Actual CAT 2019 Slot I (Answer Keys)

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- B

Explanation:- For this, we need to concentrate on Paragraphs 2 and 4 of the passage. In paragraph 2, the author says that Casper and Glossier are exceptions to a dominant trend and in Paragraph 4, the author explains how these companies get pushed into offering variety. Options 1 and 4 are easy to reject as they are not mentioned. Out of options 2 and 3, though both are factually correct according to the passage, 2 is more appropriate because the question stem asks for the OVERALL PURPOSE of the mention of these two companies.
Hence, the answer should be OPTION 2.

QNo:- 2 ,Correct Answer:- B

Explanation:- Let us examine the options one by one.
Option 1 - The second line of the passage contradicts this option and hence this option weakens the author's claim.
Option 2 - The author relates to this when he/she mentions that a few companies which don't offer many options have sprung up because of choice anxiety. So, it is possible that those companies do better for a period of time than the companies which give options. However, the author explains that even the companies which don't give options will start to offer options in order to survive. But it is entirely possible that for a period of time the annual sales growth of companies with fewer product options are higher than that of companies which curated their products for target consumers Hence, this does not weaken the author's claim.
Option 3 - According to the author, lifestyle influencers have a positive impact on consumers and the companies that hire them should have higher sales. This option contradicts that claim and hence weakens.
Option 4 - This option contradicts the author's claim mentioned in the last line of the third paragraph and hence weakens.
Hence, the answer should be OPTION 2.

QNo:- 3 ,Correct Answer:- B

Explanation:- A reading of paragraph 3 helps us get to the answer. The author expresses concern for America's lower classes and how with the options expanding, purchasing even basic things has become difficult for them (Last line of the third paragraph). Option 2 aligns the best with this thought process.
Hence, the answer should be OPTION 2.

QNo:- 4 ,Correct Answer:- C

Explanation:- The author's prediction is that the start-ups offering few product options will eventually have to move towards variety (Last paragraph first line and the further reading of this paragraph elaborates on this idea). The statement adding least depth is likely to be the one which contradicts this idea or does not support it very strongly. Let us examine the options one by one.
Option 1 - If the start-ups with few product options are no exception to the American consumer market, then their fate is likely to be determined by the trend in the market which favours companies offering variety. So this supports the author's idea fairly strongly.
Option 2 - If the government decides to double the tax-rates for these start-ups, then surviving and making profits becomes even more difficult for these companies and it lends support to the author's argument that these companies will have to move towards variety to meet the expectations of steep growth rate of the investors which can't be achieved by selling one great product.
Option 3 - An exponential surge in their sales enables start-ups to meet their desired profit goals without expanding their product catalogue means that they will be able to the investors' expectations without offering variety and this contradicts the author's prediction. A very strong contender for the right answer.
Option 4 - This option talks about what happens once the companies have already ventured into new products and the author's prediction is that they will venture into new products. So what happens once the companies start offering variety is irrelevant to the question.
Hence, the answer should be OPTION 3.

QNo:- 5 ,Correct Answer:- B

Explanation:- Options 1 & 4 can be inferred from the first few lines of the passage where the author talks about choice anxiety, etc. Option 3 can be inferred from the lines at the end of the first paragraph where the author talks about people gravitating towards lifestyle influencers. Option 2 cannot be inferred.
Hence, the answer should be OPTION 2.

QNo:- 6 ,Correct Answer:- A

Explanation:- Option 1 - The point here is that the temperature of the Penguins' bodies (but not surface plumage) was higher than the surrounding air which allowed for radiation to take place. The average air temperature mentioned in the passage is 0.32 degrees Fahrenheit. Now, it makes no difference to the findings of the study reported if the temperature of the feet of penguins was 1.76 degrees Fahrenheit (as mentioned in the passage) or 2.76 degrees Fahrenheit as in either case it is higher than the average air temperature and radiation will take place.
This implies that this option does not negate the findings of the study reported and hence should be the answer.Option 2 - The problem with this option is that if the heat transfer could not take place, then the study would have very different findings as much of the explanation in the study is based on heat transfer through radiation and convection.
Option 3 - This option would mean that the temperature on the plumage was higher than the average air temperature and then heat would flow from plumage to the outside air. This is in direct contradiction with the findings of the study.
Option 4 - If the average air temperature were -10 degrees Fahrenheit, then it would be lower than the temperature on the plumage. Hence, heat would flow from plumage to the outside air which contradicts the report in the study.
Hence, the answer should be OPTION 1.

QNo:- 7 ,Correct Answer:- B

Explanation:- The other three options result in gaining body heat (explained in the passage). Reproduction, however, is going to result in the loss of body heat.
Hence, the answer should be OPTION 2.

QNo:- 8 ,Correct Answer:- A

Explanation:- The word 'Paradoxical' is defined as 'self-contradictory'. The author here means that though a part of Penguins' bodies (their plumage) is colder than the outside air, it actually helps keep their bodies warmer (which is kind of self-contradictory).
Option 2 - This statement, though true, is not self-contradictory and hence not paradoxical.
Options 3 & 4 are factually incorrect according to the passage.
Hence, the answer should be OPTION 1.

QNo:- 9 ,Correct Answer:- B

Explanation:- In Paragraph 3, the author is talking about how the outside air (which is slightly warmer than the plumage) comes into contact with the plumage and donates minute amounts of heat back to the penguins, then cycles away at a slightly colder temperature.
The other options do not relate to the point being discussed in the last line of paragraph 3.
Hence, the answer should be OPTION 2.

QNo:- 10 ,Correct Answer:- D

Explanation:- From the lines '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 & 'what the Victorian socialist William Morris called the "anti-scrape", or an anti- capitalist conservationism (not conservatism) that solaced itself with the vision of a pre- industrial golden age , it is clear that these examples lines highlight that folk music has been generally considered revolutionary, parochial, etc but at the same ime it is admired and followed also. This is reflected in option 4.

QNo:- 11 ,Correct Answer:- D

Explanation:- Electrification of folk music happened later and not the other way round. So this cannot be inferred as there is no concrete evidence for the same. Option 1 can be inferred from last line of the first paragraph.Option 2 can be inferred from third paragraph. Option 3 can be inferred from last paragraph.

QNo:- 12 ,Correct Answer:- B

Explanation:- From the lines 'Victorian socialist William Morris called the "anti-scrape", or an anti- capitalist conservationism (not conservatism) that solaced itself with the vision of a pre- industrial 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, it is clear that folk music is considered to be associated with past of something nostlagic (the key word is 'fossilised'). This is reflected in option 2. Other options do not reflect the seemingly assocoation of the folk music with the past.

QNo:- 13 ,Correct Answer:- A

Explanation:- Option 1 is not referring to folk music being plural and diverse, instead it is showing the perception relted to appeal of this genre. Other option show the causes for plurality and diversity within the British folk tradition.

QNo:- 14 ,Correct Answer:- B

Explanation:- From the lines '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, the author is least likely to agree with this genre keeping homogeneity with each change. Hence answer is option 2.

QNo:- 15 ,Correct Answer:- A

Explanation:- From the lines '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., it is clear that option 1 is closest to author's understanding of topoohilia. 'Topography' is features and hence option 2 rejected. Option 3 is about language and not land/area, therefore rejected. Option 4 is exactly opposite of what has been asked and hence rejected.

QNo:- 16 ,Correct Answer:- C

Explanation:- From the lines '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, it is claer that answer is option 3.

QNo:- 17 ,Correct Answer:- C

Explanation:- From the lines '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 long- lasting. 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', it is clear that this experience is very subjective and personal and hence cannot be quantified. This is clearly reflected in option 3.

QNo:- 18 ,Correct Answer:- D

Explanation:- From the line '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 this is reflected in option 4.

QNo:- 19 ,Correct Answer:- D

Explanation:- From the lines '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 and the lines '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', it is clear that author will not contradict option 4 and hence is the answer option.

QNo:- 20 ,Correct Answer:- C

Explanation:- The inversion being referred to is that instead of the idea that the 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, now the new idea was that Diyab might have based it on his own life — the experiences of a Middle Eastern man encountering the French and not vice-versa.
We need to show which option "invalidates" this new idea i.e. which option says that the story of Aladdin was not based on Diyab's life. Let us examine all the options one by one.
Option 1 - If Galland acknowledged in the published translations of Arabian Nights that he heard the story of Aladdin from Diyab, then it means that the story is based on Diyab's life and hence the inversion does not get invalidated. Hence, this should not be the answer.
Option 2 - If the French fairy tales of the eighteenth century did not have rags-to-riches plot lines like that of the tale of Aladdin, then it means that the tale of Aladdin could not have been based on the French fairy tales, meaning it could then have been based on Diyab's life rather. The inversion does not get invalidated. Hence, this should not be the answer.
Option 3 - If the description of opulence in Hanna Diyab's and Antoine Galland's narratives bore no resemblance to each other, then Galland was not influenced by Diyab's narrative while writing his own, meaning that the story was not based on Diyab's life. This is exactly what we need to invalidate the inversion. This option is a very strong contender for the correct answer.
Option 4 - Change of the name of the city does not matter as the story could still be based on Diyab's own life with a change in the name of the city. The inversion does not get invalidated. Hence, this should not be the answer.
Hence, the answer should be OPTION 3.

QNo:- 21 ,Correct Answer:- A

Explanation:- According to the author, Galland heard the tale of Aladdin from Diyab (Last line of Paragraph 1). An understanding of the first and the second paragraphs informs us that the author is of the opinion that Galland included the tale told by Diyab in Arabian Nights and it is highly likely that Diyab might have based the tale on his own life experiences. So, this leads to OPTION 1 BEING THE ANSWER.
Let us now examine the problems with the other options.
Option 2 - Neither Galland nor Diyab found the tale of Aladdin in an incomplete medieval manuscript. So this option is incorrect.
Option 3 - Galland did not derive the story from Diyab's travelogue
Option 4 - The story of Aladdin does not have its origins in an undiscovered, incomplete manuscript of a medieval Arabic

collection of stories. So this option is factually incorrect.

QNo:- 22 ,Correct Answer:- A

Explanation:- Towards the end of the passage, the author talks about Diyab's understanding of Paris' culture. He also talks about the Ups and Downs faced by Diyab and his humble beginnings. The author also mentions that Diyab describes the vast wealth of Versailles. These three features also resonate with the character of Aladdin. Hence, Options 2, 3 and 4 will be incorrect. From option 1, we only get to know that Galland gets the story from description of Diyab. We can't conclude from this option that Aladdin is based on Diyab.
Hence, the answer should be OPTION 1.

QNo:- 23 ,Correct Answer:- C

Explanation:- In the first two lines of the last paragraph, the author says that Aladdin is relevant even today because of its travel experiences. Option 3 talks exactly about the same.
Hence, the answer should be OPTION 3.

QNo:- 24 ,Correct Answer:- A

Explanation:- In the third paragraph, the author says that many scholars thought the story of Aladdin might have been inspired from French fairy tales. The author tries to disprove this by saying various instances from Diyab's life and how it would have inspired him to base Aladdin upon him. Options 2, 3 and 4 support the author's claims whereas option a goes against the author's claims.
Hence, the answer should be OPTION 1.

QNo:- 25 ,Correct Answer:- 2

Explanation:- After reading all the sentences/context, it is clearly understood that discussion moves round symbols and their interptetation modern context. Also some sort of analogy has also been drawn with historical context. In the rearrangement, the opening sentence has to be 4 , as it intruduces Robert Proctor and his idea ogf the symbols. After this 3 will come as it talks futher about these symbols by drawing analogy symbols on sheilds of ancient knights. After this 1 will come, as it highlights the embeded meaning of the suffixes.After this 5 will come as it tells about the significance of 'tron' in having control. So the order is 4315. 2 introduces the intellectual and cultral angles to the discusion of these symbols, which is off tangent and hence odd one out.

QNo:- 26 ,Correct Answer:- 2341

Explanation:- After reading all the sentences, it is understood that context moves round 'mind reading' and hence the opening sentence is 2. After this 3 will come as the key link is 'mid reading' . The examples 'developmental disorders' in 4 have been given in 1. Hence 41 is a mandatory pair. The final rearrangent of the sentences will be 2341

QNo:- 27 ,Correct Answer:- 3241

Explanation:- After reading all the sentences, it is understood that context starts from very specific case and then conclusion is drawn. The context moves round the meaning and interptetation of phrase 'carpe diem' in different languages and its profound impact on our understanding of the world around us. The introductory sentence will be 3 and the hint for it is 'often' i.e. generally the meaning of the phrase is 'seize the day'. After this 2 will come as it higlights the meaning of the same phrase in Latin Language. 4 is the summing up sentences 2 & 3. Both the interptetations (of the phrase) are same but have subtle difference as in the way we value the world around us. Hence the final seqiuence is 3241.

QNo:- 28 ,Correct Answer:- B

Explanation:- The keywords are 'hidden persuaders' , hidden consumer motivations' , 'supraliminal level' & consumers are not even aware of their thought being manipulated by advertising companies. Option 1 and option 4 is rejected as Vance did not mention 'subliminal' level and this option says that people are aware of these manipulations. Option 3 is rejected as 'people are not aware' of these manipulations. Hence the passage is aptly summarised by option 2.

QNo:- 29 ,Correct Answer:- B

Explanation:- The key points are 'absent things, known as displaced reference', 'absence of any obvious stimuli' & 'Thought precedes meaningful referential communication. All these points have aptly captured by option 2. Option 1 is rejected as it is not about 'all speech' , instead it is about 'meaningful communication. No where it is mentioned that 'only humans' have this capacity, so option 3 is rejected. Option 4 is rejected as it is nowhere mentioned that 'displaced reference' is particular to humans.

QNo:- 30 ,Correct Answer:- A

Explanation:- The context is comparison between pure science and engineering. The key lines are 'without regard to whether it will afford any practical benefit', 'correlative applied science in which physical theories are put to some specific use,'ut an engineer's knowledge of the world is not the same as the physicist's knowledge' , & sometimes the true theories apply only under highly idealized conditions which can only be created under controlled experimental situations'. All these key points aptly summarized by option 1.

QNo:- 31 ,Correct Answer:- 4123

Explanation:- After reading all the sentence it is easy to figure out that opening sentence is 4, as it introduces the term 'Collaborative filtering'. After this 1 will come as it is an exmaple of 'Collaborative filtering'. After this 2 will come as 'these algorithims' referes to 'results' shown is 1. The 'problem ' in 2 is exeeplified in 3. Hence 4123

QNo:- 32 ,Correct Answer:- 3241

Explanation:- The context moves round 'learning how to handle online criticism' and if it doesnot happen 'what this lead to'. The opening sentence is 3. After this 2 will come as it tells one of the mature ways to accept/ handle criticism. 1 will happen if 4 does not come into the picture. Hence the final sequece of the sentences 3241

QNo:- 33 ,Correct Answer:- 2

Explanation:- The context moves around the rights of hearing impaired or some preconcieved notions about hearing impaired. The opener in this case is 5. After this 3 will come as it shows the result of 5. 'this prejudice' refers to the 'denied rights' in 3. 1 tell further about Pedro Ponce de León'. So the order of these four ot of five sentences is '5341'. Hence the odd one out is 2 as it talks a little off tangent about the same i.e 'deaf are incapable of speech'.

QNo:- 34 ,Correct Answer:- 1

Explanation:- After reading all the sentences it can be deduced that context is about 'Identity is one of the most important features of organizations' and its differing views. Afere this 3 will come as it further tells types of identites'. 5 & 2 form a mandatory pair. So the order of the sentences is 4352. 1 is odd one as it takes the discussion to altogether diffetrent tangent.

Section : DI & Reasoning

QNo:- 35 ,Correct Answer:- 1

Explanation:- Starting with F, F+F gives us F. only possible F can be 0 here.

	B	H	A	A	G	0
	A	H	J	0	K	0

A	A	0	G	C	A	0

In column 5, A+0 gives us C. This is only possible if 1 is carried forward from column 5. This have 2 interpretations, 1) G+K is more than 10, 2) C is one more than A.
Using 2nd and changing C's into A+1.
In column 3, H+H is equal 0. This can be done if H is 5 or 0. As F is 0, H can be 5 only.
In column 2, B+A is also A. This is possible if B is 0 but F is already 0. Further B can also be 9 for which 1 can be carried forward from column 3.

	9	5	A	A	G	0
	A	5	J	0	K	0
A	A	0	G	A+1	A	0

As only 1 can be carried forward, A can only be 1.

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

In column 6, G+K ends up with 1, so G and K can be 6+5 or 7+4 or 8+3 or 9+2. But as 9 and 5 are already done, G and K can be 7/4 or 8/3 only.
In column 4, 1+J is equal to G without any carried forward. Hence, J = G-1. Remaining values for D,E,G,J,K are 3,4,6,7,8. As J=G-1, G can be 4, 7 or 8. Hence, K can be 7, 4 or 3. J can be 3, 6 or 7.

QNo:- 36 ,Correct Answer:- 9

Explanation:- Starting with F, F+F gives us F. only possible F can be 0 here.

	B	H	A	A	G	0
	A	H	J	0	K	0
A	A	0	G	C	A	0

In column 5, A+0 gives us C. This is only possible if 1 is carried forward from column 5. This have 2 interpretations, 1) G+K is more than 10, 2) C is one more than A.
Using 2nd and changing C's into A+1.
In column 3, H+H is equal 0. This can be done if H is 5 or 0. As F is 0, H can be 5 only.
In column 2, B+A is also A. This is possible if B is 0 but F is already 0. Further B can also be 9 for which 1 can be carried forward from column 3.

	9	5	A	A	G	0
	A	5	J	0	K	0
A	A	0	G	A+1	A	0

As only 1 can be carried forward, A can only be 1.

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

In column 6, G+K ends up with 1, so G and K can be 6+5 or 7+4 or 8+3 or 9+2. But as 9 and 5 are already done, G and K can be 7/4 or 8/3 only.
In column 4, 1+J is equal to G without any carried forward. Hence, J = G-1. Remaining values for D,E,G,J,K are 3,4,6,7,8. As J=G-1, G can be 4, 7 or 8. Hence, K can be 7, 4 or 3. J can be 3, 6 or 7.

QNo:- 37 ,Correct Answer:- 7

Explanation:- Starting with F, F+F gives us F. only possible F can be 0 here.

	B	H	A	A	G	0

	A	H	J	0	K	0
A	A	0	G	C	A	0

In column 5, A+0 gives us C. This is only possible if 1 is carried forward from column 5. This have 2 interpretations, 1) G+K is more than 10, 2) C is one more than A.
Using 2nd and changing C's into A+1.
In column 3, H+H is equal 0. This can be done if H is 5 or 0. As F is 0, H can be 5 only.
In column 2, B+A is also A. This is possible if B is 0 but F is already 0. Further B can also be 9 for which 1 can be carried forward from column 3.

	9	5	A	A	G	0
	A	5	J	0	K	0
A	A	0	G	A+1	A	0

As only 1 can be carried forward, A can only be 1.

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

In column 6, G+K ends up with 1, so G and K can be 6+5 or 7+4 or 8+3 or 9+2. But as 9 and 5 are already done, G and K can be 7/4 or 8/3 only.
In column 4, 1+J is equal to G without any carried forward. Hence, J = G-1. Remaining values for D,E,G,J,K are 3,4,6,7,8. As J=G-1, G can be 4, 7 or 8. Hence, K can be 7, 4 or 3. J can be 3, 6 or 7.

QNo:- 38 ,Correct Answer:- 6

Explanation:- Starting with F, F+F gives us F. only possible F can be 0 here.

	B	H	A	A	G	0
	A	H	J	0	K	0
A	A	0	G	C	A	0

In column 5, A+0 gives us C. This is only possible if 1 is carried forward from column 5. This have 2 interpretations, 1) G+K is more than 10, 2) C is one more than A.
Using 2nd and changing C's into A+1.
In column 3, H+H is equal 0. This can be done if H is 5 or 0. As F is 0, H can be 5 only.
In column 2, B+A is also A. This is possible if B is 0 but F is already 0. Further B can also be 9 for which 1 can be carried forward from column 3.

	9	5	A	A	G	0
	A	5	J	0	K	0
A	A	0	G	A+1	A	0

As only 1 can be carried forward, A can only be 1.

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

In column 6, G+K ends up with 1, so G and K can be 6+5 or 7+4 or 8+3 or 9+2. But as 9 and 5 are already done, G and K can be 7/4 or 8/3 only.
In column 4, 1+J is equal to G without any carried forward. Hence, J = G-1. Remaining values for D,E,G,J,K are 3,4,6,7,8. As J=G-1, G can be 4, 7 or 8. Hence, K can be 7, 4 or 3. J can be 3, 6 or 7.

QNo:- 39 ,Correct Answer:- B

Explanation:- We will make a table with composers on the vertical axis and dancers on the horizontal axis.
Keep in mind that - Composers can assign 1st, 2nd, 3rd and 4th position in first round and remaining 5th to 8th position in

second round.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal					
	Gagan					
	Dyu					

From condition 3, the first performer was by Princess and this item was assigned by Badal. So we assign 1 in that position. Similarly from condition 4, The last performance was by Rani; this item was assigned by Gagan. So we assign 8 in that position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1				
	Gagan			8		
	Dyu					

From condition 1, Composer who assigned to Princess did not assigned any item to Queen.
Similarly, from condition 2, Composer who assigned to Rani did not assigned any item to Samragni.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					

It is given in question that the dancers performed their second items in the same sequence of their performance of their first items. This means that if someone performed at 1st position, he would again perform at 5th Similarly, someone who performs at 3rd position would perform at 7th position.
Thus princess has performed at 1st position so she would again perform at 5th. Similarly, Rani has performed at 8th position, so she would perform at 4th position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

From condition 5, we get that items assigned by Ashman were performed consecutively. This means that his items were 4 & 5. (when each composer has given the dance item to dancers one then only the composers would be able to give their second list of dances.) (Consecutive items assigned can only be 4 and 5th position)

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5		4		4th& 5th position
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

Let us see what different options are available to different composers. E.g. Badal has given 1st performance to princess, so he can assign 5,6,7,8 position in second round. Now 5th and 8th position are already taken by other composers, thus he is left

with assigning 6th and 7th position

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*		6th or 7th position
	Gagan	*		8	*	2nd or 3rd position
	Dyu	*		*		2nd or 3rd position
Extra Notes (if any)						

From condition 5, we also get that the number of performances between items assigned by each of the remaining composers was the same.
Badal can assign 6th or 7th position. Check which one is true.
If Badal assign 6th position, then as per condition 5, difference between both 1st and 6th position is 5 and that should be difference with rest all composers except Ashman. We will see if that is possible ofr other composers. Dyu will be left with 2nd and 7th position and difference is 5. Gagan is left will 3rdpostion. Difference 3rd and 8th is also 5. Thus case is true

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*	6	
	Gagan	*	3	8	*	
	Dyu	*	7	*	2	
Extra Notes (if any)						

This is the final order as assigned by different composers

The second performance was composed by Dyu

QNo:- 40 ,Correct Answer:- A

Explanation:- We will make a table with composers on the vertical axis and dancers on the horizontal axis.
Keep in mind that - Composers can assign 1st, 2nd, 3rd and 4th position in first round and remaining 5th to 8th position in second round.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal					
	Gagan					
	Dyu					

From condition 3, the first performer was by Princess and this item was assigned by Badal. So we assign 1 in that position.
Similarly from condition 4, The last performance was by Rani; this item was assigned by Gagan. So we assign 8 in that position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1				
	Gagan			8		
	Dyu					

From condition 1, Composer who assigned to Princess did not assigned any item to Queen.
Similarly, from condition 2, Composer who assigned to Rani did not assigned any item to Samragni.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	

Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					

It is given in question that the dancers performed their second items in the same sequence of their performance of their first items. This means that if someone performed at 1st position, he would again perform at 5th Similarly, someone who performs at 3rd position would perform at 7th position.
Thus princess has performed at 1st position so she would again perform at 5th. Similarly, Rani has performed at 8th position, so she would perform at 4th position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

From condition 5, we get that items assigned by Ashman were performed consecutively. This means that his items were 4 & 5. (when each composer has given the dance item to dancers one then only the composers would be able to give their second list of dances.) (Consecutive items assigned can only be 4 and 5th position)

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5		4		4th& 5th position
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

Let us see what different options are available to different composers. E.q. Badal has given 1st performance to princess, so he can assign 5,6,7,8 position in second round. Now 5th and 8th position are already taken by other composers, thus he is left with assigning 6th and 7th position

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*		6th or 7th position
	Gagan	*		8	*	2nd or 3rd position
	Dyu	*		*		2nd or 3rd position
Extra Notes (if any)						

From condition 5, we also get that the number of performances between items assigned by each of the remaining composers was the same.
Badal can assign 6th or 7th position. Check which one is true.
If Badal assign 6th position, then as per condition 5, difference between both 1st and 6th position is 5 and that should be difference with rest all composers except Ashman. We will see if that is possible ofr other composers. Dyu will be left with 2nd and 7th position and difference is 5. Gagan is left will 3rdpostion. Difference 3rd and 8th is also 5. Thus case is true

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*	6	
	Gagan	*	3	8	*	
	Dyu	*	7	*	2	
Extra Notes (if any)						

This is the final order as assigned by different composers

Queen did not perform in any item composed by Green

QNo:- 41 ,Correct Answer:- B

Explanation:- We will make a table with composers on the vertical axis and dancers on the horizontal axis.
Keep in mind that - Composers can assign 1st, 2nd, 3rd and 4th position in first round and remaining 5th to 8th position in second round.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal					
	Gagan					
	Dyu					

From condition 3, the first performer was by Princess and this item was assigned by Badal. So we assign 1 in that position.
Similarly from condition 4, The last performance was by Rani; this item was assigned by Gagan. So we assign 8 in that position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1				
	Gagan			8		
	Dyu					

From condition 1, Composer who assigned to Princess did not assigned any item to Queen.
Similarly, from condition 2, Composer who assigned to Rani did not assigned any item to Samragni.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					

It is given in question that the dancers performed their second items in the same sequence of their performance of their first items. This means that if someone performed at 1st position, he would again perform at 5th Similarly, someone who performs at 3rd position would perform at 7th position.
Thus princess has performed at 1st position so she would again perform at 5th. Similarly, Rani has performed at 8th position, so she would perform at 4th position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

From condition 5, we get that items assigned by Ashman were performed consecutively. This means that his items were 4 & 5. (when each composer has given the dance item to dancers one then only the composers would be able to give their second list of dances.) (Consecutive items assigned can only be 4 and 5th position)

		Dancers	Extra Notes (if any)

		Princess	Queen	Rani	Samragni	
Composers	Ashman	5		4		4th& 5th position
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

Let us see what different options are available to different composers. E.q. Badal has given 1st performance to princess, so he can assign 5,6,7,8 position in second round. Now 5th and 8th position are already taken by other composers, thus he is left with assigning 6th and 7th position

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*		6th or 7th position
	Gagan	*		8	*	2nd or 3rd position
	Dyu	*		*		2nd or 3rd position
Extra Notes (if any)						

From condition 5, we also get that the number of performances between items assigned by each of the remaining composers was the same.
Badal can assign 6th or 7th position. Check which one is true.
If Badal assign 6th position, then as per condition 5, difference between both 1st and 6th position is 5 and that should be difference with rest all composers except Ashman. We will see if that is possible ofr other composers. Dyu will be left with 2nd and 7th position and difference is 5. Gagan is left will 3rdpostion. Difference 3rd and 8th is also 5. Thus case is true

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*	6	
	Gagan	*	3	8	*	
	Dyu	*	7	*	2	
Extra Notes (if any)						

This is the final order as assigned by different composers

Badal

QNo:- 42 ,Correct Answer:- C

Explanation:- We will make a table with composers on the vertical axis and dancers on the horizontal axis.
Keep in mind that - Composers can assign 1st, 2nd, 3rd and 4th position in first round and remaining 5th to 8th position in second round.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal					
	Gagan					
	Dyu					

From condition 3, the first performer was by Princess and this item was assigned by Badal. So we assign 1 in that position.
Similarly from condition 4, The last performance was by Rani; this item was assigned by Gagan. So we assign 8 in that position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	

Composers	Ashman					
	Badal	1				
	Gagan			8		
	Dyu					

From condition 1, Composer who assigned to Princess did not assigned any item to Queen.
Similarly, from condition 2, Composer who assigned to Rani did not assigned any item to Samragni.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					

It is given in question that the dancers performed their second items in the same sequence of their performance of their first items. This means that if someone performed at 1st position, he would again perform at 5th Similarly, someone who performs at 3rd position would perform at 7th position.
Thus princess has performed at 1st position so she would again perform at 5th. Similarly, Rani has performed at 8th position, so she would perform at 4th position.

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman					
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

From condition 5, we get that items assigned by Ashman were performed consecutively. This means that his items were 4 & 5. (when each composer has given the dance item to dancers one then only the composers would be able to give their second list of dances.) (Consecutive items assigned can only be 4 and 5th position)

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5		4		4th& 5th position
	Badal	1	*			
	Gagan			8	*	
	Dyu					
Extra Notes (if any)		5th position		4th position		

Let us see what different options are available to different composers. E.q. Badal has given 1st performance to princess, so he can assign 5,6,7,8 position in second round. Now 5th and 8th position are already taken by other composers, thus he is left with assigning 6th and 7th position

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*		6th or 7th position
	Gagan	*		8	*	2nd or 3rd position
	Dyu	*		*		2nd or 3rd position
Extra Notes (if any)						

From condition 5, we also get that the number of performances between items assigned by each of the remaining composers was the same.
Badal can assign 6th or 7th position. Check which one is true.
If Badal assign 6th position, then as per condition 5, difference between both 1st and 6th position is 5 and that should be

difference with rest all composers except Ashman. We will see if that is possible ofr other composers. Dyu will be left with 2nd and 7th position and difference is 5. Gagan is left will 3rdpostion. Difference 3rd and 8th is also 5. Thus case is true

		Dancers				Extra Notes (if any)
		Princess	Queen	Rani	Samragni	
Composers	Ashman	5	*	4	*	
	Badal	1	*	*	6	
	Gagan	*	3	8	*	
	Dyu	*	7	*	2	
Extra Notes (if any)						

This is the final order as assigned by different composers

The first and the six

QNo:- 43 ,Correct Answer:- 2

Explanation:- The number of items atleast doubles and there are total 100 boxes each containing an item. So minimum types can be 2 as 1st prize having 1 item of type A and 2nd having 99 items of type B.

QNo:- 44 ,Correct Answer:- 6

Explanation:- Similarly to last one, 1 item of type A then 2 of type B then 4 of type C then 8 of type D then 16 of type E then 32 of type F will sum upto 63 items. There cannot be type G because that will cross 100 item barrier. Hence 6.

QNo:- 45 ,Correct Answer:- C

Explanation:- There is 1 item of type A.
If there are exactly 30 items of type B then there will be 60 or more type C. If 69 type C, then This is possible.
If there are exactly 45 type C then there must be 2 to 22 type B only summing upto 48 to 68 items. Now Type D must have at least 90 (double of 45) items but it is **not possible.**
Exactly 60 type D is possible if there is 1 type A, 9 type B and 30 type C.
75 of type E is also possible.
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.

QNo:- 46 ,Correct Answer:- D

Explanation:- Now as per the additional information given in the question, there are a total of 75 boxes in which the same item is given (one in box number 45 and 31 items in 1 - 44 boxes and 43 items in 46 - 100 boxes). Now the remaining 25 items has to be maximized in terms of variety. There is 1 item of type A, so let there be 2 items of type B, 4 items of type C, 8 items of type D. Now after that if try to have 32 items of type E, the total items become more than 100. Thus there can be only 4 more types of items other than the one, which has been used in box number 45. So the total different types of items at the most can be 5.

QNo:- 47 ,Correct Answer:- D

Explanation:-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

We have to arrange 3 types of item (B, C and S) (total 12 items) in 16 shelves space. We can have 1 or 2 empty selves (E) between 2 items.
It is known that K is on 16th shelves so we put that on 16th (from condition 4)

(From condition 4) It is given that D, E, F will be placed after biscuits and cookies so they will be in last item group. So we will put D, E, F in last shelves in same order and K will be last in that group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												D	E	F	K
												D	E	F	K

(from condition 6) there should be 2 empty shelve before C. We also know that C is candy and there are 3 candies
We can arrange them in 2 different ways.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty				empty						empty	D	E	F	K
empty						empty	empty	C			empty	D	E	F	K

(from condition 7) There should be 1 empty shelve before L

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C			empty	L					empty	D	E	F	K
empty	L					empty	empty	C			empty	D	E	F	K

Now (from condition 2), I and J will be placed after A and B. (A....B....I/J....)
(From condition 5) L and J are items of the same type
Mixing above both conditions, we get that I, J, L are of same type and they must be biscuits as they cannot be candies (C is already a candy and they can be only 3 candies in total).
(From Condition 5) H is an item of a different type than L, J. Thus H will be in cookies group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/_)	(_/H)	empty	L					empty	D	E	F	K
empty	L					empty	empty	C	(H/_)	(_/H)	empty	D	E	F	K

(From condition 1) A and B are consecutive thus they lie in same group. They cannot be cookies are there is only 1 space left thus it will be in biscuit. (Biscuit will be A, B, I, J, L) and then G will be a cookies.
We know that AB are consecutive and I and J after them

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/G)	(G/H)	empty	L	A	B	(I/J)	(J/I)	empty	D	E	F	K
empty	L	A	B	(I/J)	(J/I)	empty	empty	C	(H/G)	(G/H)	empty	D	E	F	K

QNo:- 48 ,Correct Answer:- D

Explanation:-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

We have to arrange 3 types of item (B, C and S) (total 12 items) in 16 shelves space. We can have 1 or 2 empty selves (E) between 2 items.
It is known that K is on 16th shelves so we put that on 16^{th} (from condition 4)
(From condition 4) It is given that D, E, F will be placed after biscuits and cookies so they will be in last item group. So we will put D, E, F in last shelves in same order and K will be last in that group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												D	E	F	K
												D	E	F	K

(from condition 6) there should be 2 empty shelve before C. We also know that C is candy and there are 3 candies
We can arrange them in 2 different ways.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

empty	empty				empty						empty	D	E	F	K
empty						empty	empty	C			empty	D	E	F	K

(from condition 7) There should be 1 empty shelve before L

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C			empty	L					empty	D	E	F	K
empty	L					empty	empty	C			empty	D	E	F	K

Now (from condition 2), I and J will be placed after A and B. (A....B....I/J....)
(From condition 5) L and J are items of the same type
Mixing above both conditions, we get that I, J, L are of same type and they must be biscuits as they cannot be candies (C is already a candy and they can be only 3 candies in total).
(From Condition 5) H is an item of a different type than L, J. Thus H will be in cookies group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/_)	(_/H)	empty	L					empty	D	E	F	K
empty	L					empty	empty	C	(H/_)	(_/H)	empty	D	E	F	K

(From condition 1) A and B are consecutive thus they lie in same group. They cannot be cookies are there is only 1 space left thus it will be in biscuit. (Biscuit will be A, B, I, J, L) and then G will be a cookies.
We know that AB are consecutive and I and J after them

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/G)	(G/H)	empty	L	A	B	(I/J)	(J/I)	empty	D	E	F	K
empty	L	A	B	(I/J)	(J/I)	empty	empty	C	(H/G)	(G/H)	empty	D	E	F	K

G is not a type of biscuit (As we can clearly see that it is cookies in both cases)

QNo:- 49 ,Correct Answer:- C

Explanation:-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

We have to arrange 3 types of item (B, C and S) (total 12 items) in 16 shelves space. We can have 1 or 2 empty selves (E) between 2 items.
It is known that K is on 16th shelves so we put that on 16^{th} (from condition 4)
(From condition 4) It is given that D, E, F will be placed after biscuits and cookies so they will be in last item group. So we will put D, E, F in last shelves in same order and K will be last in that group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												D	E	F	K
												D	E	F	K

(from condition 6) there should be 2 empty shelve before C. We also know that C is candy and there are 3 candies
We can arrange them in 2 different ways.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty				empty						empty	D	E	F	K
empty						empty	empty	C			empty	D	E	F	K

(from condition 7) There should be 1 empty shelve before L

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C			empty	L					empty	D	E	F	K
empty	L					empty	empty	C			empty	D	E	F	K

Now (from condition 2), I and J will be placed after A and B. (A....B....I/J....)
(From condition 5) L and J are items of the same type
Mixing above both conditions, we get that I, J, L are of same type and they must be biscuits as they cannot be candies (C is already a candy and they can be only 3 candies in total).
(From Condition 5) H is an item of a different type than L, J. Thus H will be in cookies group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/_)	(_/H)	empty	L					empty	D	E	F	K
empty	L					empty	empty	C	(H/_)	(_/H)	empty	D	E	F	K

(From condition 1) A and B are consecutive thus they lie in same group. They cannot be cookies are there is only 1 space left thus it will be in biscuit. (Biscuit will be A, B, I, J, L) and then G will be a cookies.
We know that AB are consecutive and I and J after them

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/G)	(G/H)	empty	L	A	B	(I/J)	(J/I)	empty	D	E	F	K
empty	L	A	B	(I/J)	(J/I)	empty	empty	C	(H/G)	(G/H)	empty	D	E	F	K

1, 2, 6, 12

QNo:- 50 ,Correct Answer:- A

Explanation:-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

We have to arrange 3 types of item (B, C and S) (total 12 items) in 16 shelves space. We can have 1 or 2 empty selves (E) between 2 items.
It is known that K is on 16th shelves so we put that on 16^{th} (from condition 4)
(From condition 4) It is given that D, E, F will be placed after biscuits and cookies so they will be in last item group. So we will put D, E, F in last shelves in same order and K will be last in that group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												D	E	F	K
												D	E	F	K

(from condition 6) there should be 2 empty shelve before C. We also know that C is candy and there are 3 candies
We can arrange them in 2 different ways.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty				empty						empty	D	E	F	K
empty						empty	empty	C			empty	D	E	F	K

(from condition 7) There should be 1 empty shelve before L

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C			empty	L					empty	D	E	F	K
empty	L					empty	empty	C			empty	D	E	F	K

Now (from condition 2), I and J will be placed after A and B. (A....B....I/J....)
(From condition 5) L and J are items of the same type
Mixing above both conditions, we get that I, J, L are of same type and they must be biscuits as they cannot be candies (C is already a candy and they can be only 3 candies in total).
(From Condition 5) H is an item of a different type than L, J. Thus H will be in cookies group.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/_)	(_/H)	empty	L					empty	D	E	F	K
empty	L					empty	empty	C	(H/_)	(_/H)	empty	D	E	F	K

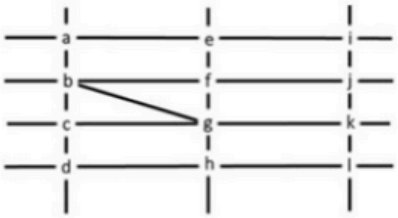
(From condition 1) A and B are consecutive thus they lie in same group. They cannot be cookies are there is only 1 space left thus it will be in biscuit. (Biscuit will be A, B, I, J, L) and then G will be a cookies.
We know that AB are consecutive and I and J after them

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
empty	empty	C	(H/G)	(G/H)	empty	L	A	B	(I/J)	(J/I)	empty	D	E	F	K
empty	L	A	B	(I/J)	(J/I)	empty	empty	C	(H/G)	(G/H)	empty	D	E	F	K

There are at least four shelves between items B and C

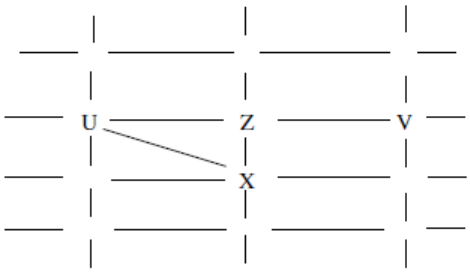
QNo:- 51 ,Correct Answer:- A

Explanation:- Point 1, Only 2 triangles are possible, BCG and BFG. X, U and Z are standing at these points.
Point 2, there is no one else in straight line of X.
Point 3, Y is on the straight line of U and W.
Point 4, Z and V are standing next to each other while U is also in the same row.
Point 5, W is in different row/column then of V and Z.
Point 6, d is empty.



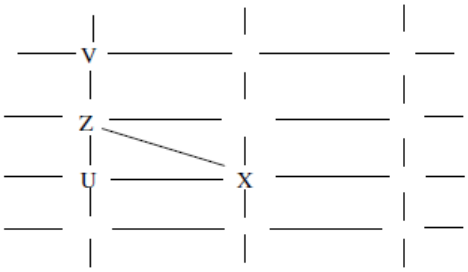
Following are the possible cases:

Case 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.

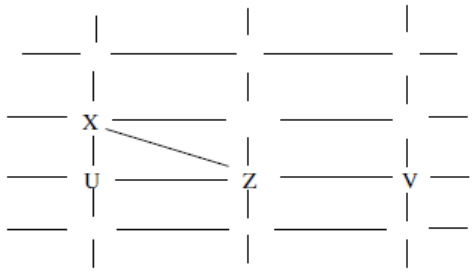
Case 2:



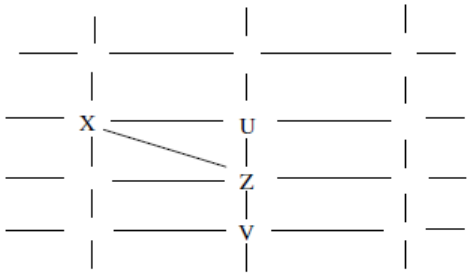
Y can only see U and W. Y cannot be placed anywhere. Hence this case is also rejected.

Case 3:

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

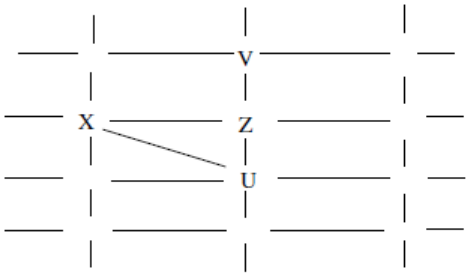


Case 4:

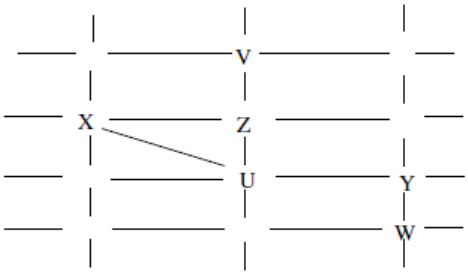


Here W cannot see V or Z and X cannot see W so W can only be placed at i. Y can see only U and W. Y can only be placed at j or e, where he can see more people than U and W. Hence this case is also rejected.

Case 5:



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

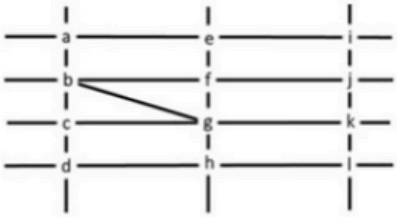


The above mentioned case is the only case possible.

No one is standing at a.

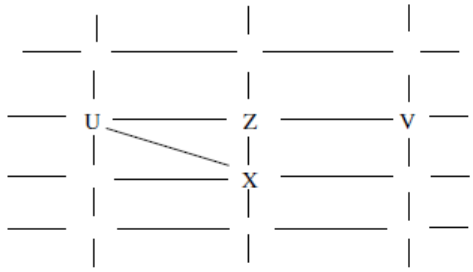
QNo:- 52 ,Correct Answer:- C

Explanation:- Point 1, Only 2 triangles are possible, BCG and BFG. X, U and Z are standing at these points.
Point 2, there is no one else in straight line of X.
Point 3, Y is on the straight line of U and W.
Point 4, Z and V are standing next to each other while U is also in the same row.
Point 5, W is in different row/column then of V and Z.
Point 6, d is empty.



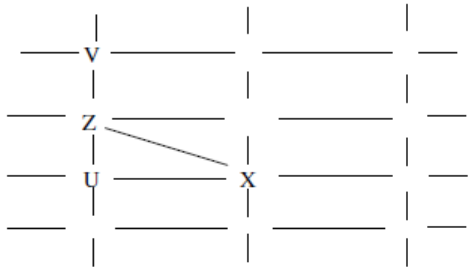
Following are the possible cases:

Case 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.

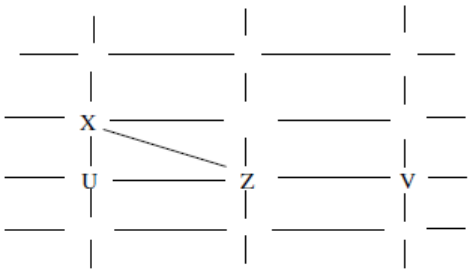
Case 2:



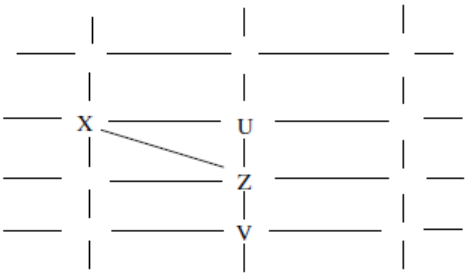
Y can only see U and W. Y cannot be placed anywhere. Hence this case is also rejected.

Case 3:

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

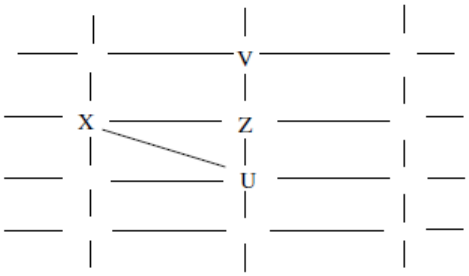


Case 4:

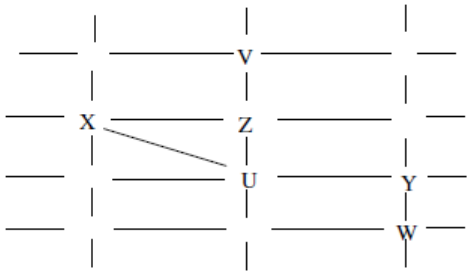


Here W cannot see V or Z and X cannot see W so W can only be placed at i. Y can see only U and W. Y can only be placed at j or e, where he can see more people than U and W. Hence this case is also rejected.

Case 5:



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

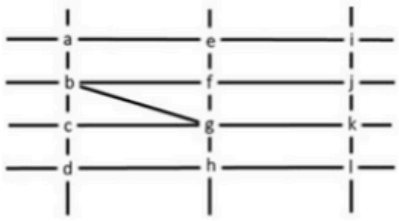


The above mentioned case is the only case possible.

V can see U and Z only.

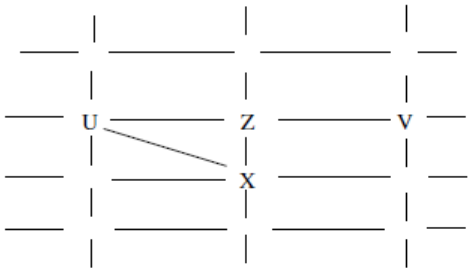
QNo:- 53 ,Correct Answer:- D

Explanation:- Point 1, Only 2 triangles are possible, BCG and BFG. X, U and Z are standing at these points.
Point 2, there is no one else in straight line of X.
Point 3, Y is on the straight line of U and W.
Point 4, Z and V are standing next to each other while U is also in the same row.
Point 5, W is in different row/column then of V and Z.
Point 6, d is empty.



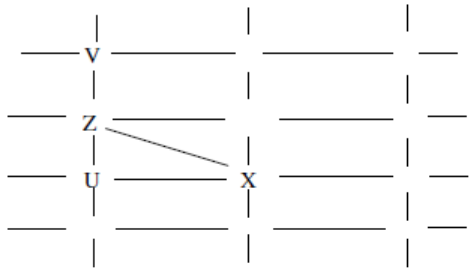
Following are the possible cases:

Case 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.

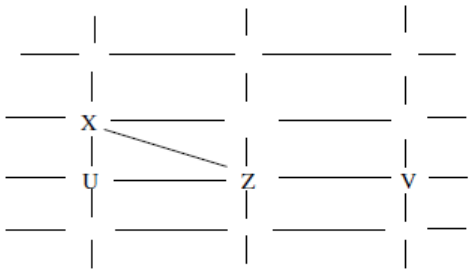
Case 2:



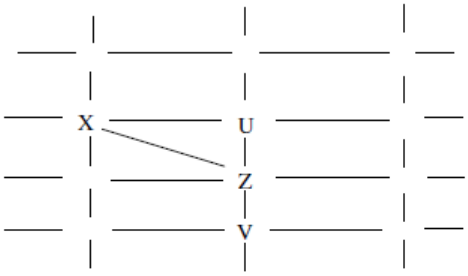
Y can only see U and W. Y cannot be placed anywhere. Hence this case is also rejected.

Case 3:

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

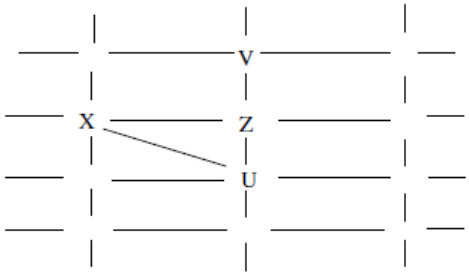


Case 4:

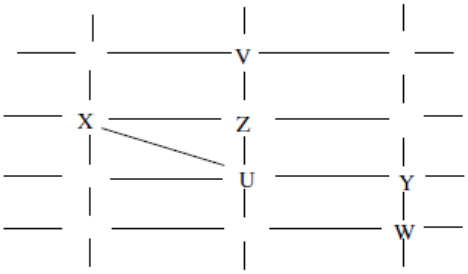


Here W cannot see V or Z and X cannot see W so W can only be placed at i. Y can see only U and W. Y can only be placed at j or e, where he can see more people than U and W. Hence this case is also rejected.

Case 5:



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

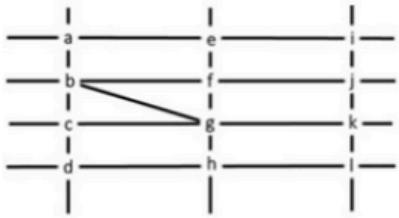


The above mentioned case is the only case possible.

X can reach Y through b-g, g-k.
So minimum 2 street segments need to be crossed

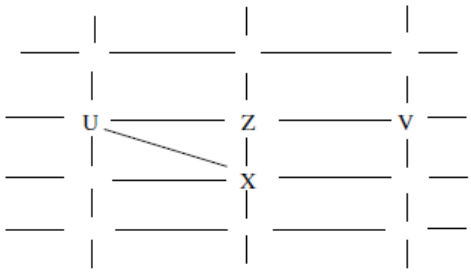
QNo:- 54 ,Correct Answer:- C

Explanation:- Point 1, Only 2 triangles are possible, BCG and BFG. X, U and Z are standing at these points.
Point 2, there is no one else in straight line of X.
Point 3, Y is on the straight line of U and W.
Point 4, Z and V are standing next to each other while U is also in the same row.
Point 5, W is in different row/column then of V and Z.
Point 6, d is empty.



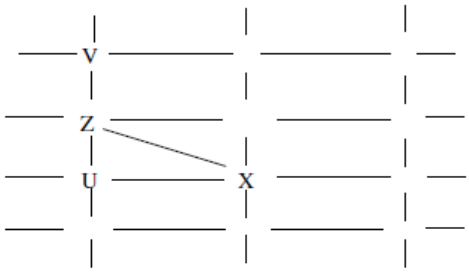
Following are the possible cases:

Case 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.

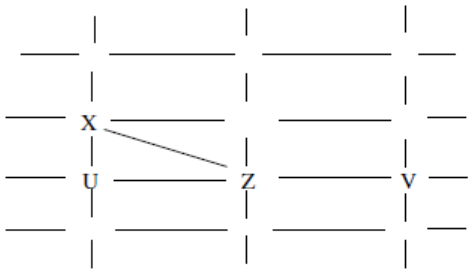
Case 2:



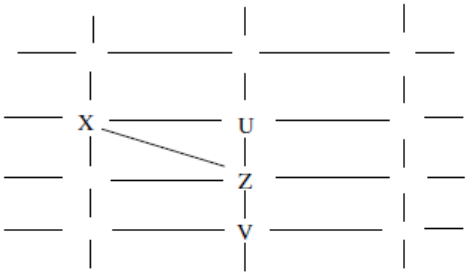
Y can only see U and W. Y cannot be placed anywhere. Hence this case is also rejected.

Case 3:

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

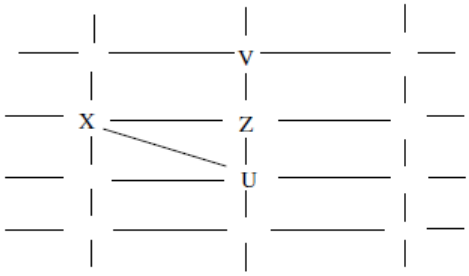


Case 4:

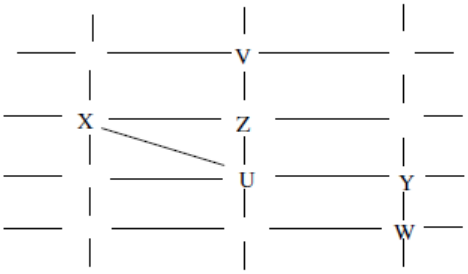


Here W cannot see V or Z and X cannot see W so W can only be placed at i. Y can see only U and W. Y can only be placed at j or e, where he can see more people than U and W. Hence this case is also rejected.

Case 5:



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



The above mentioned case is the only case possible.

The person standing at d can see X and W only.

QNo:- 55 ,Correct Answer:- A

Explanation:-

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
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	

In this, First thing that we can conclude is that those who played 1 round out of round 4, 5 and 6 must have scored one 5 in their first 3 shots. Similarly 2 and 3 can be concluded.
By this, Xyla must have scored 5 in each round. Tanzi scored a 5 in either round 1 or 3. Umeza must have scored 2 5's in 3

rounds. And so on.
Accordingly, we can also put a bracket of possible scores for each of them.
For example, Tanzi scored a 4 in round 2 and 5 in round 5 and also a 5 in either round 1 or 3. Hence Tanzi's total score out of these 3 round can be 14. In the remaining round, Tanzi could have scored 1-4 (not 5 because then round 5 would also be there).

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15-18
Umeza	-	-	-	1	2	NP	14-17
Wangdu	-	4	-	NP	NP	NP	6-12
Xyla	5	5	5	1	5	-	22-26
Yonita	-	-	3	5	NP	NP	14-17
Zeneca	-	-	-	5	5	NP	21-24

By point 1, Tanzi, Umeza and Yonita had same score. So possible scores for these 3 would be 15-17.
By point 2, only 1 player had scored a non 3x score. Combining this with point 1, we see that possible scores for the can only be 15 or else there will be 3 people with non 3x score.
By point 3, Highest is one more than double of lowest. As we see that highest possible score is 22-26, lowest can only be 11-12. If 11, highest would be 23 and if 12, highest would be 25.
As only one of these could have had a non 3x score, we can eliminate 11 and 23.
So Possible scores now are

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	-	-	1	2	NP	15
Wangdu	-	4	-	NP	NP	NP	12
Xyla	5	5	5	1	5	-	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

We can fill some of the scores as per total, in each round.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	-	-	1	2	NP	15
Wangdu	4	4	4	NP	NP	NP	12
Xyla	5	5	5	1	5	4	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

Tanzi: 5/1, Umeza: 5/5/2, Yonita: 5/2 and Zeneca: 5/5/(1/4)
By point 4, 5 in round 1 are double than round 3.
Now if there is only 1 bullseye in round 3. Umeza and Zeneca doesn't score 5 in round 3, then they must score 5 in round 2. This will make 5's in round 2 more than 2. So the case is invalid.

That means there must be 4 bullseyes in round 2.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	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	5	NP	21/24

By point 5, Tanzi and Zeneca had same score in round 1 but different in round 3.

So one of them must have scored a 5 in either round 1 or 3. This means there are 2 bullseye in round 3 and Umeza must have scored it in round 3 only.

Concluding from this,

	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

25

QNo:- 56 ,Correct Answer:- D

Explanation:- Of its nostalgic association with a pre-industrial past

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
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	

In this, First thing that we can conclude is that those who played 1 round out of round 4, 5 and 6 must have scored one 5 in their first 3 shots. Similarly 2 and 3 can be concluded.
By this, Xyla must have scored 5 in each round. Tanzi scored a 5 in either round 1 or 3. Umeza must have scored 2 5's in 3 rounds. And so on.
Accordingly, we can also put a bracket of possible scores for each of them.
For example, Tanzi scored a 4 in round 2 and 5 in round 5 and also a 5 in either round 1 or 3. Hence Tanzi's total score out of these 3 round can be 14. In the remaining round, Tanzi could have scored 1-4 (not 5 because then round 5 would also be there).

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15-18
Umeza	-	-	-	1	2	NP	14-17
Wangdu	-	4	-	NP	NP	NP	6-12
Xyla	5	5	5	1	5	-	22-26
Yonita	-	-	3	5	NP	NP	14-17
Zeneca	-	-	-	5	5	NP	21-24

By point 1, Tanzi, Umeza and Yonita had same score. So possible scores for these 3 would be 15-17.
By point 2, only 1 player had scored a non 3x score. Combining this with point 1, we see that possible scores for the can only be 15 or else there will be 3 people with non 3x score.
By point 3, Highest is one more than double of lowest. As we see that highest possible score is 22-26, lowest can only be 11-12. If 11, highest would be 23 and if 12, highest would be 25.
As only one of these could have had a non 3x score, we can eliminate 11 and 23.
So Possible scores now are

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	-	-	1	2	NP	15
Wangdu	-	4	-	NP	NP	NP	12
Xyla	5	5	5	1	5	-	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

We can fill some of the scores as per total, in each round.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	-	-	1	2	NP	15
Wangdu	4	4	4	NP	NP	NP	12
Xyla	5	5	5	1	5	4	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

Tanzi: 5/1, Umeza: 5/5/2, Yonita: 5/2 and Zeneca: 5/5/(1/4)
By point 4, 5 in round 1 are double than round 3.
Now if there is only 1 bullseye in round 3. Umeza and Zeneca doesn't score 5 in round 3, then they must score 5 in round 2. This will make 5's in round 2 more than 2. So the case is invalid.

That means there must be 4 bullseyes in round 2.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	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	5	NP	21/24

By point 5, Tanzi and Zeneca had same score in round 1 but different in round 3.

So one of them must have scored a 5 in either round 1 or 3. This means there are 2 bullseye in round 3 and Umeza must have scored it in round 3 only.

Concluding from this,

	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

24

QNo:- 57 ,Correct Answer:- B

Explanation:- Of its nostalgic association with a pre-industrial past

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
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	

In this, First thing that we can conclude is that those who played 1 round out of round 4, 5 and 6 must have scored one 5 in their first 3 shots. Similarly 2 and 3 can be concluded.
By this, Xyla must have scored 5 in each round. Tanzi scored a 5 in either round 1 or 3. Umeza must have scored 2 5's in 3 rounds. And so on.
Accordingly, we can also put a bracket of possible scores for each of them.
For example, Tanzi scored a 4 in round 2 and 5 in round 5 and also a 5 in either round 1 or 3. Hence Tanzi's total score out of these 3 round can be 14. In the remaining round, Tanzi could have scored 1-4 (not 5 because then round 5 would also be

there).

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15-18
Umeza	-	-	-	1	2	NP	14-17
Wangdu	-	4	-	NP	NP	NP	6-12
Xyla	5	5	5	1	5	-	22-26
Yonita	-	-	3	5	NP	NP	14-17
Zeneca	-	-	-	5	5	NP	21-24

By point 1, Tanzi, Umeza and Yonita had same score. So possible scores for these 3 would be 15-17.
By point 2, only 1 player had scored a non 3x score. Combining this with point 1, we see that possible scores for the can only be 15 or else there will be 3 people with non 3x score.
By point 3, Highest is one more than double of lowest. As we see that highest possible score is 22-26, lowest can only be 11-12. If 11, highest would be 23 and if 12, highest would be 25.
As only one of these could have had a non 3x score, we can eliminate 11 and 23.
So Possible scores now are

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	-	-	1	2	NP	15
Wangdu	-	4	-	NP	NP	NP	12
Xyla	5	5	5	1	5	-	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

We can fill some of the scores as per total, in each round.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	-	-	1	2	NP	15
Wangdu	4	4	4	NP	NP	NP	12
Xyla	5	5	5	1	5	4	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

Tanzi: 5/1, Umeza: 5/5/2, Yonita: 5/2 and Zeneca: 5/5/(1/4)
By point 4, 5 in round 1 are double than round 3.
Now if there is only 1 bullseye in round 3. Umeza and Zeneca doesn't score 5 in round 3, then they must score 5 in round 2. This will make 5's in round 2 more than 2. So the case is invalid.

That means there must be 4 bullseyes in round 2.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Tanzi	-	4	-	5	NP	NP	15
Umeza	-	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	5	NP	21/24

By point 5, Tanzi and Zeneca had same score in round 1 but different in round 3.

So one of them must have scored a 5 in either round 1 or 3. This means there are 2 bullseye in round 3 and Umeza must have scored it in round 3 only.

Concluding from this,

	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

Xyla was the highest scorer

QNo:- 58 ,Correct Answer:- C

Explanation:- Of its nostalgic association with a pre-industrial past

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
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	

In this, First thing that we can conclude is that those who played 1 round out of round 4, 5 and 6 must have scored one 5 in their first 3 shots. Similarly 2 and 3 can be concluded.
By this, Xyla must have scored 5 in each round. Tanzi scored a 5 in either round 1 or 3. Umeza must have scored 2 5's in 3 rounds. And so on.
Accordingly, we can also put a bracket of possible scores for each of them.
For example, Tanzi scored a 4 in round 2 and 5 in round 5 and also a 5 in either round 1 or 3. Hence Tanzi's total score out of these 3 round can be 14. In the remaining round, Tanzi could have scored 1-4 (not 5 because then round 5 would also be there).

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Umeza	-	-	-	1	2	NP	14-17
Wangdu	-	4	-	NP	NP	NP	6-12
Xyla	5	5	5	1	5	-	22-26
Yonita	-	-	3	5	NP	NP	14-17
Zeneca	-	-	-	5	5	NP	21-24

By point 1, Tanzi, Umeza and Yonita had same score. So possible scores for these 3 would be 15-17.
By point 2, only 1 player had scored a non 3x score. Combining this with point 1, we see that possible scores for the can only be 15 or else there will be 3 people with non 3x score.
By point 3, Highest is one more than double of lowest. As we see that highest possible score is 22-26, lowest can only be 11-12. If 11, highest would be 23 and if 12, highest would be 25.
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Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

We can fill some of the scores as per total, in each round.

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
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Umeza	-	-	-	1	2	NP	15
Wangdu	4	4	4	NP	NP	NP	12

Xyla	5	5	5	1	5	4	25
Yonita	-	-	3	5	NP	NP	15
Zeneca	-	-	-	5	5	NP	21/24

Tanzi: 5/1, Umeza: 5/5/2, Yonita: 5/2 and Zeneca: 5/5/(1/4)
By point 4, 5 in round 1 are double than round 3.
Now if there is only 1 bullseye in round 3. Umeza and Zeneca doesn't score 5 in round 3, then they must score 5 in round 2. This will make 5's in round 2 more than 2. So the case is invalid.

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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	5	NP	21/24

By point 5, Tanzi and Zeneca had same score in round 1 but different in round 3.

So one of them must have scored a 5 in either round 1 or 3. This means there are 2 bullseye in round 3 and Umeza must have scored it in round 3 only.

Concluding from this,

	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

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QNo:- 59 ,Correct Answer:- 5

Explanation:-

	IPC	SLL	Others	Total
Telengana	4	15	6	25
Puducherry	1		30	31
Kerala	8	15	12	35
Haryana	3	28	7	38
Maharashtra	15	35	6	56
Tamil Nadu	2	25	36	63
Goa	27	34	19	80
Karnataka	16	49	26	91
Delhi	64	36	45	145
West Bengal	0	520	0	520

So that is the rank of Kerala in the 'IPC crimes' category is 5.

QNo:- 60 ,Correct Answer:- C

Explanation:-

	IPC	SLL	Others	Total
Telengana	4	15	6	25
Puducherry	1		30	31

Kerala	8	15	12	35
Haryana	3	28	7	38
Maharashtra	15	35	6	56
Tamil Nadu	2	25	36	63
Goa	27	34	19	80
Karnataka	16	49	26	91
Delhi	64	36	45	145
West Bengal	0	520	0	520

The ratio of the total number of cases in IPC crimes to the total number in SLL crimes is in the two states where the highest total number of cases are registered =64:520+36=64:556=1:9

QNo:- 61 ,Correct Answer:- A

Explanation:-

	IPC	SLL	Others	Total
Telengana	4	15	6	25
Puducherry	1		30	31
Kerala	8	15	12	35
Haryana	3	28	7	38
Maharashtra	15	35	6	56
Tamil Nadu	2	25	36	63
Goa	27	34	19	80
Karnataka	16	49	26	91
Delhi	64	36	45	145
West Bengal	0	520	0	520

QNo:- 62 ,Correct Answer:- 5

Explanation:-

	IPC	SLL	Others	Total
Telengana	4	15	6	25
Puducherry	1		30	31
Kerala	8	15	12	35
Haryana	3	28	7	38
Maharashtra	15	35	6	56
Tamil Nadu	2	25	36	63
Goa	27	34	19	80
Karnataka	16	49	26	91
Delhi	64	36	45	145
West Bengal	0	520	0	520

Delhi's rank in IPC is 1
Delhi's Rank in SLL is 3 (consider West Bengal also as West Bengalis at rank 1)
Delhi's rank in OTHERS is 1
Sum of ranks = 5

QNo:- 63 ,Correct Answer:- C

Explanation:- Median scores will be the third score in ascending or descending order for any of the 6 aspects. Checking for above 4 aspects, we get median scores as
Quality =62
Reliability=54
Cost=78
Customer Service=50
Least score is for Customer service.

QNo:- 64 ,Correct Answer:- D

Explanation:-

	Cost	Customer Service	Features	Reach	Quality	Reliability	Total
Vender 1	77	55	40	80	72	52	376
Vender 2	82	42	45	58	69	40	336
Vender 3	90	50	55	62	62	75	394
Vender 4	72	70	90	45	40	26	343

Vender 3 has highest final score.

QNo:- 65 ,Correct Answer:- B

Explanation:- If we see the top 2 venders for each of the 6 aspects we will find our answer

	Top 2 Vendors
Cost	2,3
Customer Service	4,1
Features	4,5
Reach	1,5
Quality	1,2
Reliability	3,5

Vendor 1 and 5 comes for 3 times. Thus Vendor 1 and vendor 5 is our answer.

QNo:- 66 ,Correct Answer:- C

Explanation:- We will look for top 3 vendors in all aspects

	Top 3 Vendors
Cost	2,3,1
Customer Service	4,1,3
Features	4,5,3
Reach	1,5,3
Quality	1,2,3
Reliability	3,5,1

Vendor 3 comes for maximum number of time. Thus vendor 3 will be our answer.

Section : Quantitative Ability

QNo:- 67 ,Correct Answer:- 9

Explanation:- Total = 15 lakh
Let the amount invested in fixed deposit be = x at 6% SI
Remaining amount = 15-x... which was invested in 2:1 at rates 4% and 3% per annum.
So amount invested at 4% pa = 2/3 (15-x)
Amount invested at 3% pa = 1/3 (15-x)
Total interest after 1 year = 76000 = 0.76 lakh
So, $(x\times6\times1)/100 + [2/3(15-x)\times4\times1]/100 + [1/3(15-x)\times3\times1]/100 = 0.76$
x = 9 lakh
So 9 lakh will be the answer.

QNo:- 68 ,Correct Answer:- 880

Explanation:- A beat B by 11 and A beat C by 90m. That means B is already 79 m ahead of C. Now B will beat C by 80m and B is already 79m ahead so B will gain 1m lead in next 11m. So lead of 80m will be in the span of 80 × 11 = 880m

QNo:- 69 ,Correct Answer:- D

Explanation:- $5.55^x = 1000$
$5.55 = 1000^{1/x}$ ... eq1
$0.555^y = 1000$
$0.555 = 1000^{1/y}$... eq2
Dividing eq 1 and 2
$10 = 1000^{(1/x-1/y)}$
So $1/x - 1/y = 1/3$

QNo:- 70 ,Correct Answer:- C

Explanation:- Let the income of Bimala is Rs. 100. So income of Amala is Rs. 120 and that of Kamala is Rs. 150. In second case, the income of Bimala becomes Rs. 110 and that of Kamala, it becomes Rs. 144.

$$\text{Required \%age} = \frac{144-110}{110}\times 100 = \frac{34}{110}\times 100 = 30.9 \approx 31\%$$

QNo:- 71 ,Correct Answer:- 3

Explanation:- As f(x+y) = f(x) f(y)
Now f(1) = 2,
f(2) = f(1 + 1) = f(1) f(1) = 2 × 2 = 4
f(3) = f(2 + 1) = f(2) f(1) = 4 × 2 = 8
⇒ $f(x) = b^x$
Given that f(a+1) + f(a+2) + f(a+3) + ...+ f(a+n) = $16(2^n - 1)$
⇒ $2^{a+1} + 2^{a+2} + 2a^{+3} + ... + 2^{a+n} = 16(2^n - 1)$

$$\Rightarrow \frac{2^{a+1}(2^n-1)}{2-1} = 16(2^n-1)$$

⇒ $2^{a+1} = 16 = 2^4$ ⇒ a+ 1 = 4 ⇒ a = 3

QNo:- 72 ,Correct Answer:- 10

Explanation:- $We\ have\ f(n) = \begin{cases} n(n+1), if\ n\ is\ even. \\ n+3,\ if\ n\ is\ odd. \end{cases}$
Case I: If 'm' is odd :- m + 1 is even
∴ 8 f(m+1) - f(m) = 2
⇒ 8 (m+1) (m+2) - (m + 3) = 2
⇒ $8(m^2 + 3m + 2) - m - 5 = 0$
⇒ $8m^2 + 24m + 16 - m - 5 = 0$
⇒ $8m^2 + 23m + 11 = 0$
Its discriminant = $(23)^2 - 4 \times 8 \times 11 = 529 - 352 = 177$
As the discriminant is not a perfect square, so we will not get integral values of 'm'.
Case II: If 'm' is even :- m +1 is odd
∴ 8 f(m+1) - f(m) = 2
⇒ 8(m+4) - m(m+1) = 2
⇒ $8m + 32 - m^2 - m = 2$
⇒ $m^2 - 7m - 30 = 0$
⇒ (m -10) (m+3) = 0
⇒ m = 10, -3
A 'm' is +ve integer ⇒ m = 10

QNo:- 73 ,Correct Answer:- 20

Explanation:- Let the boys are x. So girls are x + 30
Total students = 2x + 30
Given that (2x + 30) × 0.6 = x + 30
⇒ 1.2x + 18 = x + 30
⇒ 0.2x = 12 ⇒ x = 60
∴ Boys = 60 and girls = 90
∴ Total students = 150
Students who passed the exam = 68% of 150 = 102
∴ Girls passed the exam = 102 - 30 = 72
∴ Girls who failed = 90 - 72 = 18
$\therefore \text{Required percentage} = \frac{18}{90} \times 100 = 20\%$

QNo:- 74 ,Correct Answer:- 6144

Explanation:- $a_1 = 6$
$a_1 + a_2 = 18$
$a_2 = 12$
$a_1 + a_2 + a_3 = 42$
$a_3 = 24$
$a_1 + a_2 + a_3 + a_4 = 90$
$a_4 = 48$
So $a_1, a_2, a_3, a_4 \ldots a_n$ are in GP with ratio 2.
So $a_{11} = 6\ (2^{10}) = 6(1024) = 6144$

QNo:- 75 ,Correct Answer:- A

Explanation:- Suppose first car starts 10:00 and it travelled for 6 hour. Assume speed of car 1 is 10km/h. So in 6 hour it travelled 60km.
Now car B will travel same distance in 5 hour so speeed of car B = 60/5 = 12 km/hr
Percentage change = 2/10 × 100 = 20%

Now if we take 7 hours instead of 6 hours, then the distance travelled by first car = 70 km
This is the distance travelled by the second car in 6 hours.
Speed of second car = 70/6 = 11.67 km/hr
Percentage change = 1.67×100/10 = 16.7%

So percentage change is less than 20%.

So at max it can be 20%

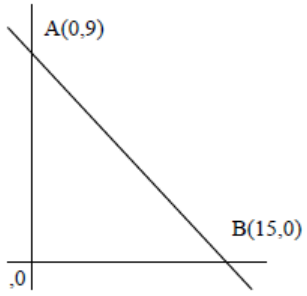
QNo:- 76 ,Correct Answer:- 5

Explanation:- Case I: If x ≥ 0 ⇒ |x| = x.
$\therefore |x|\ (6x^2 + 1) = 5x^2$
$\Rightarrow x(6x^2 + 1) = 5x^2$
$\Rightarrow x(6x^2 - 5x + 1) = 0$
$\Rightarrow x(3x-1)\ (2x-1) = 0$
$\Rightarrow x = 0, \frac{1}{3}, \frac{1}{2}$
Case II: if x < 0 ⇒ |x| = -x
$\therefore |x|\ (6x^2 + 1) = 5x^2$
$\Rightarrow -x(6x^2 + 1) = 5x^2$
$\Rightarrow x(6x^2 + 5x + 1) = 0$

$\Rightarrow (6x^2 + 5x + 1) = 0$ [$\because x < 0$]
$\Rightarrow (3x + 1)(2x + 1) = 0$
$x = \frac{-1}{3}, \frac{-1}{2}$
$\therefore$ total 5 solution are possible

QNo:- 77 ,Correct Answer:- 9

Explanation:- Plotting the equation of given line, $3x + 5y - 45 = 0$
At $x = 0$, $y = 9$ and at $y = 0$, $x = 15$



=> A (0, 9) and B (15, 0) are points lying on coordinate axes where the line cuts the coordinate axes
Length of the hypotenuse AB = $\sqrt{(15^2 + 9^2)} \approx 17.5$
Hence, Circumradius = 1/2 × hypotenuse (AB)
= 1/2 × 17.5 = 8.75 ≈ 9

QNo:- 78 ,Correct Answer:- A

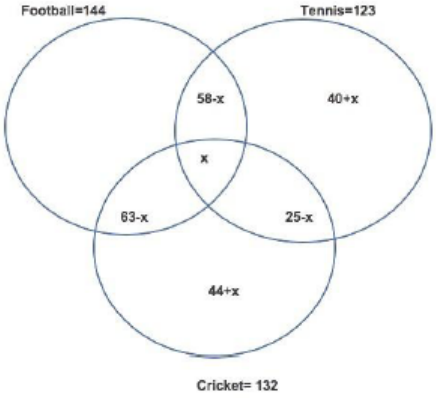
Explanation:- Let a, b and c be the three sides.
So, $a^2 + b^2 = 9$ ..... (1)
$b^2 + c^2 = 12$ ..... (2)
$c^2 + a^2 = 15$ .....(3)
adding above three equations
we have, $2a^2 + 2b^2 + 2c^2 = 36$
$a^2 + b^2 + c^2 = 18$ ..... (4)
from (1) and (4)
So, $c^2 = 9$, $c = 3$
from (2) and (4)
$a = \sqrt{6}$
from (3) and (4)
$b = \sqrt{3}$
So, ratio of shortest to longest = $1 : \sqrt{3}$

QNo:- 79 ,Correct Answer:- B

Explanation:- Given
$\log_5 (x + y) + \log_5 (x - y) = 3$ and
$\log_2 y - \log_2 x = 1 - \log_2 3$.
$\text{Log}_5 (x + y) + \log_5 (x - y) = \log_5 (x^2 - y^2) = 3$
$\Rightarrow x^2 - y^2 = 5^3$ .....(1)
$\log_2 y - \log_2 x = 1 - \log_2 3$
$\log_2 (y/x) = \log_2 2 - \log_2 3$
$\log_2 (y/x) = \log_2 2/3$
$y/x = 2/3$
$x = 3y/2$ ..... putting this in eq (1)
$9y^2/4 - y^2 = 125$
$y^2 = 100$
$y = 10$

x = 15
xy = 150

QNo:- 80 ,Correct Answer:- B



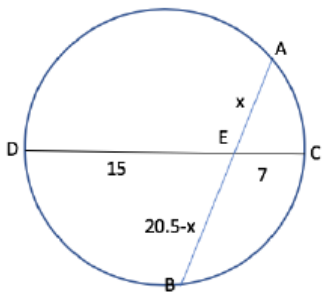
Explanation:-

Total 144 + 109 + x = 256
x = 3
So, only tennis = 40 + x = 43

QNo:- 81 ,Correct Answer:- A

Explanation:- Here xy = 616
Also, $(x^3 – y^3)/(x-y)^3$ = 157/3
Now, $x^3 – y^3$= (x-y) $(x^2 + y^2 + xy)$
So, $(x^2 + y^2 + xy)/(x^2 + y^2 – 2xy)$ = 157/3
Let, $x^2 + y^2 = t$
So, (t + 616)/(t-1232) = 157/3
t = 1268
$x^2 + y^2$ = 1268
$(x + y)^2 – 2xy$ = 1268
$(x + y)^2 - 2 \times 616$ = 1268
$(x + y)^2$ = 2500
x + y = 50

QNo:- 82 ,Correct Answer:- D



Explanation:-

When two chords intersect inside a circle then AE×BE = CE × DE
So x (20.5-x) = 15 × 7
So x = 10.5
So AE = 10.5
BE = 10
Difference in lengths = 0.5

QNo:- 83 ,Correct Answer:- 13

Explanation:- It is given that $(3M + 8M_C) \times x = (8M + 3M_C) \times 2x$

$\Rightarrow 3M + 8M_C = 16M + 6M_C$

$\Rightarrow 13M = 2M_C$

$\Rightarrow 1\ M_C = \frac{13}{2} \text{Men}$

2 Machines can do the work in 13 days

⇒ 1 Machine can do it in 26 days

So 13/2 Men can do the work in 26 days

⇒ 13 Men can do it in 13 days

QNo:- 84 ,Correct Answer:- A

Explanation:- Let money invested be in ratio 300x:400x:500x

Bina's interest income = 400x× 5 × 1/100

Amala's interest income = 300x × 6 × 1/100

Difference = 2x = 250

=> x = 125

Total interest income = 20x + 18x + 20x = 58x = 58 × 125 = 7250

QNo:- 85 ,Correct Answer:- D

Explanation:- We have $|x^2 - x - 6| = x+ 2 \Rightarrow x^2 - x - 6 = \pm (x + 2)$

Case I: If $x^2 - x - 6 = x + 2 \Rightarrow x^2 - 2x - 8 = 0$

$\Rightarrow (x - 4) (x + 2) = 0 \Rightarrow x = 4, -2$

Case II: If $x^2 - x - 6 = - (x+2)$

$\Rightarrow x^2 - x - 6 = -x-2$

$\Rightarrow x^2 = 4 \Rightarrow x = 2, -2$

∴ Product of distinct roots = 4 × 2 × (-2) = -16

QNo:- 86 ,Correct Answer:- D

Explanation:- Since in LHS we have cosθ whose value lies from – 1 to 1

So LHS can have value from – 2 to 2

RHS will always be ≥ 2

Since $2^x + 2^{-x} = (2^x) + (1/2^x)$ and we know that sum of a number and its reciprocal is always greater than or equal to 2 if is real using AM ≥ GM

So they intersect only once at x = 0 when value of LHS and RHS is 2

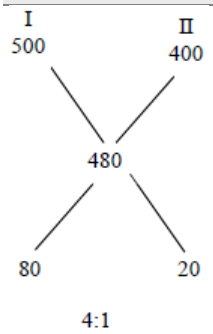
QNo:- 87 ,Correct Answer:- A

Explanation:- One litre of liquid 1 weight 1 kg.

⇒ Half litre of liquid 1 weighs 500 gm

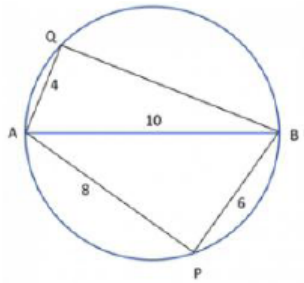
Similarly half litre of liquid 2 weighs 400 gm

Using the rule of alligation



∴ Ratio of liquid 1 and liquid 2 is 4:1
∴ liquid 1 is 4/5× 100 = 80% of the mixture

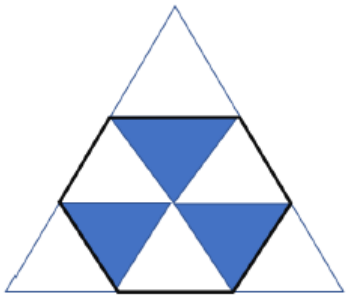
QNo:- 88 ,Correct Answer:- C



Explanation:-
Here ∠AQB = ∠APB= 90°
Since angle is a semicircle is 90°
now as AB = 10 and PB = 6 so AP = 8 therefore AQ = 4 (as the length of AP is twice that of AQ.)
So $AQ^2 + QB^2 = AB^2$
$100 = 16 + QB^2$
$QB = (84)^{1/2}$ = 9.1 approx.

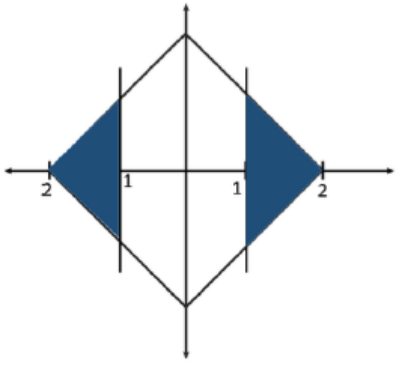
QNo:- 89 ,Correct Answer:- B

Explanation:-



We can see that the equilateral triangle is made up of 9 equal triangles
Hexagon is made up of 6 equal triangles of same size
So ratio of areas = 6/9 = 2/3

QNo:- 90 ,Correct Answer:- 2



Explanation:-
Here we have required area shaded in blue where we have 4 triangle having height = 1 and base = 1
So total area = 4 × (1/2 × 1 × 1) = 2 units

QNo:- 91 ,Correct Answer:- D

Explanation:- Let the score of Gautam = x
∴ Total score = 21 ×62 + x = 1302 +x ..... (1)
Let the average of 21 students other than Ramesh is y
∴ 21y + 82.5 = 22(y+1)
⇒ 21y + 82.5 = 22y + 22
⇒ y = 60.5
∴ Total score = 22× 61.5 = 1353 ..... (2)
(1) & (2) ⇒ 1302 + x = 1353 ⇒ x = 51

QNo:- 92 ,Correct Answer:- D

Explanation:-
Taking n = 3 and assuming $a_1 = 1$, $a_2 = 2$, $a_3 = 3$, $a_4 = 4$

$$\frac{1}{\sqrt{1}+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{4}}$$

Rationalizing the denominator of all term, we got

$$\frac{1}{\sqrt{2}+\sqrt{1}}\times\frac{\sqrt{2}-\sqrt{1}}{\sqrt{2}-\sqrt{1}}+\frac{1}{\sqrt{3}+\sqrt{2}}\times\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}+\frac{1}{\sqrt{4}+\sqrt{3}}\times\frac{\sqrt{4}-\sqrt{3}}{\sqrt{4}-\sqrt{3}}$$

$$\Rightarrow\frac{\sqrt{2}-\sqrt{1}}{1}+\frac{\sqrt{3}-\sqrt{2}}{1}+\frac{\sqrt{4}-\sqrt{3}}{1}\Rightarrow\sqrt{2}-\sqrt{1}+\sqrt{3}-\sqrt{2}+\sqrt{4}-\sqrt{3}$$

$$\Rightarrow\sqrt{4}-\sqrt{1}=2-1=1$$

Now, using option

In option (4) $\frac{3}{\sqrt{1}+\sqrt{4}}\Rightarrow\frac{3}{3}=1$

So only option (4) satisfies

QNo:- 93 ,Correct Answer:- C

Explanation:- Let A can do 2x units per day and B can do y units per day
As per the question
12(2x+y) = 9(x + 3y)
⇒ 24x + 12y = 9x + 27y
⇒ 15x = 15y ⇒ x = y
Let x= y = 1, so A will do 2 units/day and B will don 1 units/day
∴ Total work = 12 (2+1) = 36 units
∴ A alone will do it in 36/2 = 18 days

QNo:- 94 ,Correct Answer:- A

Explanation:- Let total distance = 60km

So, Bimal will travel 1/3rd of total distance for each given speed
That means with the speed of 10 he will travel for 20 km = 2 hour
And with the speed of 20 km/h he will travel for 20 km = 1 hour
And with the speed of 30 km he will travel for 20 km = 2/3 hour
So, total time = 3hour 40 min = 220 min
Now, for Amal 1/3rd of total travel time means with the speed 20 it will travel for 1 hour, with the speed of 10 he will travel for 1 hour and with the speed of 30 it will travel of 1 hour.
So, total 3 hour = 180 min

$$\text{So, } \frac{40}{180} \times 100 = 22.22\% = 22\%$$

QNo:- 95 ,Correct Answer:- D

Explanation:- Let total marks be x
Meena score 0.4x
After review marks are increased by 50%
So new marks = 0.4x × 1.5 = 0.6x
But she still fails by 35 marks
So passing mark = 0.6x + 35
Now if this post review score is increased by 20%
So it becomes 1.2 × 0.6x, she gets 7 marks more than passing marks
That means passing marks = 1.2 × 0.6x – 7 = 0.72x – 7
Equating passing marks in both the cases
0.6x + 35 = 0.72x – 7
0.12x = 42
X = 350
So passing marks = 350 × 0.6 + 35 = 245
So percentage marks required to pass = 245/350 × 100 = 70%

QNo:- 96 ,Correct Answer:- B

Explanation:- Let CP of Pen = x
and CP of book =y
ATQ
0.95x + 1.15y = x + y + 7
-0.05x + 0.15y = 7 ------(1)
and
1.05x + 1.10y = x + y + 13
0.05x + 0.1y = 13 ------(2)
Adding (1) and (2)
We get 0.25y = 20
So, y = 80

QNo:- 97 ,Correct Answer:- A

Explanation:- A travel 2πr = 60π
B travel 2πr = 80π
So LCM = 240π
That means A travel for 4 revolution and B travel for 3 revolution.
We need gap of 5000 revolution
So B will travel 5000 × 240π cm distance in 45 min
So speed = 5000 × 240π / 45cm / min
To convert cm into km
1 km = 1000m and 1 m = 100cm
So, 1 km = 100000cm,
So 1cm = 10^{-5}km
And 60 min = 1 hour

$$\text{So, speed} = 5000\times 240\pi\frac{60}{45}\times\frac{1}{100000} = 16\pi$$

QNo:- 98 ,Correct Answer:- 3920

Explanation:- We want to go to (1, 1) to (8, 10) through (4, 6)
So, first we will go to (1, 1) to (4, 6) and then (4, 6) to (8, 10)

$$\text{So from (1, 1) to (4, 6) we have } 5 + 3 = 8 \text{ ways} = \frac{8!}{5!3!} = 56$$

And from (4, 6) to (8, 10) we have 4 + 4 = 8 ways

$$\text{So, } \frac{8!}{4!4!} = 70$$

So, total 56 × 70 = 3920 ways

QNo:- 99 ,Correct Answer:- D

Explanation:- $2^{(19/2+4+3n)}\times 3^{(4+2m)} = 2^{(3/2+4m)}\times 3^{(n)}$
Comparing powers of 2 and 3 in LHS and RHS
3n + 12 = 4m
4m – 3n = 12
And
4+2m = n
2m – n= - 4
Solving both
n = - 20 and m = - 12

QNo:- 100 ,Correct Answer:- A

Explanation:- Population in 2019 = 1000
Population in 2020 = 1000× 2 +3 = 2003 = (1003) × 2-3
Population in 2021 = 2 × 2003 + 3 = 4009 = 4 × (1003) - 3 = 2^2 (1003) - 3
Population in 2022 = 2(4009) + 3 = 8021 = 8(1003) - 3 = 2^3 (1003) -3
∴ we can see that population in 2034 is 2^{15} (1003) - 3

Actual CAT 2019 Slot II (Answer Keys)

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- C

Explanation:- option 1 can be inferred from lines " 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"
option 2 and 4 can be inferred from "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."

option 3 is true for British Modernity while the question is about British colonialism. Hence option 3 is the correct answer here to the 'except' ques

QNo:- 2 ,Correct Answer:- D

Explanation:- The colonial enterprise was a costly one is incorrect
The cost of colonial state's eminence was not settled or colonial state was 'unsettled/in doubt' are also not implied
The statement talks about the colonial state could not settle simply for eminence at the cost of its marginality. option 4 captures the essence of the statement

QNo:- 3 ,Correct Answer:- A

Explanation:- The passage start with policy refer lines "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" and is followed by enlightenment refer lines
" 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."

Option 3 is incorrect because of multiple phrases most clear of which is 'arrogance' Enlightenment would have been better

Option 4 is clearly incorrect because of use of word 'arrogant rationality'. The rationality wasn't arrogant rather
".... Enlightenment rationalism, entering India precisely at the moment of its greatest unchecked arrogance"

QNo:- 4 ,Correct Answer:- A

Explanation:- refer to lines

"*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*" and

"*Theoretically, because modernity was externally introduced, it is explanatorily unhelpful to apply the logical format of the 'transition process' to this pattern of change*"

Option 4 is completely incorrect as endogenous and endogamous are 2 very different things

QNo:- 5 ,Correct Answer:- D

Explanation:- the change in British colonial policy was induced by resistance to modernity in Indian society goes against the passage
Refer following lines which talk about why modernity was introduced in India "*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.*"
There was resistance to modernity undoubtedly but that resistance induced change in british colonial policy is incorrect.

Option 1 is in consonance with following lines from para2 "*historians have forcefully argued that what it was to replace was not like feudalism*"

Option 2 is in consonance with last line of passage "*What happened was the creation of a degenerate version of capitalism —*

what early dependency theorists called the 'development of underdevelopment'."

Option 3 can be inferred from following lines of para 1 "*considered the colonies a massive laboratory of utilitarian or other theoretical experiments.*"

QNo:- 6 ,Correct Answer:- A

Explanation:-
The main idea that the author expressed over here is that Language is sufficient to bridge cultural barriers. Hence option A is the correct option which states a conflicting point with the main point as discussed by author in the passage. Or we can say this would be the major point by the author's crtitics.

Nothing has been mentioned about linguistic politics so option B is out of the context.

Option C can be inferred from the passage and hence is in consonance with the main idea of the author. Refer to the line" An individual who wrestles with a difficult language can learn to be more ...."

Option D is also irrelevant as author wasn't an Egyptian, so critics gain nothing from this specific point. Refer lines
"I had also experienced Egypt and Arabic as an outsider."
"What exactly is the dynamic when a man from Missouri ....?"

QNo:- 7 ,Correct Answer:- D

Explanation:- Option A is incorrect as nothing has been mentioned thrroughout the passage about hiring translator rather it is going against the viewpoint of the author. Refer lines "*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.*"

option B and C are incorrect. Refering to the 3rd para *in para 4 "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? "*
in para 3 " *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.*"

Option D is the correct option .Refer to the points he mentioned about the chinese dealers as well as his own real experiences with the chinese and Egyptian people. Refer lines
in para 4 "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? "
in para 3 " *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.*"
"*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.*"

QNo:- 8 ,Correct Answer:- C

Explanation:- Option C talks only about language and unlike other options, doesn't talk about people or impact of language on people. hence the correct option here

Option A can be inferred from the line"after all you can always learn....".so this option is incorrect.
Option B can be inferred from the line "you are what you speak....your gender". So this option is incorrect.
Option D can be inferred from the line" This learning process—the embarrassments, the frustrations, the gradual sense of understanding and connection—is invariably transformative."
Only option C cannot be inferred from the given passage as author has not mentioned anything about the inherent ability of language to evolve over time to change a person hence,this is the right answer.

QNo:- 9 ,Correct Answer:- D

Explanation:- Referring to the last and penultimate paragraph it is clear that the author is of the opinion that learning new languages actually bridges the gap between different cultures. Refer lines "".
in para 4 "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? "
in para 3 " *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*."
So,option D is the right option.

Moreover, nothing has been mentioned about goodwill or Orientalism has disappeared

Option 3 is incorrect by virtue of being too generic. Author talks mainly from POV of language.

QNo:- 10 ,Correct Answer:- C

Explanation:- All the given options are valid arguments to be used by companies that digitally scan cultural sites *except* 'It allows a large corporation to project itself as a protector of culture'. This option shows arrogant and supercilious behavior of the corporation claiming to be ***protector*** *of culture.* One can only be the ***promoter*** *of culture.*
So it is the least likely argument to be used by corporations involved in the digital scanning of cultural sites.

QNo:- 11 ,Correct Answer:- C

Explanation:- The term 'digital colonialism' finds mention in the opening lines of the passage and how critics of the CyArk–Google project describe it is given in the line,'*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*'. It clearly means that countries where the scanned sites are located do not own the scan copyrights.
Options 2 and 4 do not find mention in the passage hence eliminated.
Option 1 is ambiguous wrt which details aren't shared. Undoubtedly, countries don't own copyrights but wrt details refer following lines of last para and para 4 respectively
"*The company says it works closely with authorities during the process, even training local people to help.* "
"[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."

QNo:- 12 ,Correct Answer:- B

Explanation:- Refer to the lines,'*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. . . .*'
This gives us an idea that *Watrall doesn't has any objection if the digitally scanned pictures belong on the site of a museum or educational institution* and his opinion gets invalidated if the option **CyArk uploads its scanned images of archaeological sites onto museum websites** stands true.
Just taking down advertisements by Google to promote itself would not invalidate Watrall's claim.
Any ban on CyArk scanning archeological sites located in other countries would certainly not prevent promotion by Google.
CyArk does not own the copyright on scanned images of archaeological sites would not prevent using it for commercial purposes.

QNo:- 13 ,Correct Answer:- A

Explanation:- Refer line in the last paragraph,'it's the latest example of a Western nation appropriating a foreign culture, a centuries-long battle'. This line clearly helps us to understand that Erin Thompson blames CyArk of misappropriating foreign culture.
Seizing means to snatch or to have or to receive possession of something
So Dr. Thompson's view of CyArk owning the copyright of its digital scans of archaeological sites is akin to only one option

i.e. the seizing of ancient Egyptian artefacts by a Western museum.

Illegal downloading of content from the internet does not make one the owner of it.
Digital platforms capturing users' data for market research is not bringing the relationship asked.
Tourists uploading photos of monuments onto social media is not same as being the owner of it.

QNo:- 14 ,Correct Answer:- D

Explanation:- By reading views of Ethan Watrall in 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. . . ."*
Option 4 Critical about the links between a non-profit (alluding to CyArk) and a commercial tech platform(alluding to Google) for distributing archaeological images properly characterise the views of Watrall mentioned in the passage.

Option 1 Though Google's traffic would increase as a result of this project but it is nowhere mentioned that both Google and CyArk are using the images as a marketing tool hence rejected.

option 2 Dismissive of laypeople's access to specialist images of archaeological and cultural sites is not mentioned.

Option 3 Watrall is against the intention and not technology itself, so opposed to the use of digital technology in archaeological and cultural sites in developing countries is eliminated.

QNo:- 15 ,Correct Answer:- A

Explanation:- Refer the lines in 2nd paragraph,
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."*

The term"still jars" means something that is against or what disturbs most of the people.
So the answer option should be one which is opposite to the views of Calthorpe because views of people and Calthorpe do not match and the option is ***people do not consider cities to be eco-friendly places.***

Options 2 and 3 don't talk about environment so rejected.

Another option, option4, which is close is people consider cities to be very crowded and polluted which is half true i.e. only about pollution (nothing about crowded cities) is mentioned, so eliminated.

QNo:- 16 ,Correct Answer:- B

Explanation:- In this question we have to find the odd one i.e. the option which cannot be considered as reason to cities are good places to live in for all .
Offer employment opportunities is mentioned in the 2nd paragraph, so it can be inferred from the passage and hence rejected.

Help prevent destruction of the environment can be inferred from second last paragraph ([*T]he nationally subsidised city of Manaus in northern Brazil "answers the question" of how to stop deforestation*) and therefore eliminated.

Contribute to the cultural transformation of residents can be properly inferred from last paragraph and hence eliminated.

It seems that the option ***have suburban areas as well as office areas*** can also be inferred from last portion of the passage *but* it is not the reason author mentions to consider cities as good places to live. So it is the right answer.

QNo:- 17 ,Correct Answer:- C

Explanation:- Refer to the second last paragraph of the passage where the term **Manaus** has been mentioned .
From the paragraph lines we understand that Manaus were the community of people involved in deforestation have changed (by stopping deforestation) and prospered by making mobile phones and televisions.
Hence the reason for giving example of Manaus was to ***explain how urban areas help the environment***

To explain where cities source their labour for factories is not mentioned in the passage.

To describe the infrastructure efficiencies of living in a city is the positive aspect of being in a city and not the reason for citing example of Manaus

To promote cities as employment hubs for people is another positive aspect of being in a city and not the reason for citing example of Manaus

QNo:- 18 ,Correct Answer:- C

Explanation:- In this question we have to select the option which will not fit as an adequate reason for squatter cities being environment friendly.
All the mentioned options would help keep the squatter cities environment friendly(i.e. sorting out garbage, recycling the material and energy efficient transportation) except ***keeping the streets clean*** which is least related to environment.
Also because this would possible mean that somewhere the waste has to be dumped which means a negative impact on the surrounding environment.

QNo:- 19 ,Correct Answer:- B

Explanation:- It is a critical reasoning based question wherein we have to weaken the author's argument regarding the greenness of the cities.

The options concerning the increase in the incidence of crime and increase in the cost of utilities would be easily eliminated because the context of argument is greenness and not crime or cost of utilities.

Similarly rapid spread of diseases in slum areas is also eliminated on the ground that the diseases would impact the population i.e. persons residing in those slums; it is nowhere connected to the greenness of the city.

We are left with only one option and it is a valid point that weakens the author's argument regarding the greenness of city because ***increase in the level of carbon-di-oxide and global warming would definitely impact*** the verdancy in a negative manner.

QNo:- 20 ,Correct Answer:- D

Explanation:- The first line of the fourth paragraph mentions "long pedigree". The following line talks of how it has already been tried in the past in Britain. So, "is not a new idea and has been tried in the past" is the answer.

QNo:- 21 ,Correct Answer:- A

Explanation:- The option "high staff losses, as people may not be prepared to move to smaller towns" is referred to as a reason for why relocating government agencies has not always been a success in the last line of the fourth paragraph.
Similarly, the option "the difficulty of attracting talented, well-skilled people in more remote areas" is referred to as a reason in the penultimate paragraph in the lines " Pick small, poor towns, and areas of high unemployment get new jobs, but it is

hard to attract the
most qualified workers".
And the option " increased avenues of corruption away from the capital city" is referred to as a reason in the last paragraph.
The option " a rise in pollution levels and congestion in the new locations" is not mentioned anywhere and hence is the answer

QNo:- 22 ,Correct Answer:- A

Explanation:- The penultimate paragraph
"*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. . . .*"
helps us identify " relocating government agencies to boost growth in remote areas with poor amenities or to relatively larger cities with good amenities." as the answer.
Option 4 "**keeping** government agencies in the **largest** city with good infrastructure **or moving them** to a remote area with few amenities." is incorrect as penultimate para talks about which ones to relocate to. **Keeping** govt agencies in largest city isn't one of the 2 options discussed in the para

QNo:- 23 ,Correct Answer:- D

Explanation:- Refer to the second paragraph of the passage. The lines " Wonks in the sticks will be inspired by new ideas that walled-off capitals cannot
conjure up." imply that the people who support decentralising central government functions are likely to agree with the option " Policy makers may benefit from fresh thinking in a new environment".
Similarly, the lines "Autonomous regulators perform best far from the pressure and lobbying of the big city." imply the agreement with the option " More independence could be enjoyed by regulatory bodies located away from political centres".
For the agreement with the option " It reduces expenses as infrastructure costs and salaries are lower in smaller cities", refer to the second half of the fourth paragraph.
The option " It could weaken the nexus between bureaucrats and media in the capital" is not mentioned and hence should be the most appropriate answer.

QNo:- 24 ,Correct Answer:- B

Explanation:- The second line of the passage determines " to promote their trading interests" as the answer.

QNo:- 25 ,Correct Answer:- 4132

Explanation:- The opener in this case will be 4 as it introduces the idea of representation of 'clock - time ' with respect to 'time is money' perspective'.After this 1 as there is clear link 'this representation'.
3 is explaining that actually caring time is often more focussed on clock though clock time has been seen as a masculine artefact. Hence 3 questions stts concept of clock time as masculine artefact.
2 concludes and answers the question being raised in 3

QNo:- 26 ,Correct Answer:- 3421

Explanation:- The opening sentence is 3 as it introduces the topic of the discussion i.e.' balance of nature' and its perception as per the author.After this 4 will come as it defines this 'balance of nature as 'telelogy'. After this 2 will come as 'parts' in 4 can be linked clearly with 'parts' in 2. 1 will conclude the sequence.

QNo:- 27 ,Correct Answer:- 2143

Explanation:- Sentence 2 is an opener as it clearly defines and introduces 'atonality'.
1 & 4 form a mandatory pair as 4 is in contrast with 1.

'your tune may change' in 3 implies that your opinion may change. so the opinion i.e stt 1 has to come before 3 though not necessarily immediately precede it. hence 143 The sequence is concluded by 3.

QNo:- 28 ,Correct Answer:- D

Explanation:- The passage says that the language evolved over a period of time , and it is a complex process based on features of cognition suc as memory. This has been best captured by option 4. Option 1 misses the cognition and role of the memory. Option 2 is partial in terms of summarizing the passage. Option 3 touches that this feature is seen only in humans and not in other species.

QNo:- 29 ,Correct Answer:- 1

Explanation:- After reading all the sentences , a clear pair that emerges is 2-5
2-5 'speaking about yourself in the third person' is the change being talked about in 5 'this small change'
'It' in 2 refers to 'research' in 3 Hence 3-2-5
3 talks about rumination which is introduced in 4 Hence 4325

we find that context is about ways of self realization' and it says that ' Simple rumination' is not the way to achieve it. Then 3 describes the drawback of this process. 'It' in 2 refers to 'research' in 3 Hence 3-2 After this 5 highlights the benefit of 'ancient method i.e. ''illeism' . The sequence of these four sentences is 4325. 1 is odd one out.

QNo:- 30 ,Correct Answer:- C

Explanation:- The passage mentions that social movement organizations struggle to achieve critical mass. Also, that the organizations with hybrid identities are able are able to mobilize individuals with different points of view. To state this point, the author gives example of individuals with past involvement in non-anti-war movements and those related to the antiwar movement are likely to join hybrid organizations. Hence, "Organizations with hybrid identities are able to mobilize individuals with different points of view" captures the essence of the passage the best out of the given options and should be the answer. The other three options talk only of a part of the passage and hence cannot be a better summary.

QNo:- 31 ,Correct Answer:- 2

Explanation:- After reading all the sentences , it is seen that context is about 'inference occurs in many single panel comics.' So the opening sentence of the discussion is 1. 'inferences' in 1 can be linked with ' requires you to imagine'.
5 further tells 'how it goes'. stts 3 and 5 both talk about the panel being shown. As funniest not has been shown so to get the joke 'you actually have to figure out' something regarding the missing panel(s). The plural panels being talked about in 4 '**These"** are introduced in their plural form in 5 **"a series of panels"**
The sequence becomes '1354' and sentence 2 is misfit here as it doesn't fit in the para
;

QNo:- 32 ,Correct Answer:- 2431

Explanation:- After reading all the sentences, we find that topic of the discussion is on 'Adaptive behaviour' and on what factors does it depend'. So sentence 2 has to be the opener. The word 'equivalent' in 2 can be linked with same word in 4.
How we cognitively economize(Stt 2) is by categorizing(Stt4) How this 'categorization' is percieved is highlighted by 3.
The information is not arbitary(Stt3) because Living things typically exhibit correlational structure(stt1).. Hence the sequence is 2431.
In the source article, stt pairs 24 and 31 are from different paras though the paras are in continuity

QNo:- 33 ,Correct Answer:- A

Explanation:- The passage highlights following points:
1. 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.
2. Modernist architects saw walls and rooms as downright fascist.
3. 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 essence has been well captured by option 1.

Option 2 is incorrect as nowhere does the author opine that Wall-free office spaces **could have worked out the way** their utopian inventors intended

Option 3 is incorrect as it's not stated that companies don't believe in democratic ideology which the designers believed in, rather what mattered more to companies was cost cutting which open-planned offices allowed for.

Option 4 is incorrect as cubicles have been talked about in line 1 of para 2, so cubicles weren't a soln which the option represents them as

QNo:- 34 ,Correct Answer:- 2

Explanation:- After reading all the sentences , we find that context is about plastic pollution in seas and how it is dangerous for marine creatures. The opening sentence is therefore 4. After this 1 will come as it tells 'why it is problematic'. 5 further explains it and 3 is the extension of 5. The coherent sequence thus become 4153. 2 is odd one out as it tells the 'numerical proportion of ocean plastic falls' , which is not discussed in other sentences.

Section : DI & Reasoning

QNo:- 35 ,Correct Answer:- 25

Explanation:- The information in the given triangles is summarized in following table:

		Revenue				Cost		
	Year	Electronic	Clothing	Produce		Electronic	Clothing	Produce
	2016	50%	20%	30%		30%	30%	40%
	2017	30%	30%	40%		40%	30%	30%
	2018	20%	40%	40%		30%	20%	50%

As Profit is computed as (Revenue – Cost) and Percentage Profit as Profit/Cost
It is known that
1. The percentage profit for the store in 2016 was 100%.it means that half of revenue is cost and half the revenue is profit. Now let revenue in 2016 is **100** so cost in 2016 is **50.**
2.store's revenue doubled from 2016 to 2017, and its cost doubled from 2016 to 2018.so revenue in 2107 is 200 and cost in 2108 is 150.
3.There was no profit from the Electronics department in 2017.from this we can find the cost in 2017 shown below:
No profit means revenue and cost are equal . as revenue in the Electronics department in 2017 is 30% of 200 which is equal to cost in the Electronics department in 2017 which further is40% of total cost.

40% of total cost in 2017=30% of 200 =60

So total cost in 2017= $\frac{60}{40\%} = 150$

4. In 2018, the revenue from the Clothing department was the same as the cost incurred in the Produce department from this we can find the total revenue in 2018 as shown below
as the cost incurred in the Produce department in 2018 is 50% of 100 which is equal to revenue from the Clothing department in2018which further is 40% of total revenue.
40% of total revenue in 2018=50% of 100 =50

So total revenue in 2018= $\frac{50}{40\%} = 125$

Now whole solution is summarized as below:

Revenue					Cost			
Total	**year**	**Electronics**	**Clothing**	**Produce**	**Total**	**Electronic**	**Clothing**	**Produce**
100	2016	50%	20%	30%	50	30%	30%	40%
200	2017	30%	30%	40%	150	40%	30%	30%
125	2018	20%	40%	40%	100	30%	20%	50%

Total revenue in 2018 is 125 and total cost =100
Hence % profit= $\frac{(125-100)}{100}\times$=**25%**

QNo:- 36 ,Correct Answer:- C

Explanation:- The information in the given triangles is summarized in following table:

		Revenue				Cost		
	Year	Electronic	Clothing	Produce		Electronic	Clothing	Produce
	2016	50%	20%	30%		30%	30%	40%
	2017	30%	30%	40%		40%	30%	30%
	2018	20%	40%	40%		30%	20%	50%

As Profit is computed as (Revenue – Cost) and Percentage Profit as Profit/Cost
It is known that
1. The percentage profit for the store in 2016 was 100%.it means that half of revenue is cost and half the revenue is profit.
Now let revenue in 2016 is **100** so cost in 2016 is **50.**
2.store's revenue doubled from 2016 to 2017, and its cost doubled from 2016 to 2018.so revenue in 2107 is 200 and cost in 2108 is 150.
3.There was no profit from the Electronics department in 2017.from this we can find the cost in 2017 shown below:
No profit means revenue and cost are equal . as revenue in the Electronics department in 2017 is 30% of 200 which is equal to cost in the Electronics department in 2017 which further is40% of total cost.

40% of total cost in 2017=30% of 200 =60
So total cost in 2017= $\frac{60}{40\%}=150$
4. In 2018, the revenue from the Clothing department was the same as the cost incurred in the Produce department
from this we can find the total revenue in 2018 as shown below
as the cost incurred in the Produce department in 2018 is 50% of 100 which is equal to revenue from the Clothing department in2018which further is 40% of total revenue.
40% of total revenue in 2018=50% of 100 =50
So total revenue in 2018= $\frac{50}{40\%}=125$
Now whole solution is summarized as below:

Revenue					**Cost**			
Total	**year**	**Electronics**	**Clothing**	**Produce**	**Total**	**Electronic**	**Clothing**	**Produce**
100	2016	50%	20%	30%	50	30%	30%	40%
200	2017	30%	30%	40%	150	40%	30%	30%
125	2018	20%	40%	40%	100	30%	20%	50%

Required ratio=40% of 200:40% of 125=80:50=8:5

QNo:- 37 ,Correct Answer:- 70

Explanation:- The information in the given triangles is summarized in following table:

		Revenue				Cost		
	Year	Electronic	Clothing	Produce		Electronic	Clothing	Produce
	2016	50%	20%	30%		30%	30%	40%
	2017	30%	30%	40%		40%	30%	30%
	2018	20%	40%	40%		30%	20%	50%

As Profit is computed as (Revenue – Cost) and Percentage Profit as Profit/Cost
It is known that
1. The percentage profit for the store in 2016 was 100%.it means that half of revenue is cost and half the revenue is profit.
Now let revenue in 2016 is **100** so cost in 2016 is **50.**
2.store's revenue doubled from 2016 to 2017, and its cost doubled from 2016 to 2018.so revenue in 2107 is 200 and cost in 2108 is 150.
3.There was no profit from the Electronics department in 2017.from this we can find the cost in 2017 shown below:
No profit means revenue and cost are equal . as revenue in the Electronics department in 2017 is 30% of 200 which is equal

to cost in the Electronics department in 2017 which further is40% of total cost.

40% of total cost in 2017=30% of 200 =60

So total cost in 2017= $\frac{60}{40\%}=150$

4. In 2018, the revenue from the Clothing department was the same as the cost incurred in the Produce department from this we can find the total revenue in 2018 as shown below
as the cost incurred in the Produce department in 2018 is 50% of 100 which is equal to revenue from the Clothing department in2018which further is 40% of total revenue.
40% of total revenue in 2018=50% of 100 =50

So total revenue in 2018= $\frac{50}{40\%}=125$

Now whole solution is summarized as below:

Revenue					**Cost**			
Total	**year**	**Electronics**	**Clothing**	**Produce**	**Total**	**Electronic**	**Clothing**	**Produce**
100	2016	50%	20%	30%	50	30%	30%	40%
200	2017	30%	30%	40%	150	40%	30%	30%
125	2018	20%	40%	40%	100	30%	20%	50%

Total profit in 2016=100-50=50
Profit in 2016 from Electronics dept=50% of 100-30% of 50=50-15=35

Hence required %= $\frac{35}{50}\times 100=70\%$

QNo:- 38 ,Correct Answer:- A

Explanation:- The information in the given triangles is summarized in following table:

		Revenue				**Cost**			
	Year	Electronic	Clothing	Produce		Electronic	Clothing	Produce	
	2016	50%	20%	30%		30%	30%	40%	
	2017	30%	30%	40%		40%	30%	30%	
	2018	20%	40%	40%		30%	20%	50%	

As Profit is computed as (Revenue – Cost) and Percentage Profit as Profit/Cost
It is known that
1. The percentage profit for the store in 2016 was 100%.it means that half of revenue is cost and half the revenue is profit. Now let revenue in 2016 is **100** so cost in 2016 is **50.**
2.store's revenue doubled from 2016 to 2017, and its cost doubled from 2016 to 2018.so revenue in 2107 is 200 and cost in 2108 is 150.
3.There was no profit from the Electronics department in 2017.from this we can find the cost in 2017 shown below:
No profit means revenue and cost are equal . as revenue in the Electronics department in 2017 is 30% of 200 which is equal to cost in the Electronics department in 2017 which further is40% of total cost.

40% of total cost in 2017=30% of 200 =60

So total cost in 2017= $\frac{60}{40\%}=150$

4. In 2018, the revenue from the Clothing department was the same as the cost incurred in the Produce department from this we can find the total revenue in 2018 as shown below
as the cost incurred in the Produce department in 2018 is 50% of 100 which is equal to revenue from the Clothing department in2018which further is 40% of total revenue.
40% of total revenue in 2018=50% of 100 =50

So total revenue in 2018= $\frac{50}{40\%}=125$

Now whole solution is summarized as below:

Revenue					**Cost**			
Total	**year**	**Electronics**	**Clothing**	**Produce**	**Total**	**Electronic**	**Clothing**	**Produce**
100	2016	50%	20%	30%	50	30%	30%	40%
200	2017	30%	30%	40%	150	40%	30%	30%

125	2018	20%	40%	40%	100	30%	20%	50%

$$\text{profit percentages of the store in } 2017 = \frac{200-150}{150}\times 100 = \frac{50}{150}\times 100 = 33.33\%$$

$$\text{profit percentages of the store in } 2018 = \frac{125-100}{100}\times 100 = \frac{25}{150}\times 100 = 25\%$$

hence required difference=33.33%-25%=8.3

QNo:- 39 ,Correct Answer:- 13

Explanation:- Now there were two important points that had to be kept in mind while solving this block were that

(i) As 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. Hence the sum of nine pouches in any row or column should be a multiple of 9.
(ii)In any of nine slots of 3 × 3 grid minimum and maximum amount should be kept in mind while placing the amount in third pouch.
The minimum and maximum amounts of money (in rupees) among the three pouches in each of the nine slots are given in the table below

	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)

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.so amount of money kept in the third pouch should have been 1 and also the maximum and minimum amount of money kept in second column of the second row is(1,1) so amount of money kept in the third pouch here should also be 1.
Now further money in the first column in seven of nine pouches is 6+8+4=18 .also no pouch is empty and sum of all in pouches any column or row is a multiple of 9 . so in remaining two pouches in colomn 1 the sum should be 9 making total sum as 27 in first colomn. (we cannot make sum 36 or next multiple of 9 as it will violate max and min range given) .so third pouch in colomn 1 of row 1 is 4 and colomn 2 of row 5.
Further moving in same way and keeping all condition in mind we get the following solution

	Column 1	**Column 2**	**Column 3**	**total**
Row 1	(2, 4) ,4 **Sum=2+4+4=10**	(6, 8),6 **Sum=6+8+6=20**	(1, 3),2 **Sum=1+3+2=6**	**10+20+6=36**
Row 2	(3, 5),5 **Sum=3+5+5=13**	(1, 1),1 **Sum=1+1+1=3**	(6, 20),12 **Sum=6+ 20+12=38**	**13+3+38=54**
Row 3	(1, 2),1 **Sum=1+2+1=4**	(1, 2),1 **Sum=1+2+1=4**	(2, 5),3 **Sum=2+5+3=10**	**4+4+10=18**
Total	**10+13+6=27**	**20+3+4=27**	**6+38+10=54**	

As shown the required sum is 13

QNo:- 40 ,Correct Answer:- 8

Explanation:- Now there were two important points that had to be kept in mind while solving this block were that

(i) As 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. Hence the sum of nine pouches in any row or column should be a multiple of 9.
(ii)In any of nine slots of 3 × 3 grid minimum and maximum amount should be kept in mind while placing the amount in third pouch..
The minimum and maximum amounts of money (in rupees) among the three pouches in each of the nine slots are given in the table below

	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)

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.so amount of money kept in the third pouch should have been 1 and also the maximum and minimum amount of money kept in second column of the second row is(1,1) so amount of money kept in the third pouch here should also be 1.
Now further money in the first column in seven of nine pouches is 6+8+4=18 .also no pouch is empty and sum of all in pouches any column or row is a multiple of 9 . so in remaining two pouches in column1 the sum should be 9 making total sum as 27 in first column. (we cannot make sum 36 or next multiple of 9 as it will violate max and min range given) .so third pouch in column 1 of row 1 is 4 and column 1 of row 2 is 5
Further moving in same way and keeping all condition in mind we get the following solution

	Column 1	**Column 2**	**Column 3**	**total**
Row 1	(2, 4) ,4 **Sum=2+4+4=10**	(6, 8),6 **Sum=6+8+6=20**	(1, 3),2 **Sum=1+3+2=6**	**10+20+6=36**
Row 2	(3, 5),5 **Sum=3+5+5=13**	(1, 1),1 **Sum=1+1+1=3**	(6, 20),12 **Sum=6+ 20+12=38**	**13+3+38=54**
Row 3	(1, 2),1 **Sum=1+2+1=4**	(1, 2),1 **Sum=1+2+1=4**	(2, 5),3 **Sum=2+5+3=10**	**4+4+10=18**
Total	**10+13+6=27**	**20+3+4=27**	**6+38+10=54**	

As shown 8 pouches contain exactly one coin

QNo:- 41 ,Correct Answer:- 2

Explanation:- Now there were two important points that had to be kept in mind while solving this block were that

(i) As 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. Hence the sum of nine pouches in any row or column should be a multiple of 9.
(ii) In any of nine slots of 3 × 3 grid minimum and maximum amount should be kept in mind while placing the amount in third pouch.
The minimum and maximum amounts of money (in rupees) among the three pouches in each of the nine slots are given in the table below

	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)

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.so amount of money kept in the third pouch should have been 1 and also the maximum and minimum amount of money kept in second column of the second row is(1,1) so amount of money kept in the third pouch here should also be 1.
Now further money in the first column in seven of nine pouches is 6+8+4=18 .also no pouch is empty and sum of all in pouches any column or row is a multiple of 9 . so in remaining two pouches in column1 the sum should be 9 making total sum as 27 in first column. (we cannot make sum 36 or next multiple of 9 as it will violate max and min range given) .so third pouch in column1 of row 1 is 4 and column 2 of row 5.
Further moving in same way and keeping all condition in mind we get the following solution

	Column 1	**Column 2**	**Column 3**	**total**
Row 1	(2, 4) ,4 **Sum=2+4+4=10**	(6, 8),6 **Sum=6+8+6=20**	(1, 3),2 **Sum=1+3+2=6**	**10+20+6=36**
Row 2	(3, 5),5 **Sum=3+5+5=13**	(1, 1),1 **Sum=1+1+1=3**	(6, 20),12 **Sum=6+ 20+12=38**	**13+3+38=54**
Row 3	(1, 2),1 **Sum=1+2+1=4**	(1, 2),1 **Sum=1+2+1=4**	(2, 5),3 **Sum=2+5+3=10**	**4+4+10=18**
Total	**10+13+6=27**	**20+3+4=27**	**6+38+10=54**	

average amount (in rupees) of its three pouches will be an integer in the slot in which sum of amount is multiple of 3 which is

there in two slots i.e.column 3 of row 1where sum is 6 and column two of row two where sum is 3

QNo:- 42 ,Correct Answer:- 3

Explanation:- Now there were two important points that had to be kept in mind while solving this block were that

(i)As 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. Hence the sum of nine pouches in any row or column should be a multiple of 9.
(ii) In any of nine slots of 3 × 3 grid minimum and maximum amount should be kept in mind while placing the amount in third pouch..
The minimum and maximum amounts of money (in rupees) among the three pouches in each of the nine slots are given in the table below

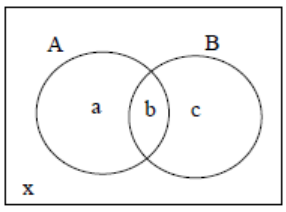
	Column 1	**Column 2**	**Column 3**
Row 1	(2, 4)	(6, 8)	(1, 3)
Row 2	(3, 5)	(1, 1)	(6, 20)
Row 3	(1, 2)	(1, 2)	(2, 5)

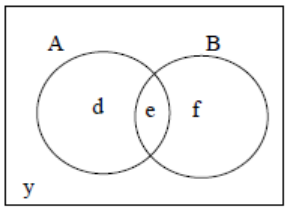
It is also known that the total amount of money kept in the three pouches in the first column of the third row is Rs. 4.so amount of money kept in the third pouch should have been 1 and also the maximum and minimum amount of money kept in second column of the second row is(1,1) so amount of money kept in the third pouch here should also be 1.
Now further money in the first column in seven of nine pouches is 6+8+4=18 .also no pouch is empty and sum of all in pouches any column or row is a multiple of 9 . so in remaining two pouches in colomn 1 the sum should be 9 making total sum as 27 in first colomn. (we cannot make sum 36 or next multiple of 9 as it will violate max and min range given) .so third pouch in colomn 1 of row 1 is 4 and colomn 2 of row 5.
Further moving in same way and keeping all condition in mind we get the following solution

	Column 1	**Column 2**	**Column 3**	**total**
Row 1	(2, 4) ,4 **Sum=2+4+4=10**	(6, 8),6 **Sum=6+8+6=20**	(1, 3),2 **Sum=1+3+2=6**	**10+20+6=36**
Row 2	(3, 5),5 **Sum=3+5+5=13**	(1, 1),1 **Sum=1+1+1=3**	(6, 20),12 **Sum=6+ 20+12=38**	**13+3+38=54**
Row 3	(1, 2),1 **Sum=1+2+1=4**	(1, 2),1 **Sum=1+2+1=4**	(2, 5),3 **Sum=2+5+3=10**	**4+4+10=18**
Total	**10+13+6=27**	**20+3+4=27**	**6+38+10=54**	

As shown above ,the number of slots for which the total amount in its three pouches strictly exceeds Rs. 10 is 3

QNo:- 43 ,Correct Answer:- 64





Explanation:- Ragini (300) Sunita (200)

From second point we have d + e = 160 --(1)
From third point we have a + b = 90 --(2)
From fourth point we have e + f = 50 --(3)
From fifth point we have (150 + a +x)2/5 = a + x
⇒ 300 + 2a + 2x = 5a+ 5x
⇒ 100 = a + x .....(4)
From point six, we have, f = 0
From point seven, we have x = 20% of 300 = 60
Now as f = 0, (3) ⇒ e = 50
∴ (1) ⇒ d = 110

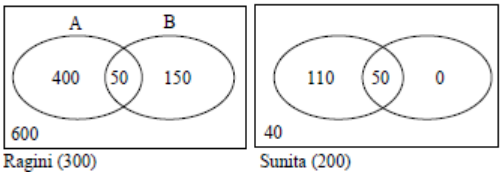
⇒ y = 200 - (110 + 50) = 40

From (4), we get 100 = a + 60 ⇒ a = 40

From (2) we get b = 50

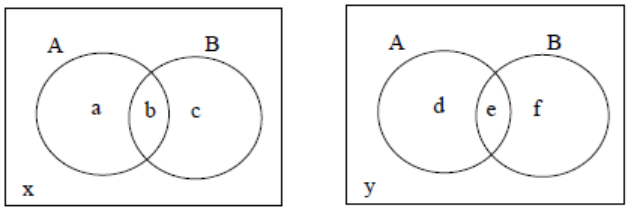
∴ c = 300 - (40 + 50 + 60) = 150

So we have



$$\text{Required \%age} = \frac{160}{250} \times 100 = 64\%$$

QNo:- 44 ,Correct Answer:- 84



Explanation:- Ragini (300)

From second point we have d + e = 160 --(1)

From third point we have a + b = 90 --(2)

From fourth point we have e + f = 50 --(3)

From fifth point we have (150 + a +x)2/5 = a + x

⇒ 300 + 2a + 2x = 5a+ 5x

⇒ 100 = a + x .....(4)

From point six, we have, f = 0

From point seven, we have x = 20% of 300 = 60

Now as f = 0, (3) ⇒ e = 50

∴ (1) ⇒ d = 110

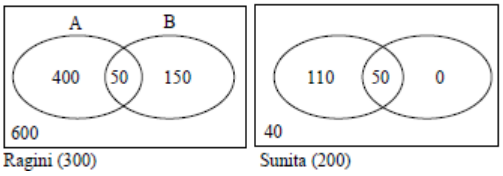
⇒ y = 200 - (110 + 50) = 40

From (4), we get 100 = a + 60 ⇒ a = 40

From (2) we get b = 50

∴ c = 300 - (40 + 50 + 60) = 150

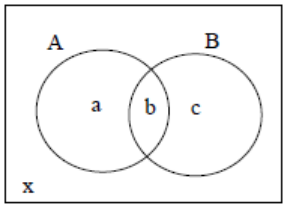
So we have

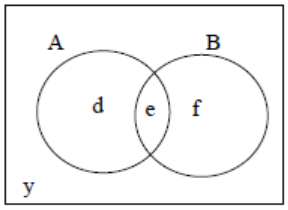


Students who did not support A = 150 + 60+40=250

$$\therefore \text{required \%age} = \frac{210}{250} \times 100 = 84\%$$

QNo:- 45 ,Correct Answer:- B

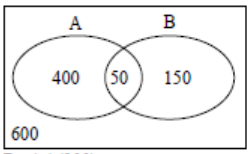




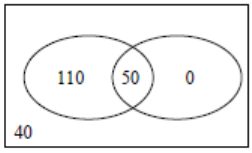
Sunita (200)

Explanation:- Ragini (300)

From second point we have d + e = 160 --(1)
From third point we have a + b = 90 --(2)
From fourth point we have e + f = 50 --(3)
From fifth point we have (150 + a +x)2/5 = a + x
⇒ 300 + 2a + 2x = 5a+ 5x
⇒ 100 = a + x .....(4)
From point six, we have, f = 0
From point seven, we have x = 20% of 300 = 60
Now as f = 0, (3) ⇒ e = 50
∴ (1) ⇒ d = 110
⇒ y = 200 - (110 + 50) = 40
From (4), we get 100 = a + 60 ⇒ a = 40
From (2) we get b = 50
∴ c = 300 - (40 + 50 + 60) = 150
So we have



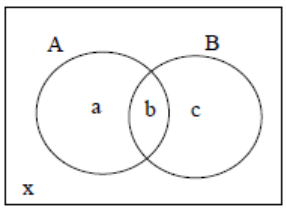
Ragini (300)

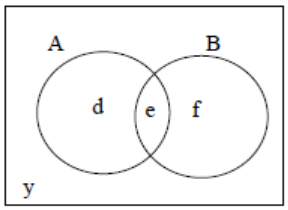


Sunita (200)

Students who supported both proposals = 50 + 50 = 100
∴ required %age = $\frac{50}{100} \times 100 = 50\%$

QNo:- 46 ,Correct Answer:- A



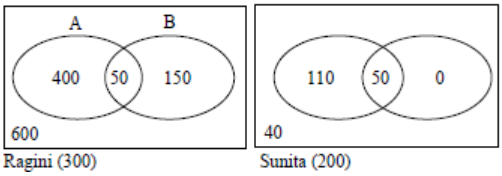


Sunita (200)

Explanation:- Ragini (300)

From second point we have d + e = 160 --(1)
From third point we have a + b = 90 --(2)
From fourth point we have e + f = 50 --(3)
From fifth point we have (150 + a +x)2/5 = a + x
⇒ 300 + 2a + 2x = 5a+ 5x
⇒ 100 = a + x .....(4)
From point six, we have, f = 0
From point seven, we have x = 20% of 300 = 60
Now as f = 0, (3) ⇒ e = 50
∴ (1) ⇒ d = 110
⇒ y = 200 - (110 + 50) = 40
From (4), we get 100 = a + 60 ⇒ a = 40
From (2) we get b = 50
∴ c = 300 - (40 + 50 + 60) = 150

So we have



Students who supported both proposals = 50 + 50 = 100

150 students supported proposal B only supported Ragini

QNo:- 47 ,Correct Answer:- D

Explanation:- After analyzing the information following teams are made

	Members	Languages spoken
Team 1	Robert, Paula, Terence	Arabic, French, Chinese, English
Team 2	Paula, Sally, Terence	French, Basque, Chinese, English
Team 3	Quentin ,Paula, Sally	Dutch, Basque, Chinese, English

AS Shown above Quentin is not a member of Team 2.

QNo:- 48 ,Correct Answer:- D

Explanation:- After analyzing the information following teams are made

	Members	Languages spoken
T am 1	Robert, Paula, Terence	Arabic, French, Chinese, English
Team 2	Paula, Sally, Terence	French, Basque, Chinese, English
Team 3	Quentin ,Paula, Sally	Dutch, Basque, Chinese, English

AS Shown above among the given four people Sally is a part of exactly two teams.

QNo:- 49 ,Correct Answer:- A

Explanation:- After analyzing the information following teams are made

	Members	Languages spoken
T am 1	Robert, Paula, Terence	Arabic, French, Chinese, English
Team 2	Paula, Sally, Terence	French, Basque, Chinese, English
Team 3	Quentin ,Paula, Sally	Dutch, Basque, Chinese, English

AS Shown above Paula is a member of all teams

QNo:- 50 ,Correct Answer:- B

Explanation:- After analyzing the information following teams are made

	Members	Languages spoken
T am 1	Robert, Paula, Terence	Arabic, French, Chinese, English

Team 2	Paula, Sally, Terence	French, Basque, Chinese, English
Team 3	Quentin ,Paula, Sally	Dutch, Basque, Chinese, English

AS Shown above Apart from Chinese and English ,Arabic and French languages are spoken by Team 1.

QNo:- 51 ,Correct Answer:- D

Explanation:- Maximum number of patients can be catered on single day when The queue is never empty and all doctors work to full capacity.
The clinic is open from 9 a.m. to 11.30 a.m i.e. for 150 minutes every day.
Maximum number of patients that can be seen by Dr. Ben are 150/10=15
Maximum number of patients that can be seen by Dr. Kane are 150/15=10
Maximum number of patients that can be seen by Dr. Dr. Wayne are 150/25=6
So the maximum number of patients that the clinic can cater to on any single day are=15+10+6=31

QNo:- 52 ,Correct Answer:- D

Explanation:- The queue is never empty on one particular Saturday it means all the doctor are working to their full capacity.
(i) Maximum number of patients that can be seen by Dr. Ben are 150/10=15.
As charges of of Dr. Ben are 100/-
So maximum amount in consultation charges earned by Dr. Ben are 15×100 =**1500/-**
(ii) Maximum number of patients that can be seen by Dr. Kane are 150/15=10
As charges of of Dr. Kane are 200/-
So maximum amount in consultation charges earned by Dr. Kane are 10×200=**2000/-**
(iii) Maximum number of patients that can be seen by Dr. Dr. Wayne are 150/25=6
As charges of of Dr. Wayne are 300/-
So maximum amount in consultation charges earned by Dr. Ben are 6×300 =**1800/-**
Hence among three doctors Dr. Kane would earn the maximum amount in consultation charges on Saturday.

QNo:- 53 ,Correct Answer:- A

Explanation:- Mr. Singh who is having token no 13 will be in clinic for the maximum duration on the on which he will be attended by Dr. Wayne
The movement of patients having token number number 1-13 on each given day is shown below

Movement of patients having token number 1-13 on **Monday**					
Ben		Kane		Wayne	
Token no	Time	Token no	Time	Token no	Time
1	9:00-9:10	2	9:00-9:15	3	9:00-9:25
4	9:10-9:20	5	9:15-9:30	7	9:25-9:50
6	9:20-9:30				
8.	9:30-9:40	9	9:30-9:45		
10.	9:40-9:50	11	9:45:10:00		
12	9:50-10:00			**13**	**9:50-10:15**

Movement of patients having token number 1-13 on **Wednesday**					
Wayne		Ben		Kane	
Token no	Time	Token no	Time	Token no	Time
1	9:00-9:25	2	9:00-9:10	3	9:00-9:15
		4	9:10-9:20	5	9:15-9:30
		6	9:20:9:30		
7	9:25:9:50	8	9:30-9:40	9	9:30-9;45

		10	9:40-9:50	11	9:45-10;00
12	9:50-10:15	**13**	**9:50-10:00**		

movement of patients having token number 1-13 on **Friday**					
Kane		Wayne		Ben	
Token no	Time	Token no	Time	Token no	Time
1	9:00-9:15	2	9:00-9:25	3	9:00-9:10
5	9:15-9:30			4	9:10:9:20
				6	9:20-9:30
		7	9:25-9:50		
8	9:30-9:45			9	9:30-9:40
				10	9:40-9:50
11	9:45:10:00	12	9:50 -10:15	**13**	**9:50-10;00**

As shown above Mr. Singh will be in clinic for maximum duration on **Monday**

QNo:- 54 ,Correct Answer:- A

Explanation:-

movement on Thursday as per condition					
Wayne		Ben		Kane	
Token no	Time	Token no	Time	Token no	Time
1	9:00-9:25	2	9:00-9:10		
		3	9:10-9:20	4	9:15-9:30
5	9:30-9:55	6	9:30-9:40		
		7	9:45-9:55	8	9:45-10:00
9	**10:00-10:25**	**10**	**10:00-10:10**		

As shown above token number 11,12 will have same movement as of token number 3 and 4 and the same sequence will follow between 10:11 and between 11:0-11;30.
Hence there is no time duration in which all the three doctors are simultaneously free.

QNo:- 55 ,Correct Answer:- D

Explanation:-

There are seven states(Mizoram, Sikkim, Maharashtra ,Goa, Arunachal, Kerala and Meghalaya) which are under Heavy Monsoon State' as per given criterion out of which three (Arunachal, Kerala and Meghalaya) have a negative deviation from respective LPA.

Hence Required% $=\frac{3}{7}\times 100 = 42.86\%$

QNo:- 56 ,Correct Answer:- D

Explanation:-
There are nine states(Gujarat , Karnataka, Rajasthan , MP, Assam, WN, Jharkhand, Delhi and Manipur) which are under 'Low Monsoon State' as per given criterion and their respective 'deviation from LPA' are 30,20,15,10**,-10**,-30,-35,-40 and -60 res.
Hence required median is -10.

QNo:- 57 ,Correct Answer:- B

Explanation:-
states that have actual rainfall of 600 mm or less in 2019 and have a negative deviation from LPA are Assam, WB, Jharkhand, Delhi and Manipur and their respective rainfall are 600,600,400,300 and 400
Hence Required average$=\frac{600+600+400+300+400}{5}=\frac{2300}{5}=460mm$

QNo:- 58 ,Correct Answer:- A

Explanation:-

QNo:- 59 ,Correct Answer:- C

Explanation:-
If we broadly see the block two important tasks are to be done
(i)to find the number of questions in each categories of 5 marks ,10 marks and 15 marks
For both MT and ET

i. To allot each question number the faculty that has made that question for both ET and MT

As minimum the number of questions in each categories of 5 marks ,10 marks and 15 marks for both MT and ET are given. Also ET contained more questions than MT. Now considering all these facts total number of questions categories wise for both MT and ET are given below:

ET			
	Number of questions	Marks for each question	Total marks
	8	5	40
	3	10	30
	2	15	30
Total	**13**		100

For MT there are two possible cases
Case1

MT			
	Number of questions	Marks for each question	Total marks
	5	5	25
	3	10	30
	3	15	45
Total	**11**		100

Case2

MT			
	Number of questions	Marks for each question	Total marks
	4	5	20
	5	10	50
	2	15	30
Total	**11**		100

Further it is given that Annie prepared one question for MT. Every other faculty member prepared more than one questions

for MT ,Also considering MT and ET together, each faculty member prepared the same number of questions

Total number of questions are 13+11=24 so each faculty made 4 questions. So keeping in mind all this fact following table gives us the number of question made by each faculty in MT and ET are

	MT	**ET**
Annie	1	3
Beti	2	2
Chetan	2	2
Dave	2	2
Esha	2	2
Fakir	2	2
	11	**13**

Now the information given is "***All questions prepared by a faculty member appeared consecutively in MT as well as ET***." This information will help us to narrow down the cases. Fakir prepared the first question of MT so he will also solve the second one
Chetan prepared the third question in both MT and ET. So considering MT he will solve the forth one. Annie prepared the fifth question for both MT and ET. For MT, this question carried 5 marks.it means ist five questions in MT are of 5 marks this eliminates the second possible case for MT. now filling the faculty name consecutively we come to the conclusion as follws:

MT	
Q no	faculty
1	Fakir
2	Fakir
3	Chetan
4	Chetan
5	Annie
6	Beti
7	Beti
8	Esha
9	Esha
10	Dave
11	Dave

ET	
Q no	faculty
1	Dave
2	Dave
3	Chetan
4	Chetan
5	Annie
6	Annie
7	Annie
8	Esha
9	Esha
10	Beti
11	Beti
12	Fakir
13	Fakir

The second question in ET was prepared by Dave

QNo:- 60 ,Correct Answer:- A

Explanation:-
If we broadly see the block two important tasks are to be done
(i)to find the number of questions in each categories of 5 marks ,10 marks and 15 marks
For both MT and ET
i. To allot each question number the faculty that has made that question for both ET and MT
As minimum the number of questions in each categories of 5 marks ,10 marks and 15 marks for both MT and ET are given. Also ET contained more questions than MT. Now considering all these facts total number of questions categories wise for both MT and ET are given below:

ET			
	Number of questions	Marks for each question	Total marks
	8	5	40
	3	10	30
	2	15	30
Total	**13**		100

For MT there are two possible cases

Case1

MT			
	Number of questions	Marks for each question	Total marks
	5	5	25
	3	10	30
	3	15	45
Total	**11**		100

Case2

MT			
	Number of questions	Marks for each question	Total marks
	4	5	20
	5	10	50
	2	15	30
Total	**11**		100

Further it is given that Annie prepared one question for MT. Every other faculty member prepared more than one questions for MT ,Also considering MT and ET together, each faculty member prepared the same number of questions

Total number of questions are 13+11=24 so each faculty made 4 questions. So keeping in mind all this fact following table gives us the number of question made by each faculty in MT and ET are

	MT	**ET**
Annie	1	3
Beti	2	2
Chetan	2	2
Dave	2	2
Esha	2	2
Fakir	2	2
	11	**13**

Now the information given is "***All questions prepared by a faculty member appeared consecutively in MT as well as ET***." This information will help us to narrow down the cases. Fakir prepared the first question of MT so he will also solve the second one
Chetan prepared the third question in both MT and ET. So considering MT he will solve the forth one. Annie prepared the fifth question for both MT and ET. For MT, this question carried 5 marks.it means ist five questions in MT are of 5 marks this eliminates the second possible case for MT. now filling the faculty name consecutively we come to the conclusion as follws:

MT	
Q no	faculty
1	Fakir
2	Fakir
3	Chetan
4	Chetan
5	Annie
6	Beti
7	Beti
8	Esha
9	Esha
10	Dave
11	Dave

ET	
Q no	faculty
1	Dave
2	Dave
3	Chetan
4	Chetan
5	Annie
6	Annie
7	Annie
8	Esha
9	Esha
10	Beti
11	Beti
12	Fakir

13	Fakir

As shown above ,5-mark questions were there in MT and ET combined were 8+5=13

QNo:- 61 ,Correct Answer:- C

Explanation:-
If we broadly see the block two important tasks are to be done
(i)to find the number of questions in each categories of 5 marks ,10 marks and 15 marks
For both MT and ET
i. To allot each question number the faculty that has made that question for both ET and MT
As minimum the number of questions in each categories of 5 marks ,10 marks and 15 marks for both MT and ET are given. Also ET contained more questions than MT. Now considering all these facts total number of questions categories wise for both MT and ET are given below:

ET			
	Number of questions	Marks for each question	Total marks
	8	5	40
	3	10	30
	2	15	30
Total	**13**		100

For MT there are two possible cases
Case1

MT			
	Number of questions	Marks for each question	Total marks
	5	5	25
	3	10	30
	3	15	45
Total	**11**		100

Case2

MT			
	Number of questions	Marks for each question	Total marks
	4	5	20
	5	10	50
	2	15	30
Total	**11**		100

Further it is given that Annie prepared one question for MT. Every other faculty member prepared more than one questions for MT ,Also considering MT and ET together, each faculty member prepared the same number of questions

Total number of questions are 13+11=24 so each faculty made 4 questions. So keeping in mind all this fact following table gives us the number of question made by each faculty in MT and ET are

	MT	**ET**
Annie	1	3
Beti	2	2
Chetan	2	2
Dave	2	2
Esha	2	2
Fakir	2	2
	11	**13**

Now the information given is "***All questions prepared by a faculty member appeared consecutively in MT as well as ET***." This information will help us to narrow down the cases. Fakir prepared the first question of MT so he will also solve the second one
Chetan prepared the third question in both MT and ET. So considering MT he will solve the forth one. Annie prepared the fifth question for both MT and ET. For MT, this question carried 5 marks.it means ist five questions in MT are of 5 marks this eliminates the second possible case for MT. now filling the faculty name consecutively we come to the conclusion as follws:

MT	
Q no	faculty
1	Fakir
2	Fakir
3	Chetan
4	Chetan
5	Annie
6	Beti
7	Beti
8	Esha
9	Esha
10	Dave
11	Dave

ET	
Q no	faculty
1	Dave
2	Dave
3	Chetan
4	Chetan
5	Annie
6	Annie
7	Annie
8	Esha
9	Esha
10	Beti
11	Beti
12	Fakir
13	Fakir

Only Dave, Esha and Fakir prepared 15-mark questions for MT and ET

QNo:- 62 ,Correct Answer:- C

Explanation:-
If we broadly see the block two important tasks are to be done
(i)to find the number of questions in each categories of 5 marks ,10 marks and 15 marks
For both MT and ET
i. To allot each question number the faculty that has made that question for both ET and MT
As minimum the number of questions in each categories of 5 marks ,10 marks and 15 marks for both MT and ET are given. Also ET contained more questions than MT. Now considering all these facts total number of questions categories wise for both MT and ET are given below:

ET			
	Number of questions	Marks for each question	Total marks
	8	5	40
	3	10	30
	2	15	30
Total	**13**		100

For MT there are two possible cases
Case1

MT			
	Number of questions	Marks for each question	Total marks
	5	5	25
	3	10	30
	3	15	45
Total	**11**		100

Case2

MT

	Number of questions	Marks for each question	Total marks
	4	5	20
	5	10	50
	2	15	30
Total	**11**		100

Further it is given that Annie prepared one question for MT. Every other faculty member prepared more than one questions for MT ,Also considering MT and ET together, each faculty member prepared the same number of questions

Total number of questions are 13+11=24 so each faculty made 4 questions. So keeping in mind all this fact following table gives us the number of question made by each faculty in MT and ET are

	MT	**ET**
Annie	1	3
Beti	2	2
Chetan	2	2
Dave	2	2
Esha	2	2
Fakir	2	2
	11	**13**

Now the information given is "***All questions prepared by a faculty member appeared consecutively in MT as well as ET***." This information will help us to narrow down the cases. Fakir prepared the first question of MT so he will also solve the second one
Chetan prepared the third question in both MT and ET. So considering MT he will solve the forth one. Annie prepared the fifth question for both MT and ET. For MT, this question carried 5 marks.it means ist five questions in MT are of 5 marks this eliminates the second possible case for MT. now filling the faculty name consecutively we come to the conclusion as follws:

MT	
Q no	faculty
1	Fakir
2	Fakir
3	Chetan
4	Chetan
5	Annie
6	Beti
7	Beti
8	Esha
9	Esha
10	Dave
11	Dave

ET	
Q no	faculty
1	Dave
2	Dave
3	Chetan
4	Chetan
5	Annie
6	Annie
7	Annie
8	Esha
9	Esha
10	Beti
11	Beti
12	Fakir
13	Fakir

Among given options Tenth question was prepared by Beti in ET

QNo:- 63 ,Correct Answer:- C

Explanation:- If we broadly see the block two important tasks are to be done
(i) to find the break up of points of each player after round 6 and between round 7-10
(ii) To allot each match its Ist , second and third winner
Round 1-6

Player No.	**Player Name**	**Points after Round 6**	**Possible break up 1**	**Possible break up 2**	**Possible break up 3**
1	Amita	8	**7+1**		

2	Bala	2	1+1		
3	Chen	3	3	1+1+1	
4	David	6	3+3	3+1+1+1	
5	Eric	3	3	1+1+1	
6	Fatima	10	7+3	3+3+3+1	7+1+1+1
7	Gordon	17	7+7+3	7+3+3+1	
8	Hansa	1	1		
9	Ikea	2	1+1		
10	Joshin	14	7+7		

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

now after round 6 we need six 7's, six 3's and six 1's as in each round there will one first ,one second and one seven position.to balance that we need to reject other possible breakups of Chen, David. Eric, Fatima, Gordon(shown yellow).now final break up of scores for each playrer after round 6 is shown in table given below

The next task is to now find the top three players of each round. As we know that

Amita will be playing in first round and sixth round . so her scores 7 and 1 could be only in these rounds. As Joshin has scored two 7.s and in first 6 round he is playing in nly 5^{th} band 6^{th} round . so both 7 scored by him are in these two rounds. So score 7 scored by Amita will be for round 1 . proceeding in this way we will reach the

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
1	Amita	Chen/ David	Bala
2	Gordon	Chen/ David	Bala
3	Fatima	Eric	Hansa
4	Gordon	David	Ikea
5	Joshin	Fatima	Ikea
6	Joshin	Gordon	Amita

Following conclusion for round **1-6**

Now we will do the same process for round 7-10

Round 7-10

Player No.	Player Name	Points scored for round 7-10	Possible break up 1	Possible break up 2
1	Amita	10	**7+3**	3+3+3+1
2	Bala	3	3	1+1+1
3	Chen	3	1+1+1	3
4	David	0	7	3+3+1
5	Eric	7	0	0

6	Fatima	0	0	0
7	Gordon	0	3	1+1+1
8	Hansa	3	1	
9	Ikea	15	7+7+1	
10	Joshin	3	3	1+1+1

now after round 7-10 we need four 7's, four 3's and four 1's as in each round there will one first ,one second and one seven position.
Further it is given that
Only two players scored in three consecutive rounds. One of them was Chen. No other player scored in any two consecutive rounds. So apart from Chen , other one should be Ikea as she is having a option of three scores only so she will have to be settled down with7+7+1. So we will get the following table

Player No.	**Player Name**	**Points after Round 7-10**	**Final breakup**
1	Amita	10	**7+3**
2	Bala	3	3
3	Chen	3	1+1+1
4	David	0	0
5	Eric	7	7
6	Fatima	0	0
7	Gordon	0	0
8	Hansa	3	3
9	Ikea	15	7+7+1
10	Joshin	3	3

As Only two players scored in three consecutive rounds in this stage and they are Chen and Ikea having scores 1,1,1 and 7,7 and 1. Further Ikea which is not in 10^{th} round will have scores in 7^{th} 8^{th} and 9^{th} round and chen would have scored in 8^{th} 9^{th} and 10^{th} round. Proceeding in this way we get the following table for round 7-10

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
7	Amita	Joshin	Ikea
8	Ikea	Bala/Hansa	Chen
9	Ikea	Bala/Hansa	Chen
10	Eric	Amita	Chen

As solved above
Final conclusion after round 6 is

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
1	Amita	Chen/ David	Bala
2	Gordon	Chen/ David	Bala
3	Fatima	Eric	Hansa
4	Gordon	David	Ikea
5	Joshin	Fatima	Ikea
6	Joshin	Gordon	Amita

As shown above the scores of Chen, David, and Eric respectively after Round 3 are
3, 3, 3

QNo:- 64 ,Correct Answer:- C

Explanation:- If we broadly see the block two important tasks are to be done

(i) to find the break up of points of each player after round 6 and between round 7-10
(ii) To allot each match its Ist , second and third winner

Round 1-6

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

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

now after round 6 we need six 7's, six 3's and six 1's as in each round there will one first ,one second and one seven position.to balance that we need to reject other possible breakups of Chen, David. Eric, Fatima, Gordon(shown yellow).now final break up of scores for each playrer after round 6 is shown in table given below

The next task is to now find the top three players of each round. As we know that

Amita will be playing in first round and sixth round . so her scores 7 and 1 could be only in these rounds. As Joshin has scored two 7.s and in first 6 round he is playing in nly 5^{th} band 6^{th} round . so both 7 scored by him are in these two rounds. So score 7 scored by Amita will be for round 1 . proceeding in this way we will reach the

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
1	Amita	Chen/ David	Bala
2	Gordon	Chen/ David	Bala
3	Fatima	Eric	Hansa
4	Gordon	David	Ikea
5	Joshin	Fatima	Ikea
6	Joshin	Gordon	Amita

Following conclusion for round **1-6**

Now we will do the same process for round 7-10

Round 7-10

Player No.	Player Name	Points scored for round 7-10	Possible break up 1	Possible break up 2
1	Amita	10	**7+3**	3+3+3+1
2	Bala	3	3	1+1+1
3	Chen	3	1+1+1	3
4	David	0	7	3+3+1
5	Eric	7	0	0
6	Fatima	0	0	0
7	Gordon	0	3	1+1+1
8	Hansa	3	1	
9	Ikea	15	7+7+1	
10	Joshin	3	3	1+1+1

now after round 7-10 we need four 7's, four 3's and four 1's as in each round there will one first ,one second and one seven position.
Further it is given that
Only two players scored in three consecutive rounds. One of them was Chen. No other player scored in any two consecutive rounds. So apart from Chen , other one should be Ikea as she is having a option of three scores only so she will have to be settled down with7+7+1. So we will get the following table

Player No.	Player Name	Points after Round 7-10	Final breakup
1	Amita	10	**7+3**
2	Bala	3	3
3	Chen	3	1+1+1
4	David	0	0
5	Eric	7	7
6	Fatima	0	0
7	Gordon	0	0
8	Hansa	3	3
9	Ikea	15	7+7+1
10	Joshin	3	3

As Only two players scored in three consecutive rounds in this stage and they are Chen and Ikea having scores 1,1,1 and 7,7 and 1. Further Ikea which is not in 10^{th} round will have scores in 7^{th} 8^{th} and 9^{th} round and chen would have scored in 8^{th} 9^{th} and 10^{th} round. Proceeding in this way we get the following table for round 7-10

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
7	Amita	Joshin	Ikea
8	Ikea	Bala/Hansa	Chen
9	Ikea	Bala/Hansa	Chen
10	Eric	Amita	Chen

As shown in table last three positions after Round 4 are of Hansa, Ikea, Joshin with scores 1,1 and 0

QNo:- 65 ,Correct Answer:- A

Explanation:- If we broadly see the block two important tasks are to be done
(i) to find the break up of points of each player after round 6 and between round 7-10
(ii) To allot each match its Ist , second and third winner
Round 1-6

Player No.	Player Name	Points after Round 6	Possible break up 1	Possible break up 2	Possible break up 3

1	Amita	8	**7+1**		
2	Bala	2	1+1		
3	Chen	3	3	1+1+1	
4	David	6	3+3	3+1+1+1	
5	Eric	3	3	1+1+1	
6	Fatima	10	7+3	3+3+3+1	7+1+1+1
7	Gordon	17	7+7+3	7+3+3+1	
8	Hansa	1	1		
9	Ikea	2	1+1		
10	Joshin	14	7+7		

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

now after round 6 we need six 7's, six 3's and six 1's as in each round there will one first ,one second and one seven position.to balance that we need to reject other possible breakups of Chen, David. Eric, Fatima, Gordon(shown yellow).now final break up of scores for each playrer after round 6 is shown in table given below

The next task is to now find the top three players of each round. As we know that

Amita will be playing in first round and sixth round . so her scores 7 and 1 could be only in these rounds. As Joshin has scored two 7.s and in first 6 round he is playing in nly 5^{th} band 6^{th} round . so both 7 scored by him are in these two rounds. So score 7 scored by Amita will be for round 1 . proceeding in this way we will reach the

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
1	Amita	Chen/ David	Bala
2	Gordon	Chen/ David	Bala
3	Fatima	Eric	Hansa
4	Gordon	David	Ikea
5	Joshin	Fatima	Ikea
6	Joshin	Gordon	Amita

Following conclusion for round **1-6**

Now we will do the same process for round 7-10

Round 7-10

Player No.	Player Name	Points scored for round 7-10	Possible break up 1	Possible break up 2
1	Amita	10	**7+3**	3+3+3+1
2	Bala	3	3	1+1+1
3	Chen	3	1+1+1	3
4	David	0	7	3+3+1
5	Eric	7	0	0
6	Fatima	0	0	0
7	Gordon	0	3	1+1+1
8	Hansa	3	1	

9	Ikea	15	7+7+1	
10	Joshin	3	3	1+1+1

now after round 7-10 we need four 7's, four 3's and four 1's as in each round there will one first ,one second and one seven position.
Further it is given that
Only two players scored in three consecutive rounds. One of them was Chen. No other player scored in any two consecutive rounds. So apart from Chen , other one should be Ikea as she is having a option of three scores only so she will have to be settled down with7+7+1. So we will get the following table

Player No.	Player Name	Points after Round 7-10	Final breakup
1	Amita	10	**7+3**
2	Bala	3	3
3	Chen	3	1+1+1
4	David	0	0
5	Eric	7	7
6	Fatima	0	0
7	Gordon	0	0
8	Hansa	3	3
9	Ikea	15	7+7+1
10	Joshin	3	3

As Only two players scored in three consecutive rounds in this stage and they are Chen and Ikea having scores 1,1,1 and 7,7 and 1. Further Ikea which is not in 10^{th} round will have scores in 7^{th} 8^{th} and 9^{th} round and chen would have scored in 8^{th} 9^{th} and 10^{th} round. Proceeding in this way we get the following table for round 7-10

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
7	Amita	Joshin	Ikea
8	Ikea	Bala/Hansa	Chen
9	Ikea	Bala/Hansa	Chen
10	Eric	Amita	Chen

As shown Ikea scored points in five rounds which was maximum in number .

QNo:- 66 ,Correct Answer:- A

Explanation:- If we broadly see the block two important tasks are to be done
(i) to find the break up of points of each player after round 6 and between round 7-10
(ii) To allot each match its Ist , second and third winner
Round 1-6

Player No.	Player Name	Points after Round 6	Possible break up 1	Possible break up 2	Possible break up 3
1	Amita	8	**7+1**		
2	Bala	2	1+1		
3	Chen	3	3	1+1+1	
4	David	6	3+3	3+1+1+1	
5	Eric	3	3	1+1+1	
6	Fatima	10	7+3	3+3+3+1	7+1+1+1
7	Gordon	17	7+7+3	7+3+3+1	
8	Hansa	1	1		
9	Ikea	2	1+1		

10	Joshin	14	7+7		

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

now after round 6 we need six 7's, six 3's and six 1's as in each round there will one first ,one second and one seven position.to balance that we need to reject other possible breakups of Chen, David. Eric, Fatima, Gordon(shown yellow).now final break up of scores for each playrer after round 6 is shown in table given below

The next task is to now find the top three players of each round. As we know that

Amita will be playing in first round and sixth round . so her scores 7 and 1 could be only in these rounds. As Joshin has scored two 7.s and in first 6 round he is playing in nly 5th band 6th round . so both 7 scored by him are in these two rounds. So score 7 scored by Amita will be for round 1 . proceeding in this way we will reach the

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
1	Amita	Chen/ David	Bala
2	Gordon	Chen/ David	Bala
3	Fatima	Eric	Hansa
4	Gordon	David	Ikea
5	Joshin	Fatima	Ikea
6	Joshin	Gordon	Amita

Following conclusion for round **1-6**

Now we will do the same process for round 7-10

Round 7-10

Player No.	Player Name	Points scored for round 7-10	Possible break up 1	Possible break up 2
1	Amita	10	**7+3**	3+3+3+1
2	Bala	3	3	1+1+1
3	Chen	3	1+1+1	3
4	David	0	7	3+3+1
5	Eric	7	0	0
6	Fatima	0	0	0
7	Gordon	0	3	1+1+1
8	Hansa	3	1	
9	Ikea	15	7+7+1	
10	Joshin	3	3	1+1+1

now after round 7-10 we need four 7's, four 3's and four 1's as in each round there will one first ,one second and one seven position.
Further it is given that
Only two players scored in three consecutive rounds. One of them was Chen. No other player scored in any two consecutive rounds. So apart from Chen , other one should be Ikea as she is having a option of three scores only so she will have to be

settled down with7+7+1. So we will get the following table

Player No.	Player Name	Points after Round 7-10	Final breakup
1	Amita	10	**7+3**
2	Bala	3	3
3	Chen	3	1+1+1
4	David	0	0
5	Eric	7	7
6	Fatima	0	0
7	Gordon	0	0
8	Hansa	3	3
9	Ikea	15	7+7+1
10	Joshin	3	3

As Only two players scored in three consecutive rounds in this stage and they are Chen and Ikea having scores 1,1,1 and 7,7 and 1. Further Ikea which is not in 10^{th} round will have scores in 7^{th} 8^{th} and 9^{th} round and chen would have scored in 8^{th} 9^{th} and 10^{th} round. Proceeding in this way we get the following table for round 7-10

Round	Ist position **(7)**	IInd position **(3)**	III rd position **(1)**
7	Amita	Joshin	Ikea
8	Ikea	Bala/Hansa	Chen
9	Ikea	Bala/Hansa	Chen
10	Eric	Amita	Chen

As shown Amita, Chen, Eric scored points in the last round.

Section : Quantitative Ability

QNo:- 67 ,Correct Answer:- C

Explanation:- Vessel A Contains 50 gm of salt and 450 ml water
vessel B contains 110 gm of salt and 390 ml water
vessel C contains 160 gm of salt & 340 ml water
After the transfer of 100 ml from A to B
A will contain 360 ml water & 40 gm salt and B will contain 120 gm of salt and 480 ml water which makes B having 20% salt strength. After the transfer of 100 ml from B to C, C will Contain 180 gm of salt & 420 ml of water making it have salt strength = 30% After the final transfer of 100 ml from C to A, A will contain 70 gm of salt and 430 ml water making the salt strength in A = 14%

Alternate method:-

Vessel	A	B	C
Salt Strength	10%	22%	32%
After 100 ml transfer from A to B	10% (400 ml total)	$\frac{10+22\times5}{6}$ = 20%	32%
After 100 ml Transfer from B to C	10% (400 ml Total)		$\frac{20+5\times32}{6}$ = 30%
After 100 ml transfer from C to A	$\frac{10\times4+30}{5}$ = 14%		

Answer = 14%

QNo:- 68 ,Correct Answer:- B

Explanation:- $7a = -b \Rightarrow b^2 = 49a^2$

$12a^2 = c$

So, $b^2 + c = 61\ a^2$

So, option ÷ 61 has to be a perfect square . Trying options

(i) $\frac{3721}{61} = 61$ which is not a perfect square

(ii) $\frac{549}{61} = 9$ which is a perfect square

(iii) Not a multiple of 61

(iv) $\frac{427}{61} = 7$ which is not a perfect square

(So option B is Correct)

QNo:- 69 ,Correct Answer:- C

Explanation:- Let the circumference = 100m. Let the meeting point is X.

The Distance P to X clockwise is 60 m and distance P to X anti-clockwise is 40 m.

A Travelled 40 m in 12 min, so he can cover 60 m in $\frac{12}{40} \times 60 = 18\,\text{min.}$

Speeds of A and B are in the ratio 6:4 (Because A and B covered 60 m & 40 m respectively in the same time so their speeds are in the ratio 6:4)

So the time taken by B to cover 60 m = $\frac{6}{4} \times 18$ min., So 10:27 am is the answer.

QNo:- 70 ,Correct Answer:- B

Explanation:-

The equilateral triangle has side 20 cm so its height = $\sqrt{3} \times 20/2$ cm. Let the height of the pyramid = x cm then, 10 cm, x cm and $\sqrt{3} \times 20/2$ are Pythagoras triplets with hypotenuse = $\sqrt{3} \times 20/2$

$\Rightarrow x^2 + 100 = 300$

$\Rightarrow x = 10\sqrt{2}$

(2^{nd} Option)

QNo:- 71 ,Correct Answer:- C

Explanation:- $\frac{n^2 + 7n + 12}{n^2 - n - 12}$

$\frac{(n+4)(n+3)}{(n-4)(n+3)} = \frac{n+4}{n-4}$

Taking the largest option 16, we get $\frac{20}{12}$ which in not an integer. Next, we can try n = 12 which gives $\frac{16}{8} = 2$ which in an integer. So 3rd option.

QNo:- 72 ,Correct Answer:- C

Explanation:- $X^2 - 4x - \log_2 A = 0$

For real and distinct roots the quadratic $ax^2 + bx + c = 0$ must have,

$b^2 - 4a\ c > 0$

$\Rightarrow 16 + 4 \log_2 A > 0$

$\Rightarrow \log_2 A > -4$

$\Rightarrow A > 2^{-4}$

$\Rightarrow A > \frac{1}{16}$

(3rd option)

QNo:- 73 ,Correct Answer:- A

Explanation:- Profit from six of the bicycles = 6 × 25 % of x (where x is the purchase price of a bicycle)
Loss from four of the bicycles = 4 × 25% of x
Total net profit = 2000 = 6 × 25% of x – 4 × 25 % of x
⇒ 1.5 x – x = 2000
⇒ x = 4000

QNo:- 74 ,Correct Answer:- C

Explanation:-
The sum of integers is 30 x 5 = 150. According to the question, exactly 20 integers do not exceed 5.
Since the question is asking about the maximum value of the average of 20 integers, so we will find the minimum value of the remaining 10 integers which have to be greater than 5.
So the sum of 10 integers each of them having value 6 is = 10 x 6 = 60. So remaining sum = 150 - 60 = 90.
Hence the maximum value of the average of the remaining 20 integers is 90/20 = 4.5

QNo:- 75 ,Correct Answer:- 12

Explanation:- f (1×2) = f(1) f(2)
f (2) = f(1) f(2)
⇒ f (1) = 1
Also, f(2) > f(1)
Let f(2) = a, f(3)=b.
$f(4) = f(2) \times f(2) = a^2$
$f(6) = f(2) \times f(3) = ab$
$f(24) = a^3 b = 54$
⇒ a = 3, b=2
So $f(18) = f(3) \times f(6) = ab^2 = 12$.

QNo:- 76 ,Correct Answer:- B

Explanation:- $a_1 = 1$
$a_1 - a_2 = 2 \Rightarrow a_2 = -1$
$a_1 - a_2 + a_3 = 3 \Rightarrow a_3 = 1$
$a_1 - a_2 + a_3 - a_4 = 4 \Rightarrow a_4 = -1$
Similarly, $a_5 = 1$, $a_6 = -1$, $a_7 = 1$,.....
$a_{odd} = 1$, $a_{even} = -1$
$a_{51} + a_{52} + _____ + a_{1023}$
1 – 1 + 1 – 1 _____+ 1
=1

QNo:- 77 ,Correct Answer:- A

Explanation:- Let the scores of Rama, Mohan and Anjali are R,M and A respectively.
$R = \frac{1}{12}(M+A)$
After the score of each of them increased by 6, the ratio of their scores are 11:10:3 fo Anjali, Mohan & Rama respectively.
Let their scores are 11x, 10x, 3x.
Their original scores before the increase were
11x-6, 10x-6, 3x-6 respectively

So 3x-6 = $\frac{1}{12}$(11x-6 + 10x -6)

3x – 6 = $\frac{1}{12}$(21x -12)

⇒ x = 4

Anjali's score exceeded Rama's score by

(11x-6)-(3x-6)=8x=32

QNo:- 78 ,Correct Answer:- C

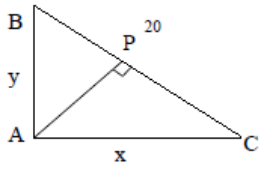
Explanation:-

Since cyclist takes one hour to reach from A to B and 45 motor cycles starting from 10:01,10:02,----------,10:45 am leave from A to reach B by 11 am, So the last motorcycle takes 15 min to reach from A to B. Hence every motorcycle takes 15 min to reach from A to B. If the cyclist doubles his speed then he will reach B at 10:30 am and hence the last motorcyclist who will reach B at 10:30 am has to leave from A at 10:15. Therefore 15 motorcycles will reach B in the given time.

Answer= 15

QNo:- 79 ,Correct Answer:- A

Explanation:-



$\frac{1}{2}$ xy = $\frac{1}{2}$ × 20 × AP

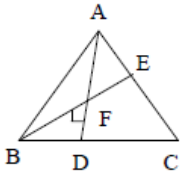
⇒ AP = $\frac{xy}{20}$

For the maximum possible value of AP, x =y= $10\sqrt{2}$⇒ maximum (in cm) AP

= $\frac{(10\sqrt{2})\ (10\sqrt{2})}{20} = 10$

QNo:- 80 ,Correct Answer:- B

Explanation:-



BF = 6 cm, FE = 3cm,

AF = 8cm, FD = 4 cm

Area of triangle ABE =

$\frac{1}{2}$ × BE × AF = $\frac{1}{2}$ × 9 × 8 = 36 cm^2

So area of triangle ABC = 72 cm^2

QNo:- 81 ,Correct Answer:- 4

Explanation:- 105 = $n^2 - m^2$ = (n-m) (n+m)

$3^1 \times 7^1 \times 5^1$ = (n-m) (n+m)

Number of factors of 105

= (1+1) (1+1) (1+1) = 8

So possible pairs for (n-m) & (n+m) are four

(Answer = 4.)

QNo:- 82 ,Correct Answer:- C

Explanation:- Let $2^{3x} = y$

$\Rightarrow y^2 + 2^2 y - 21 = 0$

$\Rightarrow y^2 + 4y - 21 = 0$

$\Rightarrow y = 3, -7.$

The only possible value is $y = 3$

$\Rightarrow 2^{3x} = 3$

$\Rightarrow 3x = \log_2 3$

$\Rightarrow x = \frac{\log_2 3}{3}$

QNo:- 83 ,Correct Answer:- D

Explanation:- $\sqrt{\log_e \frac{4x - x^2}{3}}$ is a real number

If $\frac{4x - x^2}{3} \geq 1$ (because $\log a \geq 0$ for $a \geq 1$)

$4x - x^2 \geq 3$

$\Rightarrow x^2 - 4x + 3 \leq 0$

$\Rightarrow (x-3)(x-1) \leq 0$

Which is true for $1 \leq x \leq 3$

QNo:- 84 ,Correct Answer:- 12

Explanation:- Let number of regular working hours = x hours and number of overtime working hours = y hours.

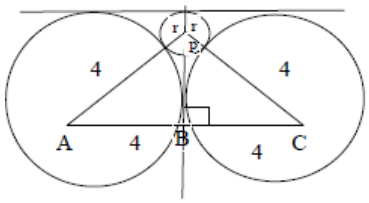
$x + y = 172$

15% of $57x = 114y$

57 × 15 % of $(172 - y) = 114y$

$\Rightarrow y = 12$

QNo:- 85 ,Correct Answer:- B



Explanation:-

Considers Δ APB having right angle at B

AP = 4 + r

BP = 4 – r

AB = 4

Applying Pythagoras theorem

$(4+r)^2 = (4 - r)^2 + 4^2$

$\Rightarrow (4+r)^2 - (4-r)^2 = 16$

$\Rightarrow 16r = 16$

$\Rightarrow r = 1$ cm

QNo:- 86 ,Correct Answer:- 13

Explanation:- $5^x - 3^y = 13438$

$\Rightarrow 5^{x-1} \times 5^1 - 3^y = 13438$ _____1

$\Rightarrow 5^{x-1} + 3^{y+1} = 9686$

$\Rightarrow 5^{x-1} + 3^y \times 3^1 = 9686$ _____2

Let 5^{x-1} = a & 3^y = b
Then 5a-b = 13438 and
a+3b = 9686
⇒ a = 3125, b = 2187
⇒ 5^{x-1} =3125 ⇒ x = 6
⇒ 3^y = 2187 ⇒ y = 7
Answer = 13

QNo:- 87 ,Correct Answer:- B

Explanation:- radius = 3 cm
Let height = h cm
HCF of 405,783,351=27
So each cylinder has used 27 cc of material which is equal to the volume of each cylinder.
27 cc = π r^2h
$\Rightarrow h = \frac{3}{\pi} cm$

$\text{The number of cylinders made} = \frac{405+783+351}{27} = 57$

So total surface area of all the cylinders = 57(2 π rh + 2 π r^2) cm^2
= 1026 (π +1) cm^2

QNo:- 88 ,Correct Answer:- 80

Explanation:- Let the score of D = 100
Then Score of C = 80
⇒ Score of B = 100
⇒ Score of A = 90
So if A scores 90 then D scores 100
⇒ if A scores 72 then D scores 80
(Answer = 80)

QNo:- 89 ,Correct Answer:- 44

Explanation:- $2^4 \times 3^5 \times 10^4$
= $2^8 \times 3^5 \times 5^4$
Which has (8+1) (5+1) (4+1) factors
i.e. 270 factors out of which perfect squares greater than 1 will be made by combinations of (2^0,2^2,2^4,2^6,2^8) × (3^0,3^2,3^4) ×(5^0,5^2,5^4) excluding the combination $2^0 \times 3^0 \times 5^0$
So, possible combinations are = (5 × 3 × 3) – 1 = 44
Alternate method
$2^8 \times 3^5 \times 5^4 = (2^4 \times 3^2 \times 5^2)^2 \times 3$
Total factors which are perfect squares= (4+1)(2+1)(2+1)=45
Required factors = 45-1=44

QNo:- 90 ,Correct Answer:- 48

Explanation:- Let the length of track A = x m
and that of track B = y m
x +y = 325
$\text{And } \frac{9x}{6} = \frac{5y}{7.5} \Rightarrow x : y = 4:9$

$\text{So } x = \frac{4}{13} \times 325 = 100$

Mary will complete one round of A which is of length 100m with a speed of 7.5 kmph

Or $7.5 \times \frac{5}{18}$ m/s in $\frac{100}{7.5 \times \frac{5}{18}}$ sec.

= 48 sec.

QNo:- 91 ,Correct Answer:- A

Explanation:- Hit and trial approach: Take a = 5 then b = 0, x = 13 and y = 0. So, k = ay-bx = 0
The only option that works here is 1st option.
Technical approach: ax + by = 65 and –bx + ay = k , solving these two equations for x and y , we get , x = (65a – kb) / 25 and y = (65b + ak) / 25
By substituting these values in $x^2 + y^2 = 169$, we get k = 0.

QNo:- 92 ,Correct Answer:- B

Explanation:- 15,19,23,27,--------415 A.P. with common difference = 4
14,19,24,29,---------- 464 A.P. with common difference = 5
LCM of 4 & 5 = 20 which has to be the common difference in the sequence of common terms.
So, Common terms are :
19 , 39, 59 ----- 415
19 + 20(n-1) ≤ 415
20(n-1) ≤ 396
n ≤ 20.8 So, n = 20

QNo:- 93 ,Correct Answer:- A

Explanation:- Let the number of Fiction books = x
and the number of Non-fiction books = y
Given that,
x+y = 11500
1.1x+1.12y = 12760
Solving the above two equations by multiplying the first one by 1.1 and then subtracting from the second equation:
we get .02 y = 110
So y = 5500 and x = 6000
So, 1.1 x = 6000 × 1.1= 6600

QNo:- 94 ,Correct Answer:- 7

Explanation:- Let the six digit number be 100000a + 10000b+1000c+100d+10e+f
Where a,b,c,d,e and f are digits.
Given that,
f= a+b+c ⇒f = a+2a+a=4a
e = a+b ⇒ e = a+2a=3a
c = a ⇒d = 7a
b = 2a
d= e+f ⇒ largest value possible for d is 7

QNo:- 95 ,Correct Answer:- B

Explanation:- Let the salaries of Ramesh , Ganesh and Rajesh were 6x,5x,7x respectively in 2010.
Let the salaries of Ramesh , Ganesh and Rajesh were 3y,4y,3y respectively in 2015.
Salary of Ramesh in 2010 = 6x
Salary of Ramesh in 2015 = 3y = 6x × 1.25 = 7.5x
So y = 2.5 x
Salary of Rajesh in 2010 = 7x and that in 2015 = 3y = 7.5 x

Percentage increase in salary of Rajesh $= \frac{7.5x - 7x}{7x} \times 100$

≈ 7%

QNo:- 96 ,Correct Answer:- 4851

Explanation:- The given series has 24 terms and hence can be written as:
48 n + [1+3+5+--------47] = 5280
48 n + 576 = 5280
So, n = 98
$1+2+3+\text{-------}+98 = \frac{98 \times 99}{2} = 4851$

QNo:- 97 ,Correct Answer:- 150

Explanation:- Using the formula : each interior angle for a regular polygon having n sides = $\frac{(n-2)}{n}180^0$
Given that,
3/2 times of $\frac{(a-2)}{a}180^0 = \frac{(2a-2)}{2a}180^0$ (because b = 2a)
⇒ 3a-6=2a-2
⇒a = 4 and b = 8
⇒a + b = 12
Then each interior angle (in degrees)for a regular polygon having 12 sides
$= \frac{(12-2)180}{12} = 150$

QNo:- 98 ,Correct Answer:- C

Explanation:- Let the job was done in x days then given that, 90 % of the job was done by Anil and Sunil, so the work done by them is 0.9
$\frac{x}{20} + \frac{x-3}{40} = \frac{9}{10}$
x = 13
So the answer is 13 days

QNo:- 99 ,Correct Answer:- 20920

Explanation:- Let the amount invested by Bimal is x Rs
The interest earned by Amal = 8% of 12,000 + 10,000 (1 + 6/200)^2 – 10,000
= 960+609 = 1569
The interest earned by Bimal = $\mathbf{x} \times \frac{7.5}{100} \times 1$
Since both got the same amount of interest
So, $1569 = \mathbf{x} \times \frac{7.5}{100}$
So, x = 20920

QNo:- 100 ,Correct Answer:- B

Explanation:- The amount paid by Bimal = x = p × 1.2 × 1.3 = 1.56 p
The amount paid by Barun = y = p × 0.8 × 0.7 = .56p
$\frac{x-y}{p} = \frac{p}{p} = 1$