

Solutions

Solution 1:

This question is an inference question and asks us to mark the option that suggests why the call pulse rate of male northern elephant seals in the southern rookeries was faster. The evidence for this can be seen in the last part of the second last paragraph. In that paragraph we have “this led Le Boeuf to deduce that dialects were a result of isolation over time...for instance, the first settlers of Ano Nuevo could have had, by chance, calls with low pulse rates. At other sites, where scientists found faster pulse rates the opposite would have happened-seals with faster rates would have happened to arrive first”. So if the pulse rate of the elephant seals in southern rookeries was faster, it was because the seals with faster call pulse rates might have been the original settlers (or might have arrived there first). Thus C is the best choice. Option A goes out because if that were the case, then the pulse rates of the seals in southern rookeries would have been slower, not faster. Option B also goes because here the question is migration to southern rookeries and not from southern rookeries. For choice D, there is no evidence whatsoever.

[Option: 3]

Solution 2:

This might look a little difficult, but we have a clear evidence that helps us arrive at the right answer. We must read the first sentence of the last paragraph “as the population continued to expand and the islands kept on receiving immigrants from the original population, the calls in all locations would have eventually regressed to the average pulse rate of the founder colony”. This is a simple concept of average. Now the question is which of the following could have ensured (it means it is asking us for a hypothetical situation) that male northern elephant seals dialects did not disappear. It disappeared because the average changed because of migrant seals. As more and more seals came, the average regressed to “the pulse rate of the founder colony”. To make the situation opposite, the call tempo of the individual immigrant seal should have changed to match the average tempo of resident male seals of the “host colony.” If option A had happened, the male northern seals dialect would not have disappeared. Option C is the exact opposite of A. We must remember here that the islands kept on receiving immigrants from the original population, and the average pulse rate changed to match the founder colony, not the host colony. That’s why the host colony’s dialects disappeared. Had option A been true, this would not have happened.

[Option: 1]

Solution 3:

This is the only easy question of this passage. The last sentence of the passage says “modern males exhibit more individual diversity, and their calls are more complex...sometimes featuring doublets or triplets”. So to capture the overall history of transformation, we must capture this last part of the passage. There is more of individual variety, but less regional variety. You must be wondering why! The passage clearly tells us that “in the decades that followed, scientists noticed that the geographical variations reported in 1969 were not obvious anymore...”. C is the best choice. A and D go out because they mention “great regional variety”.

[Option: 3]

Solution 4:

This is a difficult question but option elimination can help us arrive at the right answer. We have to mark the answer that cannot be inferred, as it is an EXCEPT question. A can be inferred because the seals exhibited dialects because the population was isolated. This isolation was a result of the seal population being almost on the verge of extinction. Since their numbers were very small, the isolation happened. As the population grew there was

immigration to different places and this resulted in disappearance of the dialects. Thus we can infer A. Option B also can be inferred from the para that talks about Ano Nuevo seals. It clearly suggests that the average pulse rate increased from 1970s till the dialects disappeared. Option C is certainly a wrong inference because the influx might have resulted in pulse rate of the seals averaging to that of Isla Guadalupe, but not exceeding. The word “exceeding” makes this a wrong inference, and therefore the right answer. Option D is exactly true to what the passages, as a whole, discusses. The individual call rate did not change throughout, but the immigration made all the difference, by ensuring influx of seals with higher pulse rate, thus increasing the average pulse rate.

[Option: 3]

Solution 5:

This is the simplest RC passage, and many questions here can be solved effortlessly. The question asks us to mark a choice of which the author would be supportive. We have to keep the central idea in mind while going through the options. The author opines that grammar is essential to frame sentences and one can't do away with grammar. Option 4 perfectly fits in. The author would indeed be supportive of such a software as the one that will standardise the rules of grammar as an aid to writers. Option 1 goes out because it is too narrow a choice, and tends to specifically focus on punctuation and capitalization instead of grammar as a whole. Choice 2 is against grammar, so it goes out, while option does not even mention the keyword grammar, which is the focus on the passage.

[Option: 4]

Solution 6:

This is an analogy question. You bring two different things together and what you have is a new thing. The right option must have two different things, which when combined should give us a new thing. 4 precisely does that. Vegetable is the noun, the spices is the verb, and the resulting new sentence is the new dish. There is no such analogy visible in 3. We don't understand the relevance of “same sports equipment”. The question says “take any noun”, but in 3 we are taking ‘a collection of people’. 2 is logically flawed because without a verb we can't have a sentence. Option 1 might look close, but planting an apple tree alone in a field will not make the field an orchard. We need to have many such apple trees to make an orchard. 4 is the best.

[Option: 4]

Solution 7:

Here for this question, we have to mark a choice that cannot be inferred from the passage. For choice 2 we have evidence in the second paragraph of the passage. 2 can be definitely inferred from the second paragraph. Choice 2 is also correct, and can be inferred from the option itself. Police ensure enforcement of law and order, whereas grammar police insist on application of strict grammar rules. Option 4 goes because it too can be inferred. After all, the author is in favour of grammar and it is grammar that helps us form complete sentences. So how can the passage imply that sentences need not be complete. It has to be the other way round. Noun and verb come together to form a complete sentence.

[Option: 1]

Solution 8:

Here we have mark a choice that captures the main idea of the passage. Since the author highlights the importance of grammar in framing correct sentences, choice 1 becomes the right answer. This is too simple a question to demand why others are not the right choice.

[Option: 1]

Solution 9:

Here we have to pick a choice, which, when falsified, supports the arguments of the passage. Since 1 is supporting the author, it would not be the same when falsified, so 1 goes out. 2 says that one must not think that nouns and verbs are necessary for complete sentences. But when falsified it means that nouns and verbs are necessary for complete sentences, so this supports the author, and is therefore the right answer. Choice 4 is irrelevant because the passage is concerned with grammar and not with rhetoric. Whether some writers regard or disregard the rules of rhetoric has nothing to do with the passage's chief concern, which is grammar.

[Option: 2]

Solution 10:

This is an easy passage to read, but some of the questions have very close choices. This question asks to pick a choice that modern currency does not share with the currencies of the Tang era. You must remember that this is an EXCEPT question, and the feature not shared will become the right choice. 1 is a feature shared by both modern and Tang currencies. Last paragraph tells us about modern currencies, whereas the opening tells us about the Tang currencies. Choice 3 also is a feature shared by both, the bolt of silk lost value because of wear and tear. Now many might feel that the last paragraph does not speak anything about modern currencies losing value over time. But this is implied as common knowledge. The idea of inflation suggests that currency value may not always be the same always. The value of Rs 100 was greater 20 years ago than it is today. Thus 3 is a feature shared by both modern and Tang currencies. 4 is also a feature shared by both because in the modern times we use coins for smaller payments, currency for bigger payments, and electronic methods for still bigger payments. This was true of Tang era as well, as can be seen in the first and second paragraphs. The currencies during the Tang era were static: we had coins, fabric and grains to make payments; there is no transformation implied in these during that era, whereas in the modern times because of technology the currency system is undergoing transformation, as the last paragraph shows. The author says: it is changing in front of our eyes...

[Option: 2]

Solution 11:

The answer to the earlier questions helps us answer this question. If in the earlier question we eliminated choices that modern currencies shared with the currencies of the Tang era, then it implies that currency usage during the Tang era was similar to currency usage of modern times. There is no evidence for choice 1. Copper coins were difficult to mint, the passage says, but that doesn't mean that copper coins were more valuable. Choice 4 is opposite of what is stated in the passage.

[Option: 3]

Solution 12:

To answer this question, we must look for the word “steady and stable” and examine the context in which the words have been used. These words have come in the third paragraph. The para says “dimensions of a bolt of silk held steady ...” here by dimension, the authority implies measurement. Thus 1 is correct, but it goes out because it is an except question. The idea of supply can also be inferred from the first sentence of the third paragraph of the passage. The values of different textiles were more stable because the textiles would not have deteriorated over time. The Passage tells us that the value of textiles depended on the quality of the textile. So stable value means stable quality. The reliability of transportation is not the question here. It is the cost of the transportation that the passage highlights (second last para). Thus 1 is the best choice.

[Option: 1]

Solution 13:

This is a slightly tricky question, but we have to pick the choice that is not economically a sound decision. So the right choice must imply some sort of a loss. Option 1 says that payment was done with a faded bolt of the same value.... since the faded bolt will further deteriorate, using it to pay makes sense. 1 goes out. Making payment in grains would be the most economical way as grains would rot easily, so the payer will gain while the payee will not. Here we have to answer for the payer. Thus both 2 and 3 are economical. 3 is also an economical way because coins, the passage says, lost value over time, but a piece of fabric from a new bolt is not likely to lose value over time, and so would be economically not a wise decision to make payment.

[Option: 4]

Solution 14:

This is an application question. We have to pick from the choices the one that explains how the new ruling class might have betrayed the principles of the French Revolution. We have to first understand what, as per the passage, were the principles of the French Revolution. Here we have to understand that the workers and peasants were the oppressed class, and it is they who made the revolution possible. Betrayal means to against someone. 1 cannot be the right choice because the new ruling class was against the destructive impact of the revolution on the market, but not against the workers and peasants. Both in 2 and 3 there is no sign of betrayal. Only in 4 can we see the evidence of betrayal where the new ruling class rode to power on the strength of workers’ revolutionary anger, but then turned to oppress that very class. 4 is the best choice.

[Option: 4]

Solution 15:

The clue to the right answer can be seen in the last paragraph where the author says “there are several traditions of anarchism...one was 19th century American figures who argued that in protecting our own autonomy and associating with others, we are promoting the good of all. These thinkers differed from free-market liberals in their absolute mistrust of American capitalism, and in their emphasis of mutualism.” Thus there was a difference between free market liberals and the American anarchists. This difference was with respect to mutualism and capitalism. The anarchists favoured mutualism but mistrusted capitalism. Option 2 brings out this difference correctly. The others just go out because none of them talk about mutualism, which the American anarchists favoured, but the liberals did not.

[Option: 2]

Solution 16:

Here we have to eliminate the choice that features in the passage as the author's argument, and choose as our right answer the one that does not. 1 is true as per the passage and can be verified from the second paragraph of the passage. The first sentence of the last para is evidence for choice 3. From the first sentence of the fourth paragraph, we can derive choice 4. Thus we have evidence for all choices except 2. In fact, we can directly mark 2 without verifying the others because anarchists are in favour of autonomy and mutualism. So anarchists will never mistrust collectivism. The evidence for this can be found in the last paragraph. Thus 2 is not the argument presented by the author in the passage.

[Option: 2]

Solution 17:

The passage clearly says in the first para and the fourth paragraph that state itself is the enemy. Thus 3 is the right choice, unarguably. The others are easy to eliminate.

[Option: 3]

Solution 18:

This too is a very simple question because we have to pick the concepts that are there in the passage. Both 1 and 2 go out because they don't have in them the most important concept: anarchism. Out of 3 and 4, we must pick 3 because the last part of the passage discussed Freedom and individual autonomy. You can refer to the last two paragraphs. Also in option 4 power and state are the same things, there is no need to keep them as two separate things.

[Option: 3]

Solution 19:

This is a simple parajumble question. None of the sentences, except 1 have the opening idea. 1 says "indigenous significances of nineteenth century San folk tales are hard to determine". The idea of "San Folk tales" makes this an opening idea. Rest all just mention the word "the tales" without specifying the kind of tales. Now, 1 says "significances of the tales are hard to determine" and 4 says "meaning can be elicited ...by probing beneath the narrative of the verbatim...". Thus 1 and 4 form a pair. 3 further says that "selected tales reveal that they deal with a form of spiritual conflict...and concern conflict between people". Finally, in 2 we have "...benign shamans transcend the levels of the San cosmos in order to deal with social conflict...". Thus 1432 is the right sequence in which information flows like this: significance of San Folk tales is hard to determine...but meaning can be elicited the tales reveal social conflict... shamans try to deal with the social conflict

[Answer: 1432]

Solution 20:

This is a relatively simple question. 4 opens the paragraph by giving us the reference of time and place. It talks about white liberty in colonies, and slavery in those colonies. 4 says "the slaves could never be muted". 5 comes as an additional information for 4, because 5 clearly says that "slave owners were obsessed over slave talk" and 1 says "talk was the most common way for enslaved men and women to subvert the rules of their bondage" ...2 further

adds to the story by stating that “even in conditions of extreme violence.... their words remained ubiquitous”. Thus 4512 form a logical link, with 3 as the odd one out. The sequence may not strictly be 4512, but in all cases 3 is the odd one.

[Answer: 3]

Solution 21:

In this question, it is easy for us to spot the opening sentence. It brings the action from the past (1990s) into the present. For this reason, 3 is in the present perfect continuous form, and 1 is in the simple present form. Thus 31 form a pair. 4 has the pronoun “these concerns”. It refers to the noun “pressing security concern” in 2. Thus 24 form a pair. The right sequence has to be 3124.

[Answer: 3124]

Solution 22:

This is a slightly difficult question. The passage talks about what modern Europe has done in order to adapt to changing international order. There are two things it has done: establish a common currency, and a formal political structure, adjusting its internal differences by peaceful mechanisms. 1 looks good, but does the passage say that “Europe has consistently done this”? Maybe. But what it misses here is the essence. Europe has changed its structure, but the focus of the passage is on “what it has done of late”. For this reason, 4 wins. By choosing a common currency it has tried to lower economic heterogeneity, and by establishing European Union it has tried to lower political heterogeneity. Thus 4 captures the essence, while 1, 2 and 3 walk on the periphery.

[Option: 4]

Solution 23:

This question is slightly easier than the earlier one. Let’s see the critical elements of the passage. The most important critical element is “forensic phonetics in movies and television”, and “these have led to errors in real-life justice, with unrealistic expectations of the capabilities of forensic science”. 1 goes out because it misses the context of “movies and television”. 3 is a complete distortion, whereas 4 misses the “unrealistic expectations” part. 2 is the best choice in every way.

[Option: 2]

Solution 24:

In this question, too, we have to look for the keywords. The passage talks about intelligence and its heritability, and the criticism mounted against it. Option 1 exactly captures all the keywords. 2 misses on the heritability part of the story. 3 wrongly mentions the debate about “ways in which intelligence is inherited”. The criticism is about heritability itself, not about the ways in which it is inherited. Choice 4 also misses the crucial idea of heritability. Thus 1 is the best choice.

[Option: 1]

Solution 25:

This could be a challenging question, but we have to look for clues that connect the sentences. This will help us create a new sequence and find the odd one out. 5 says “more specifically, the feminist enquiry...”. thus there must a reference to “more specifically” because this phrase is used to bring in clarity to something. We must try to find a reference to this. The reference can be found in 1, which says “for feminists, the question of ...” (the question of =enquiry). Thus 15 form a pair. 5 has “...the feminist enquiry begins with the realization...and 4 further adds to it by saying “the documentation of this realization...was one of the earliest tasks undertaken by feminist critics...” 2 concludes by stating that “Elaine’s critique of the literary curriculum is exemplary of this work”. 2 serves as an example of 4. 3 is the odd one out.

[Answer: 3]

Solution 26:

The passage moves from the broader idea of “historical use of poisons” to a narrower idea of “biological weapons”. 1 opens the paragraph. It then moves to biological weapons in 3. In 2 treaties are signed against the use poisoned weapons. In 4 there is additional info about the treaties, that they contained no means of control. Thus 1324 is the right sequence.

[Answer: 1324]

	P ₁	P ₂	P ₃	P ₄	P ₅	payment	bonus
Arun				4		1000	250
Tarun	3					1200	200
Chandan			2			1400	100
Damodaran		3				1300	150
Eman					2	1100	200

A - Exactly one - 5stars

B - Exactly one - 5stars

C - Exactly two - 5stars

Solution 27:

Damodaran not get a bonus. Two possibilities either No 5 stars or atleast one 1 star To get maximum final rating

$$5 + 5 + 3 + 4 + 1 = 18/5 = 3.6$$

Option: 3

Solution 28:

Eman got bonus (Atleast one -5 star) Minimum final rating

$$5 + 2 + 2 + 3 + 3 = 15/5 = 3$$

Option: 1

Solution 29:

$$A - 5 + 4 + 2 + 2 + 3 = 16/5 = 3 - 2 \times 250 = 800 + 1000 = 1800$$

$$B - 5 + 3 + 2 + 2 + 3 = 15/5 = 3 \times 200 = 600 + 1200 = 1800$$

$$C - 5 + 5 + 2 + 2 + 3 = 17/5 = 3 - 4 \times 100 = 340 = 1740(340 + 1400)$$

$$D - 5 + 3 + 2 + 2 + 3 + 15/5 = 3 \times 150 = 450 + 1300 = 1750$$

$$E - 5 + 2 + 2 + 3 + 3 = 15/5 = 3 \times 200 = 600 + 1100 = 1700$$

Minimum payment = 1700

Option: 3

Solution 30:

If all five drivers got bonus maximum possible would be

$$A \Rightarrow 5 + 4 + 4 + 3 + 3 \Rightarrow \frac{19}{5} = 3.8 \times 250 = 950 + 1000 = 1950$$

$$B \Rightarrow 5 + 4 + 4 + 3 + 3 \Rightarrow \frac{19}{5} = 3.8 \times 200 = 760 + 1200 = 1960$$

$$C \Rightarrow 5 + 5 + 4 + 4 + 2 \Rightarrow \frac{20}{5} = 4 \times 100 = 400 + 1400 = 1800$$

$$D \Rightarrow 5 + 5 + 3 + 4 + 4 \Rightarrow \frac{21}{5} = 4.2 \times 150 = 630 + 1300 = 1930$$

$$E \Rightarrow 5 + 5 + 4 + 4 + 2 \Rightarrow \frac{20}{5} = 4 \times 200 = 800 + 1100 = 1900$$

Maximum monthly payment = 1960

Option: 1

Each of the ten musicians A, B, C, D, E, F, G, H, I & J is an expert in at least one of the percussion instruments.

3 are expert in only Tabla (T)

3 are expert in only Mridangam (M)

1 is expert in only Ghatam (G)

2 are expert in T & M but not G

1 is expert in T & G but Not on M

Total no of Musicians expert in T = 6

Total no of Musicians expert in M = 5

Total no of Musicians expert in G = 2

Table – 1

Musician	Percussion Instrument		
	TABLA (T)	MRIDANGAM (M)	GHATAM (G)
A	(OR) ↑↓	✓	x
B		✓	x
C			
D	✓	x	✓
E			
F	✓	(OR) ↑↓	
G	✓		
H		x	(OR) ↑↓
I	x	x	
J	x		
Total	6	5	2

Since none of the musician who are expert in mridangam also expert in Ghatam. Hence A & B are not expert in Ghatam.

None of the musicians are expert in all 3 instruments, D is not expert in Mridangam. I have expertise in Ghatam because he is expert neither in Tabla n or Mridangam (From 4 and 5). Again since H is expert neither in Mridangam n or Ghatam, H is an expert in Tabla.

Table – 2

Musician	Percussion Instrument		
	TABLA(T)	MRIDANGAM(M)	GHATAM(G)
A	(OR) ↑↓	✓	x
B		✓	x
C	?	x (OR)	x
D	✓		✓
E	?		x
F	✓	(OR) ↑↓	x
G	✓		x
H	✓	x	(OR) ↑↓ x
I	x	x	✓
J	x	✓	x
Total	6	5	2

Total number of musicians who are expert in tabla is six. Besides D, F, G & H, either A or B (from 1) and either C or E are experts in tabla.

Total number of musicians who are expert in ghatam is two. Since D & I are experts in Ghatam, others are not experts in Ghatam.

Now, J is expert neither in Tabla nor in Ghatam. Hence J is an expert in Mridangam. Total number of musicians who have expertise in Mridangam is five.

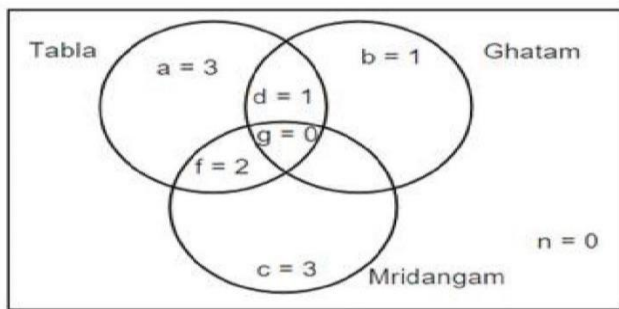
Those are A, B, J and F or G, Hence out of C & E one has expertise in Mridangam.

Out of A & B one of the musicians is an expert of only Mridangam the other has the expertise in both table & Mridangam.

Out of F & G one of the musicians is an expert of only table & the other has the expertise in both table & Mridangam.

Out of C & E one of the musicians is an expert of Tabla only and the other is an expert of Mridangam only

Alternate solutions:



From (1), one of A and B will be in region c and the other one in region f.

From (2), D is in region d.

From (3), one of F and G will be in region a and the other one in f.

From (4), either both I and J will be in region c or one in region b and the other in region c.

From (5), one of H and I will be in region b and the other in region a.

By combining (4) and (5), I will be in region b, H in region a and J in region c.

Thus, we get the following.

Region a = 3 (F/G, H, C/E), Region b = 1 (I), Region c = 3 (A/B, J, C/E)

Region d = 1 (D), Region f = 2 (B/A, G/F)

Solution 31:

H definitely is an expert only in Tabla

Option: 2

Solution 32:

J definitely is an expert only in Mridangam

Option: 3

Solution 33:

One of A and B, one of G and F are experts in both tabla and mridangam but not ghatam. Three of the choices has at least one of the above four musicians. But one (C and E) does not have any one of these four. Hence, that is the answer

Option: 3

Solution 34:

Given, C is an expert in mridangam but not F. It means F and E are experts only in tabla. Thus, E, F and H will be the experts in tabla but not in mridangam or ghatam.

Option: 4

Institutes A, B, C, D Vendors W, X, Y, Z

Contracts Awarded are multiyear Contracts (consecutive years) or single Year Contract.

No institute had more than one contract with the single vendor.

Each Institute - Two contracts - two vendors

Each Vendor - two contracts - two institutes

V. Exactly 4 multi year contract (A-3years, B-7 years, C-3 years, D-4 years). Exactly 4 single year contracts. In total 8 contracts.

I. Vendor Z had at least one contract in ever year. This is only possible if he had both the contracts which are multi years contract. As $7 + 1 = 8$ not possible. Only possibility is (7years + 3 years) or (3 years + 7 years) = 10 years.

II. Vendor X Six years 2010, 2011, 2012, 2013, 2014, 2015. To have contract for theses six years, only possibility is left with multi years contracts (4 years + 3 years or 3 years + 4 years) with 1 year overlapping contract. PI. Note (3years + 3 years) is not possible for vendor X as one 3 years is already awarded to vendor Z{(7years + 3 years) or (3 years + 7 years) = 10 years}.

So all the 4 multiyear contracts are awarded to Z (3 years, 7 years) & X (3 years, 4 years). So we are left with 4 single year contracts.

III. Vendor Y had contracts in 2010 & 2019. Both of these contracts are single year contracts. Vendor W had contracts (two contracts) only in year 2012. So both of these are single year contracts.

IV. There are 5 contracts in 2012.

VI. Institute C had one or more contracts in 2012, but no contract in 2011.

VII. Institute B & D each had exactly one contract in 2012. Institute D did not have any contract in 2010.

Out of 5 contracts in 2012 {B, D, W, W and C at least one contract}. Hence C has exactly one contract in 2012.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A											3 year
B											7 year
C											3 year
D											4 year
	Y		W, W. B, D, C							Y	

For Vendor X, 4 year contract is with D. It Can vary from (2011-2014) or (2012-2015). No contract can be awarded to him after 2015 (point II). Only possibility for 3 year contract is with A only, as C do not have any contract in 2011. Therefore Vendor X has a 3 year contract with institute A from 2010-2012 & a 4 year contract with institute D from 2012 to 2015 (so as to have one or more contract from 2012 to 2015).

Vendor Z can be allotted contracts with only Institute B & C Only. As vendor Z has at least one contract in every year (point I) , thus the only possibility left is first 7 year contract with institute B and then 3 year contract with institute C (as institute C do not have any contract in 2011).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012)										3 year
B											7 year
C											3 year
D				X - 4 years (2012-2015)							4 year
	Y		W, W, B, D, C							Y	

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012)										3 year
B				Z - 7 years (2010-2016)							7 year
C								Z - 3 years (2017-2019)			3 year
D				X - 4 years (2012-2015)							4 year
	Y		W, W, B, D, C							Y	

In 2012 there are 5 contracts. Three contracts are already assigned. Remaining two are single year contracts of W in 2012. Also Institute C has at least one contract in 2012. {No institute had more than one contract with the same vendor (initial condition)}. Hence both vendor W 1 years contract cannot be with Institute C. Hence Exactly one contract of vendor W is with institute C. Further, Point VII, Institutes B and D each had exactly one contract in 2012 which is already assigned. Hence second 1 year contract of vendor W is with institute A in 2012 (only possibility).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012),										3 year
			W-1 year (2012)								
B			Z - 7 years (2010-2016)								7 year
C			W-1 year (2012)					Z - 3 years (2017-2019)			3 year
D			X - 4 years (2012-2015)								4 year
	Y		W, W, B, D, C							Y	

Institute A has allotted two contracts to 2 vendors {X & W}. Institute C had allotted contracts to two vendors {W & Z}. Hence Vendor Y can have a 1 year contract with only Institute B in 2010, (only possibility left). Hence vendor Y had 1 year contract in 2019 with Institute D (only possibility left).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
A	X - 3 years (2010-2012),										3 year
			W-1 year (2012)								
B			Y-1 year (2010)								7 year
			Z - 7 years (2010-2016)								
C			W-1 year (2012)					Z - 3 years (2017-2019)			3 year
D			X - 4 years (2012-2015)							Y-1 year (2019)	4 year
	Y		W, W, B, D, C							Y	

Solution 35:

In 2015 there were two contracts with vendor Z and X

Option: 3

Solution 36:

D had a contract with Y in 2019

Option: 1

Solution 37:

In three years {in 2016 (Z), 2017 (Z), 2018 (Z)} there were only one contract

Option: 3

Solution 38:

In 2010 {(A-X), (B-Z), (B-Y)} exactly three contracts.

Option: 3

Solution 39:

A ∇ (X & W) in 2012, B ∇ (Z & Y) in 2010

Option: 4

Solution 40:

Institutes { A - 2012, B - 2010}, Vendors { W - 2012 X - 2012}

Option: 4

From the fourth paragraph, it is very clear that if the student miss exactly two exams, then his / her marks in those two subjects would be the average of best two scores and would also be "EQUAL"

By properly analysing the table, we can conclude that Esha is the only student who do not score equal marks in any two subjects. Hence, Esha is one of the student who missed exactly one subject.

Marks obtained by the student in the missed examination is the average of Best three scores, and the average/mean cannot be lowest or highest value.

Considering this concept of averages, Isha can miss examination of English, Hindi or Science.

If Esha missed English Exam, then her marks in that exam would be $95+85+60/3$ or 80.

Eventually she scored 80 only in English. Hence Esha could miss examination of English

If Esha missed Hindi Exam, then her marks would be $95+85+60/3$ or 60. This contradicts

with value given the table if Esha missed science Exam, then her marks in science exam would be $80+85+95/3$ or 86.6. Again contradiction

In conclusion, Esha missed the exam of exactly subject that is English

From the second fact, we can infer that one of student missed exam of only Mathematics.

If Alva missed Maths exam, then her scored would be $80+75+75/3 = 76.66$. This value

contradicts with value given the table Hence Alva did not miss the Math Exam

If Bithi missed the Maths Exam, then her score would not be the lowest score (55)

If Carl missed the Maths exam, then his score would be $80 + 100 + 90/3$ or 270 Carl could be

the student who missed the maths exam.

If Deep missed the Maths exam then he can't score the highest marks of 100

If Foni missed the Maths exam then her score in that exam would be $83+88+83/3$ Or 84.6.

This contradicts with value given in the table. In conclusion, Carl is the student who missed the exam of only mathematics.

From the third fact, we can conclude that one student missed only Hindi exam. Another student missed two exams one Hindi and one more. Two students among Alva, Bithi, Deep and Foni would be in this category.

If Alva missed only Hindi exam, then her score would be $80 + 70 + 75/3$ or 75 marks score. If Alva missed two exams, then her score in both the exam would be equal.

Alva can miss Hindi and science, and her score in both these exam in the average of $80+70/2 = 75$ marks scored

In conclusion, Alva can miss only Hindi exam or Hindi and science both

If Bithi missed Hindi exam, then the score would be $90 + 85 + 85$ or 86.6. The contradicts with value in the table

If Deep missed Hindi exam, then his score would be $100 + 90 + 80/3$ or 90. Makes score

If Deep missed Hindi and science, then his score would be $100 + 80/2$ or 90. Again marks score

In conclusion Deep missed the exam of only Hindi or Hindi and science If Foni missed Hindi, then her score would be $83 + 88 + 83/3 = 87.66$. This contradicts with value of given that table

After analysing the third fact, we can conclude that one among Alva and deep missed only Hindi and the other missed Hindi and science.

So far we have analysed missed exams as Alva, Carl, Deep and Foni. Only Bithi and Foni left

From the first fact, we can conclude that

Exactly two students missed English exam.

Exactly two students missed Hindi exam.

Exactly two students missed Science and Exactly two students missed Social, Science Social Science was missed by two students and those 2 students must be Bithi and Foni

We need to make sure apart from Esha, one more student missed English exam. Between Bithi and Foni, the scores are equal in Social score and English. In conclusion, Foni missed the exams of English and Social.

We also need to make sure apart from Alva or Deep, one more student missed Science exam and the only possibility is Bithi.

Alva - Only Hindi or Hindi + Science Bithi \Rightarrow Science and Social Science

Carl - Only mathematics

Deep - Only Hindi or Hindi and Science Foni \Rightarrow English and social science

Solution 41:

Option: 4

Solution 42:

Option: 3

Solution 43:

Option: 1

Solution 44:

Option: 4

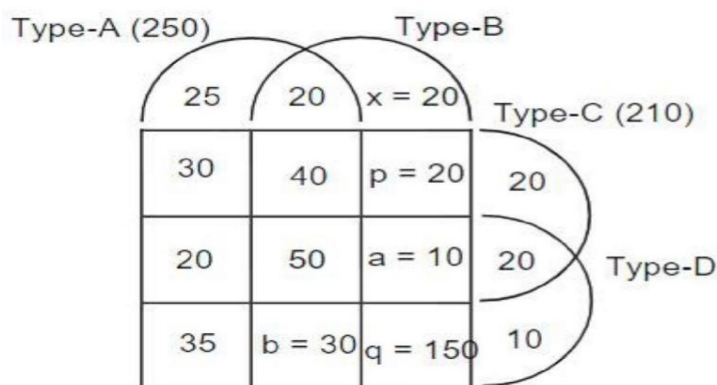
Solution 45:

Answer: 3

Solution 46:

Answer: 4

1000 patients are equally distributed into two groups treatment group and control group. We have some information regarding the effectiveness of medicines A, B, C and D on the treatment group. Let us start filling the data give in the restrictions in a four sets Venn Diagram.



75 patients were treated exactly one type of medicine.

$$25 + x + 20 + 10 = 75$$

$$x = 20$$

We have only one unknown in type-A medicine. $220 + b = 250$

$$b = 30$$

100 patients were treated with exactly three types of medicines. $40 + 20 + 30 + a = 100$

$$a = 10$$

Now, we have only one unknown in each of the type C and type-D.

$$p = 210 - 190 = 20$$

$$= 500 - 350 = 150$$

Solution 47:

Answer: 340

Solution 48:

Answer: 10

Solution 49:

Answer: 150

Solution 50:

Answer: 325

Solution 51:

The product of the digits of the three-digit numbers should be more than 2 and less than 7. Hence the possible numbers are as follows.

Product	3	5	4	6
Possibilities	(113, 131, 311)	(115, 151, 511)	(122, 212, 221)	(123, 132, 231)
			(114, 141, 411)	(116, 161, 611)
				(213, 321, 312)

Hence there are a total of 21 possibilities.

[Answer: 21]

Solution 52:

Let after n years both the sums amount to the equal amounts.

$$\text{Then, } 1000 \left(1 + \frac{5 \times (n+2)}{100} \right) = 800 \left(1 + \frac{10 \times n}{100} \right)$$

$$\text{i.e., } 1.5 = \frac{15n}{100} \Rightarrow n = 10$$

Hence 12 years after veeru invested their balances will be equal

[Answer: 12]

Solution 53:

$$\text{Required weight of } C = \left(\frac{7 \times 6}{3 \times 5 + 4 \times 2 + 7 \times 6} \right) \times 130 = 84 \text{ kg}$$

[Option: 4]

Solution 54:

Let the length and the breadth of the rectangle be l and b respectively.

As the circle touches the two opposite sides, its diameter will be same as the breadth of the

rectangle. Given, $lb = 135$ and $lb = \pi(b/2)^2 = \frac{2}{3} \times \pi(b/2)^2$

$$\Rightarrow \frac{5}{3} \pi \left(\frac{b^2}{4} \right) = 135 \Rightarrow b = \frac{18}{\sqrt{\pi}}$$

$$\text{From this } l = \frac{15\sqrt{\pi}}{2}$$

\therefore Required perimeter:

$$2(l+b) = 2 \left[\frac{15\sqrt{\pi}}{2} + \frac{18}{\sqrt{\pi}} \right] = 3\sqrt{\pi} \left[\frac{5}{2} + \frac{6}{\pi} \right]$$

[Option:4]

Solution 55:

$$\log_4 5 = (\log_4 y)(\log_6 \sqrt{5})$$

$$\Rightarrow \frac{\log_4 5}{\log_6 \sqrt{5}} = \log_4 y$$

$$\Rightarrow \log_4 5 \times \log_6 \sqrt{5} = \log_4 y$$

$$\Rightarrow 2(\log_4 5)(\log_5 6) = (\log_4 y)$$

$$\Rightarrow 2 \log_4 6 = \log_4 y$$

$$\Rightarrow \log_4 6^2 = \log_4 y$$

$$\Rightarrow \log_4 36 = \log_4 y$$

$$\Rightarrow y = 36$$

[Answer: 36]

Solution 56:

Let the length of the train be l and its speed be s . Given $\frac{l}{(s-2) \times \frac{5}{18}} = 90$; $\frac{l}{(s-4) \times \frac{5}{18}} = 100$

$$\Rightarrow 90(s-2) \times \frac{5}{18} = 100(s-4) \times \frac{5}{18} \Rightarrow s = 22$$

\therefore Length of the train = 500 m.

Hence the required time to cross a lamp post = $\frac{500}{22 \times \frac{5}{18}}$

i.e., 81.81 (or) 82 sec.

[Option: 2]

Solution 57:

$$2^x + 2^{-x} = 2 - (x-2)^2$$

The minimum value of $2^x + 2^{-x}$ is 2 when $x = 0$

$$\text{But } x = 0; 2 - (x-2)^2 = -2$$

The maximum value of $2 - (x-2)^2$ is 2 when $x = 2$

$$\text{But } x = 2 \quad 2^x + 2^{-x} = \frac{17}{4}$$

Hence there is no value of x , $2^x + 2^{-x} = 2 - (x-2)^2$

The number of solutions is 0

Solution 58:

$$2^{y^2 \log_3 5} = 5^{\log_2 3}$$

$$(2^{\log_3 5})^{y^2} = 5^{\log_2 3}$$

$$(5^{\log_3 2})^{y^2} = 5^{\log_2 3}$$

$$5^{y^2 \log_3 2} = 5^{\log_2 3}$$

$$\Rightarrow y^2 \log_3 2 = \log_2 3$$

$$y^2 = (\log_2 3)(\log_3 2)$$

is negative)

$$y = \log_2 3^{-1} = \log_2 \frac{1}{3}$$

[Option: 1]

Solution 59:

$$(x^2 - 7x + 11)^{(x^2 - 13x + 42)} = 1$$

We know if $a^b = 1$

$\Rightarrow a = 1$ and b is any number

or $a = -1$ and b is even

$a > 0$ and b is 0

$$\text{case 1: } x^2 - 13x + 42 = 0 \Rightarrow x = 6, 7$$

$$\text{case 2: } x^2 - 7x + 11 = 1 \Rightarrow x^2 - 7x + 10 = 0 \Rightarrow x = 2 \text{ or } 5$$

$$\text{case 3: } x^2 - 7x + 11 = -1 \Rightarrow x^2 - 7x + 12 = 0$$

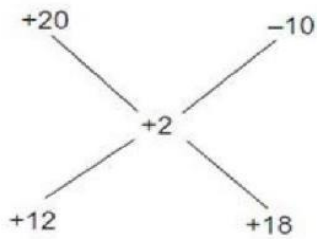
$$\Rightarrow x = 4 \text{ or } 3$$

Hence number of solutions are 6

[Option: 1]

Solution 60:

Using Alligation Rule, the ratio of cost prices of desktop and laptop will be



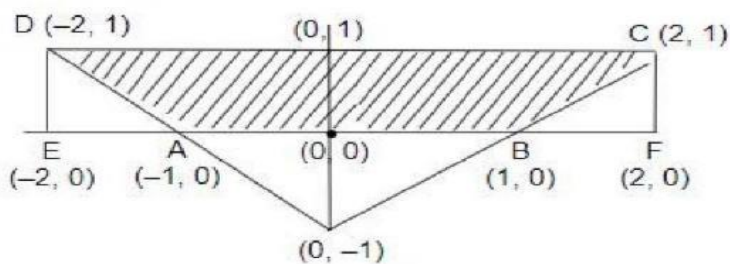
i.e., 2: 3

∴ The cost of desktop = $\frac{2}{5} \times 50000$ i.e., ₹ 20,000

[Answer: 20000]

Solution 61:

The graph of $|x| - y \leq 1; y \geq 0$ and $y \leq 1$ is as follows:



Area of $ABCD$ = Area of $EFCD$ - Area of EAD - Area of BFC

$$= EF \times FC - \frac{1}{2} \times EA \times ED - \frac{1}{2} \times BF \times FC$$

$$= 4 \times 1 - \frac{1}{2} \times 1 \times 1 - \frac{1}{2} \times 1 \times 1$$

$$= 4 - 1 = 3 \text{ Square units.}$$

[Answer: 3]

Solution 62:

In this particular case, we know Ratio of speeds $= \sqrt{\text{Inverse ratio of times taken}}$

$$C_1 : C_2 = \sqrt{20 : 45} \text{ i.e., } 2 : 3$$

As the speed of Car C_1 is 60 kmph, the speed of Car C_2 is 90 kmph

[Option: 1]

Solution 63:

Given $x_0 = (x_1, x_2, \dots, x_{12})$

If $x_1 = x_2 = x_3 = x_4 = 9; x_5 = x_6 = \dots, x_{12} = 8$

$$\therefore x_0 = \max(9, 9, 9, 9, 8, 8, \dots, 8)$$

The minimum value if x_0 is 9 .

[Option: 1]

Solution 64:

The sum of possible even digit numbers in the form aabb is
 $1100 + 1122 + 1144 + 1166 + 1188 + 2200 + 2222 + 2288 + \dots 9900 + 9922 + 9988$ i.e. (45 numbers)

$$\Rightarrow 1100 + 1100 + 1100 + 1100 + 1100 + 22 + 44 + 66 + 88 + 2200 + 2200 + 2200 + 2200 + 2200 + 22 + 44 + 66 + 88 + \dots + 9900 + 9900 + 9900 + 9900 + 9900 + 22 + 44 + 66 + 88$$

$$\Rightarrow 5(1100 + 2200 + \dots 9900) + 9(22 + 44 + 66 + 88) 5 \times 1100(1 + 2 + \dots 9) + 9 \times 22(1 + 2 + 3 + 4)$$

$$\Rightarrow 5500(45) + 45 \times 44 = 45(5544)$$

Hence mean = 5544

[Option: 3]

Solution 65:

Let the speed in the first two cases be s and the distance be ' d '. Given,

$$\frac{d}{8} - \frac{d}{15} = \frac{35}{60} \Rightarrow d = 10 \text{ km}$$

$$\text{Required speed} = \frac{10}{\frac{50}{60}} = 12 \text{ kmph}$$

[Option: 3]

Solution 66:

Let the usual speed of the train be s and time taken at that speed be ' t '.

Given by travelling at $s/3$, it reached 30 min late. Hence the usual time:

$$\text{Distance travelled} = s \times t$$

$$\text{Distance travelled in the first } 5 \text{ min} = s \times t / 3$$

$$\text{Distance to be travelled in the last } 6 \text{ min} = 2st / 3$$

$$\text{Required speed to cover that distance on time} = \frac{2st / 3}{2t / 5} \text{ i.e., } \frac{5s}{3}$$

$$\text{Hence the percentage increase in its speed} = (2/3) \times 100 \text{ i.e., } 66\frac{2}{3} \% \text{ or } 67\%$$

[Option: 2]

Solution 67:

$$x = (4096)^{7+4\sqrt{3}}$$

$$x^{\frac{1}{7+4\sqrt{3}}} = (4096)$$

$$\text{On rationalizing } 7+4\sqrt{3}, \text{ we get } \frac{1}{7+4\sqrt{3}} = 7-4\sqrt{3}$$

$$\therefore x^{7-4\sqrt{3}} = (64)^2$$

$$\therefore 64 = x^{\frac{7-4\sqrt{3}}{2}}$$

$$64 = \frac{x^{\frac{7}{2}}}{x^{2\sqrt{3}}}$$

[Option: 4]

Solution 68:

$$\text{Given } f(5+x) = f(5-x)$$

$$\text{Put } x = x-5$$

$$f(x) = f(10-x)$$

\therefore Let a, b be two roots of $f(x)=0$, then $10-a, 10-b$ are also roots of $f(x)=0$

\therefore Hence sum of the roots $= a+b+10-a+10-b = 20$

[Option: 4]

Solution 69:

Given $ab = 432, bc = 96$ and $c < 9$

To find the minimum value for $a+b+c$, the two larger numbers should be as close as possible.

The closest combination whose product is 432 is 18×24 . For $b = 24$, we get $c = 4$ and $a = 18$.

Hence the least value for $a+b+c = 46$.

[Option: 4]

Solution 70:

Let the number of persons in the group be 100.

Then the people who are young = 28

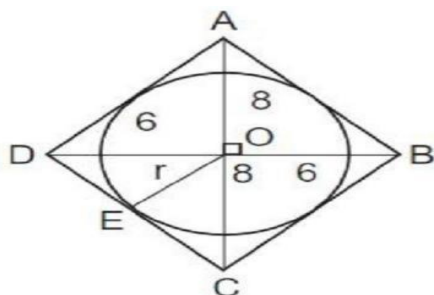
Ans the number of literate persons = 65

Number of literates who are young = 25% of 65 = 16.25

$$\therefore \text{Required answer} = \frac{48.75}{72} \times 100 = 66$$

[Option: 3]

Solution 71:



Given the circle is inscribed in the rhombus of diagonals 12 and 16. Let O be the point of intersection of the diagonals of the rhombus. Then, OE (radius) \perp DC.

$$\text{Also } DC = \sqrt{6^2 + 8^2} = 10$$

As area of $\triangle ODC$ should be the same, we have, $\frac{1}{2} \times 6 \times 8 = \frac{1}{2} \times OE \times 10$

$$\Rightarrow OE = 4.8$$

$$\therefore \text{Required ratio of areas} = \frac{\pi(4.8)^2}{\frac{1}{2} \times 12 \times 16} = \frac{6\pi}{25}$$

[Option: 2]

Solution 72:

Given that the person is left with no toffees after distributing them to the fifth student.

Also given that to each student the person gave one more than half the number of toffees at that stage.

For these types of problems, better we go for backward calculation. If the person had not given 1 extra toffee, he would have left with that toffee.

This represents that he had 2 toffees at that stage. In the previous stage i.e in 4th stage he should have $(2 + 1) \times 2$ i.e 6 toffees. In the third stage, he should have $(6 + 1) \times 2$ i.e 14 toffees.

In the second stage, he should have $(14 + 1) \times 2$ i.e 30 toffees. In the first stage, he should have $(30 + 1) \times 2$ i.e 62 toffees. Hence he initially had 62 toffees.

[Answer: 62]

Solution 73:

Given A, B and C are positive integers such that $A + \frac{B+C}{2} = 5 \dots (1)$

$$B + \frac{A+C}{2} = 7 \dots (2)$$

$$(2) - (1) \Rightarrow \frac{B}{2} - \frac{A}{2} = 2 \Rightarrow B - A = 4$$

The least value for A=1 in which case B=5.

$$\text{Hence } A + B = 6$$

[Option: 1]

Solution 74:

Original quantity of dye and water in the original solution i.e., 16 litres (i.e. $= 40 \times \frac{2}{5}$) and 24 litres (i.e. $= 40 - 16$)

Quantity of water added = 16 litres (As 1 part = 8 litres). Quantity of dye and water removed $= \frac{1}{4} \times \frac{2}{7} (56)$ i.e., 4 litres and $\frac{1}{4} \times \frac{5}{7} \times (56)$ i.e., 10 litres. Final quantity of dye and water is 12 litres and 30 litres.

\therefore Quantity of dye to be added to make the ratio of dye and water again 2: 3 i.e., 8 litres.

[Answer: 8]

Solution 75:

Let $x + \frac{1}{x} = a$

The given equation becomes, $a^2 - 3a + 2 = 0$ $a = 2$ or 1 i.e. $x + \frac{1}{x} = 2$ or $x + \frac{1}{x} = 1$

since x is real, $x + \frac{1}{x} \neq 1; \therefore x + \frac{1}{x} = 2$

\therefore The number of solutions = 1

[Answer: 1]

Solution 76:

As the cone is cut at one-third height from the top (the vertex), the total volume is proportional to the cubes of the heights of the two parts.

Ratio of volumes two parts $= \left(\frac{1}{3}\right)^3 : 1^3 = 1 : 27$

Hence the bottom part will have volume of $27 - 1$ i.e., 26 parts.

Given $(26 - 1)$ i.e., 25 parts - 225 cc.

Hence the required answer is 27 parts $= \frac{27 \times 225}{25} = 243$ cc.

[Option: 4]