also,  $9(a/2 + 3b)=1$  .....(2)

Using both equations, we get,  $12(a+b)=9(a/2+3b)$

$$4a+4b=3a/2+9b$$

$$5a/2 = 5b$$

$$a = 2b$$

Substituting the value of b in equation (1),

$$a=1/18$$

Hence, the number of days required = 18

Question 87

Answer 20

Assuming the number of students =  $100x$

Hence, the number of girls =  $60x$  and the number of boys =  $40x$

We have,  $60x-40x=30 \Rightarrow x=1.5$

The number of girls =  $60 \cdot 1.5=90$

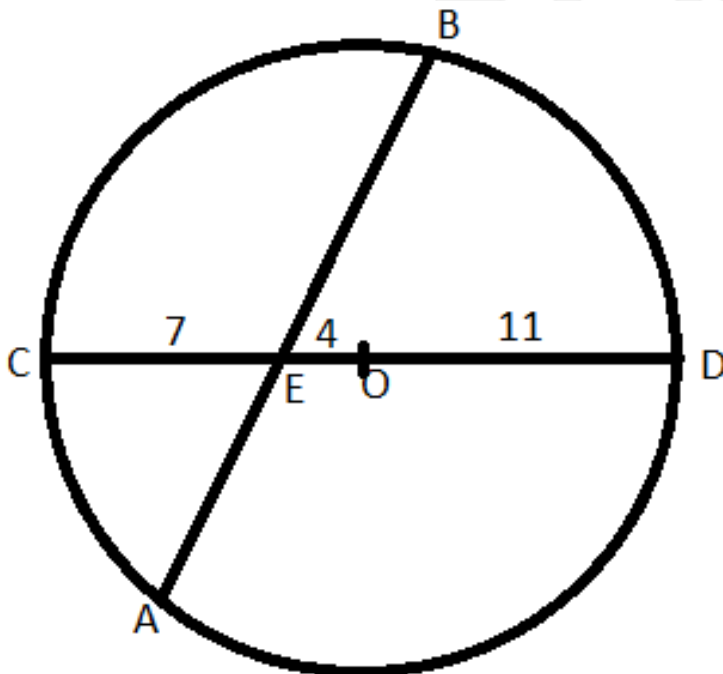
Number of girls that pass =  $68x-30=68 \cdot 1.5-30 = 102-30=72$

The number of girls who do not pass =  $90-72=18$

Hence the percentage of girls who do not pass =  $1800/90=20$

Question 88

Answer D



In figure  $AE \cdot BE = CE \cdot DE$  (The intersecting chords theorem)

$$7 \cdot 15 = x(20.5 - x) \quad (\text{Assuming } AE = x)$$

$$210 = x(41 - 2x)$$

$$2x^2 - 41x + 210 = 0$$

$$\Rightarrow x=10 \text{ or } x=10.5 \Rightarrow AE=10 \text{ or } AE=10.5 \quad \text{Hence } BE = 20.5-10=10.5 \text{ or } BE = 20.5-10.5=10$$

Required difference =  $10.5-10=0.5$

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# C2C MENTORS

## CAT 2019 SLOT - 1



Question 89

Answer C

Assuming the cost price of pen = 100p and the cost price of book = 100b

So, on selling a pen at 5% loss and a book at 15% gain, net gain =  $-5p+15b = 7$  ....1

On selling the pen at 5% gain and the book at 10% gain, net gain =  $5p+10b = 13$  .....2

Adding 1 and 2 we get,  $25b=20$

Hence  $100b= 20*4=80$ ,

C is the answer.

Question 90

Answer A

The weight/volume(g/L) for liquid 1 = 1000

The weight/volume(g/L) for liquid 2 = 800

The weight/volume(g/L) of the mixture =  $480/(1/2) = 960$

Using alligation the ratio of liquid 1 and liquid 2 in the mixture =  $(960-800)/(1000-960) = 160/40 = 4:1$

Hence the percentage of liquid 1 in the mixture =  $4*100/(4+1)=80$

Question 91

Answer B

Assume the average of 21 students other than Ramesh = a

Sum of the scores of 21 students other than Ramesh = 21a

Hence the average of 22 students = a+1

Sum of the scores of all 22 students = 22(a+1)

The score of Ramesh = Sum of scores of all 22 students - Sum of the scores of 21 students other than Ramesh =  $22(a+1)-21a=a+22 = 82.5$  (Given)

=> a = 60.5

Hence, sum of the scores of all 22 students =  $22(a+1) = 22*61.5 = 1353$

Now the sum of the scores of students other than Gautam =  $21*62 = 1302$

Hence the score of Gautam =  $1353-1302=51$

Question 92

Answer C

$$\text{We have, } (\sqrt{2})^{19} 3^4 2^4 3^{2m} 2^{3n} = 3^n 16^m (\sqrt[4]{64})$$

Converting both sides in powers of 2 and 3, we get

$$2^{\frac{19}{2}} 3^4 2^4 3^{2m} 2^{3n} = 3^n 2^{4m} 2^{\frac{6}{4}}$$

$$\text{Comparing the power of 2 we get, } \frac{19}{2} + 4 + 3n = 4m + \frac{6}{4}$$

$$\Rightarrow 4m=3n+12 \text{ .....(1)}$$

$$\text{Comparing the power of 3 we get, } 4 + 2m = n$$

Substituting the value of n in (1), we get

$$4m=3(4+2m)+12$$

$$\Rightarrow m=-12$$

# C2C MENTORS

## CAT 2019 SLOT - 1



Question 93

Answer 13

Consider the work done by a man in a day =  $a$  and that by a machine =  $b$

Since, 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, hence the efficiency will be double.

$$\Rightarrow 3a + 8b = 2(3b + 8a)$$

$$\Rightarrow 13a = 2b$$

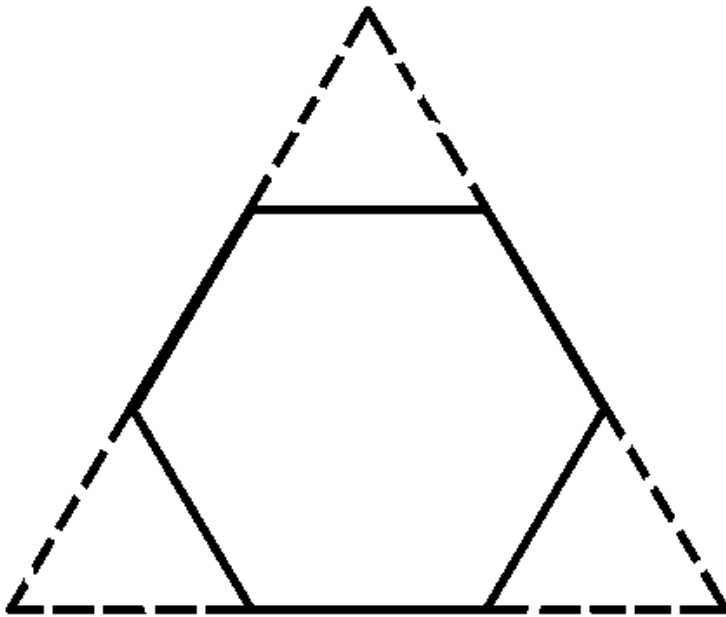
Hence work done by 13 men in a day = work done by 2 machines in a day.

$\Rightarrow$  If two machines can finish the job in 13 days, then same work will be done 13 men in 13 days.

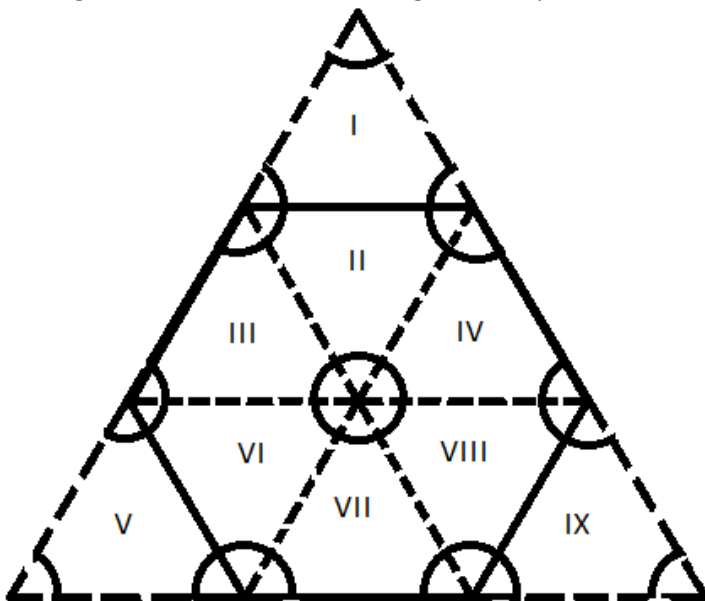
Hence the required number of men = 13

Question 94

Answer A



The given figure can be divided into 9 regions or equilateral triangles of equal areas as shown below,



Now the hexagon consists of 6 regions and the triangle consists of 9 regions.

Hence the ratio of areas =  $6/9 = 2:3$



# C2C MENTORS

## CAT 2019 SLOT - 1



Question 95

Answer A

We have,  $\log_5 (x + y) + \log_5 (x - y) = 3$

$\Rightarrow x^2 - y^2 = 125 \dots (1)$

$\log_2 y - \log_2 x = 1 - \log_2 3$

$\Rightarrow \frac{y}{x} = \frac{2}{3}$

$\Rightarrow 2x = 3y \Rightarrow x = \frac{3y}{2}$

On substituting the value of x in 1, we get

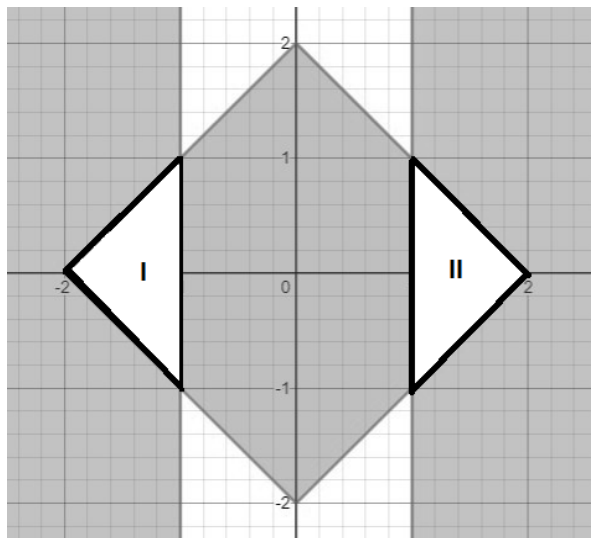
$\frac{5x^2}{4} = 125$

$\Rightarrow y = 10, x = 15$

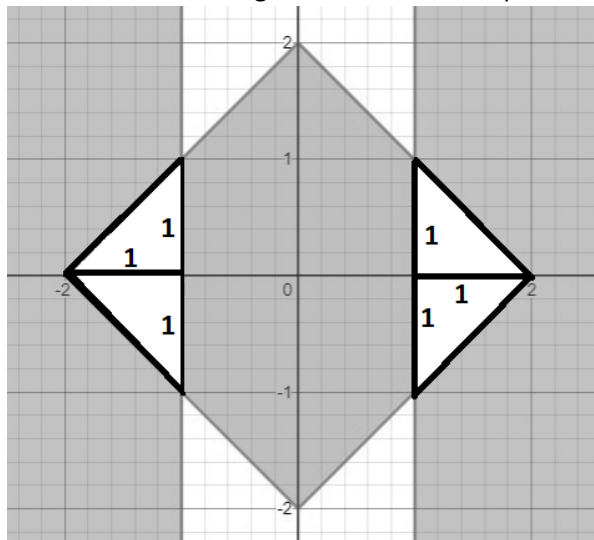
Hence  $xy = 150$

Question 96

Answer 2



Sum of the area of region I and II is the required area.



Now, required area =  $4 \times \frac{1}{2} \times 1 \times 1 = 2$

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# C2C MENTORS

## CAT 2019 SLOT - 1



Question 97

Answer 3920

The number of paths from (1, 1) to (8, 10) via (4, 6) = The number of paths from (1,1) to (4,6) \* The number of paths from (4,6) to (8,10)

To calculate the number of paths from (1,1) to (4,6), 4-1=3 steps in x-directions and 6-1=5 steps in y direction

Hence the number of paths from (1,1) to (4,6) =  ${}^{(3+5)}C_3 = 56$

To calculate the number of paths from (4,6) to (8,10), 8-4=4 steps in x-directions and 10-6=4 steps in y direction

Hence the number of paths from (4,6) to (8,10) =  ${}^{(4+4)}C_4 = 70$

The number of paths from (1, 1) to (8, 10) via (4, 6) = 56\*70=3920

Question 98

Answer B

Assuming the dimensions of the brick are a, b and c and the diagonals are 3,  $2\sqrt{3}$  and  $\sqrt{15}$

$$\text{Hence, } a^2 + b^2 = 3^2 \dots\dots(1)$$

$$b^2 + c^2 = (2\sqrt{3})^2 \dots\dots(2)$$

$$c^2 + a^2 = (\sqrt{15})^2 \dots\dots(3)$$

$$\text{Adding the three equations, } 2(a^2 + b^2 + c^2) = 9+12+15=36$$

$$\Rightarrow a^2 + b^2 + c^2 = 18 \dots\dots(4)$$

$$\text{Subtracting (1) from (4), we get } c^2 = 9 \Rightarrow c=3$$

$$\text{Subtracting (2) from (4), we get } a^2 = 6 \Rightarrow a=\sqrt{6}$$

$$\text{Subtracting (3) from (4), we get } b^2 = 3 \Rightarrow b=\sqrt{3}$$

$$\text{The ratio of the length of the shortest edge of the brick to that of its longest edge is } = \frac{\sqrt{3}}{3} = 1 : \sqrt{3}$$

Question 99

Answer 5

$$\text{For } x < 0, -x(6x^2 + 1) = 5x^2$$

$$\Rightarrow (6x^2 + 1) = -5x$$

$$\Rightarrow (6x^2 + 5x + 1) = 0$$

$$\Rightarrow (6x^2 + 3x + 2x + 1) = 0$$

$$\Rightarrow (3x+1)(2x+1)=0 \Rightarrow x = -\frac{1}{3} \text{ or } x = -\frac{1}{2}$$

For  $x=0$ , LHS=RHS=0 (Hence, 1 solution)

$$\text{For } x > 0, x(6x^2 + 1) = 5x^2$$

$$\Rightarrow (6x^2 - 5x + 1) = 0$$

$$\Rightarrow (3x-1)(2x-1)=0 \Rightarrow x = \frac{1}{3} \text{ or } x = \frac{1}{2}$$

Hence, the total number of solutions = 5

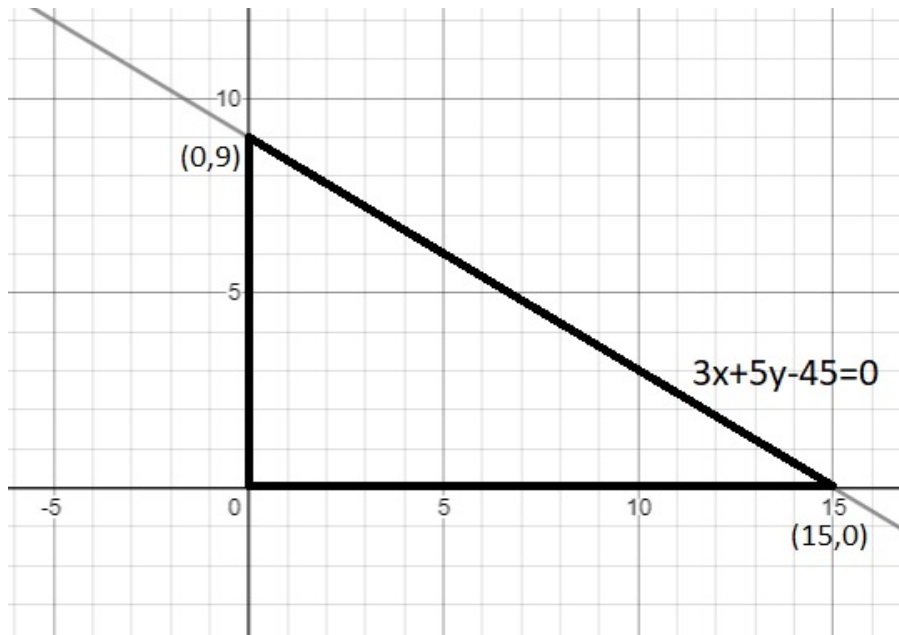
# C2C MENTORS

## CAT 2019 SLOT - 1



Question 100

Answer 9



In any right triangle, the circumradius is half of the hypotenuse. Here,  $L = \frac{1}{2} \times \text{the length of the hypotenuse} = \frac{1}{2}(\sqrt{15^2 + 9^2}) = \frac{1}{2} \times \sqrt{306} = \frac{1}{2} \times 17.49 = 8.74$

Hence, the integer close to  $L = 9$

