

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- B

Explanation:- In the passage, the author mentions that historians, in dealing with basic facts like the date and location of historical events (e.g., the Battle of Hastings in 1066), rely on "auxiliary sciences" of history, which include archaeology. The author notes that accuracy in such basic facts is important for historians but compares praising a historian for accuracy to praising an architect for using well-seasoned timber - a necessary condition but not the essential function. The passage implies that archaeology and other auxiliary sciences support historians in establishing these basic facts. Refer to the lines "But praise a historian....." Therefore, option 2 is the most appropriate choice based on the information provided in the passage.

QNo:- 2 ,Correct Answer:- B

Explanation:- Option 2 is the correct answer as it agrees with the perspective of the passage that the interpretation of facts can be subjective and influenced by different perspectives. The passage argues that historians play a vital role in selecting and interpreting facts, and Option 2 supports this by suggesting that facts, like truth, can be relative.

QNo:- 3 ,Correct Answer:- C

Explanation:- According to the passage, the role of historians is not limited to establishing basic facts. They are expected to delve deeper into understanding the context and motivations behind historical events. This requires a selective and interpretive approach to historical writing. Option 3 is the only one that reflects this comprehensive and contextual approach to historical writing, focusing on understanding the underlying causes and influences that shaped the historical event.

QNo:- 4 ,Correct Answer:- C

Explanation:- Option 2 provides an accurate representation of the common-sense perspective described in the passage. This perspective acknowledges historical methods beyond positivism, as stated in option 4. According to the passage, the common-sense view also involves a fallacious belief that historical facts are objective and independent of interpretation, as mentioned in option 1. That takes us to the right option i.e. option 3 because it is rather contrasting what is being said in the passage.



Explanation:-

Option A- This is a valid criticism according to the passage. The author points out that Deneen fails to recognize liberalism's historical ability to reform itself and address internal problems.

Option B- This is a valid criticism. The passage suggests that while Deneen accurately highlights the current problems with liberalism, he may be overly pessimistic about its future. Option D is also a valid criticism.

Only option C is the right answer. Although the passage is critical of Deneen's extreme pessimism regarding the future of liberalism, his narrow definition of liberalism limited to individual freedoms, and his fixation on the essence of liberalism, it doesn't address his tendency to look back to premodern notions specifically.

QNo:- 6 ,Correct Answer:- D

Explanation:-

Let's evaluate each option-

Option A introduces the idea of a return to past liberalism, which is not explicitly mentioned in the passage. The author does criticize the current state of liberalism and its problems but doesn't specifically address the possibility of returning to a past form of liberalism. For option B. While the passage criticizes the Davos elite, it focuses more on their hypocrisy and accumulation of wealth rather than how they have captured the debate around liberalism. The primary emphasis is on their actions rather than their control of the debate. Option C introduces a positive aspect of the rise in liberalism, which is not consistent with the author's overall criticism of the current state of liberalism and the actions of the Davos elite. In contrast, option D aligns with the passage's emphasis on the hypocrisy of the liberal rich and their accumulation of wealth while professing to adhere to liberal values. Therefore, option D is the most accurate interpretation based on the information provided in the passage.

QNo:- 7 ,Correct Answer:- A

Explanation:-

For option B- "'The gap between liberalism's claims about itself and the lived reality of the citizenry' is now so wide that 'the lie can no longer be accepted.'" - This statement highlights a significant gap between liberalism's claims and the lived reality of the citizens, indicating a disillusionment with liberalism.

For option C-"Democracy has degenerated into a theatre of the absurd." - This statement suggests a negative assessment of the current state of democracy, indicating a decline in its quality.

For option D- ". . . the creation of a business aristocracy, the rise of vast companies." - This statement points to the creation of a business aristocracy and the rise of large companies, indicating a concentration of economic power, which could be seen as evidence of the decline of liberalism.

So except option A rest are evidence in the context of the passage.

QNo:- 8 ,Correct Answer:- D

hitbullseye

Explanation:-

The author is most likely to agree with Option 4 as it supports the author's argument in the passage that liberalism has a history of reforming itself in response to challenges. The author emphasizes that liberalism's success is not solely due to its dominance over the past century, but rather its ability to address internal issues and adapt to change. Rest all options are eliminated. For example, in the case of option 3, the passage doesn't explicitly address the need to find a substitute for liberalism, and the author's emphasis is more on the potential for reform within liberalism. Therefore, the author is likely to disagree with this statement.

QNo:- 9 ,Correct Answer:- D

Explanation:-

The passage suggests that one solution to the environmental impact of fast fashion is to buy high-quality items that shed less and last longer. This aligns with the concept of 'slow fashion,' which emphasizes durable and long-lasting clothing as opposed to the disposable nature of fast fashion.

QNo:- 10 ,Correct Answer:- D

Explanation:-

The irony of "thrifting" and its potential for unforeseen environmental effects are discussed in the chapter. The paragraph raises a possible environmental concern with thrift shopping, despite the fact that it is frequently viewed as a sustainable and environmentally beneficial activity. The article specifically cites a study that Patagonia commissioned that shows worn-out clothing—often seen in thrift stores—has a tendency to shed a greater number of microfibers. These microfibers contribute to the microfiber pollution that can wind up in rivers and seas. Therefore, by shedding microfibers during the washing of old items, thrift shopping—despite its ecologically conscientious objectives to decrease waste—may cause environmental difficulties.

QNo:- 11 ,Correct Answer:- A

Explanation:-

The central idea of the passage revolves around the environmental impact of the fashion industry, the promotion of second-hand shopping as a sustainable alternative, and the potential challenges and considerations associated with second-hand consumption. To identify the statement that would undermine the central idea, we need to look for an option that contradicts or diminishes the importance of these key elements.

For option B- This statement supports the central idea by addressing the environmental



impact of clothes ending up in landfills. It does not undermine the central idea. For option D- This statement is not directly related to the central idea of the environmental impact of the fashion industry and the benefits of second-hand shopping. It introduces a new aspect of purchasing behaviour but does not necessarily undermine the main focus of the passage.

Option A would go against the main idea of the passage because it emphasizes the significance of second-hand shopping not only for purchasing high-quality clothing but also as a sustainable and eco-friendly alternative to fast fashion. If second-hand stores limit their inventory to only high-quality items, it could reduce the variety and affordability that make second-hand shopping accessible and eco-friendly for a larger audience.

QNo:- 12 ,Correct Answer:- B

Explanation:-

The author does not explicitly mention the reasons why companies like ThredUP have not caught on in the UK. However, based on the information provided in the passage, we can infer the likely reasons. Let's analyze each option:

Option A- This is consistent with the passage, as it suggests that high-end retailers prioritize their brand image over sustainability.

Option B- The passage does not provide information about the purchasing habits of the British regarding second-hand clothing, so we cannot confirm or deny this statement.

Option C- This is consistent with the passage, as it mentions that high-end retailers would rather put brand before sustainability, implying that recycling might not be financially attractive for them.

Option D- This is consistent with the passage, as it suggests that luxury brands are hesitant to circulate their latest season stock at lower prices, indicating a concern about devaluing their products.

QNo:- 13 ,Correct Answer:- B

Explanation:-

The passage suggests that Netflix, along with other global firms, contributes to a shared cultural experience by providing content that can be enjoyed across different European countries. The author emphasizes the importance of having something in common, such as binge-watching the same series, as a form of cultural unity. The use of Netflix to pump the same content into homes across the continent is portrayed as a positive aspect of cultural integration.

QNo:- 14 ,Correct Answer:- A

Explanation:-

First, we will eliminate options C and D. If anything, suggests success in appealing to audiences outside of Europe and does not necessarily weaken the idea of cultural unity within



Europe and 4th one is only information about age-related preferences but doesn't specifically address the shared cultural experience or lack thereof. Option B is something related to Netflix's business so eliminated.

Considering the options, **Option A (Research shows there is a wide variance in the popularity and viewing of Netflix shows across different EU countries)** is the one that would likely weaken the author's conclusion by indicating that the popularity and viewing habits of Netflix shows vary significantly across European countries, suggesting a lack of a unified cultural experience.

QNo:- 15 ,Correct Answer:- D

Explanation:-

According to the passage, although Netflix has established offices in various European countries, the ultimate decision-making power still lies with the American executives. As a result, the content produced by Netflix may still exhibit a somewhat mid-Atlantic quality, and the company's executive decisions are still primarily controlled by Americans. Thus, it would be inaccurate to claim that Netflix has fully transformed into a truly European entity. Rest all are options can be considered from the author's point of view so eliminated.

QNo:- 16 ,Correct Answer:- C

Explanation:-

The passage suggests that certain genres, like murder mystery dramas, have a more universal appeal. Additionally, given the emphasis on Netflix's ability to provide content that can be enjoyed across borders and the success of shows like "Lupin," which is a French crime caper, a murder mystery drama set in North Africa and France aligns with the potential for a more widespread appeal across the EU. So option 3 is the right choice.

QNo:- 17 ,Correct Answer:- B

Explanation:-

The highlighted sentence talks about the traditional view held dualism, the coexistence of advanced and traditional economic sectors, as a defining feature of developing countries, in contrast to developed countries where advanced technologies and high productivity were assumed to dominate.

The reason for placing the missing sentence in **Option 2** is to maintain the logical flow of ideas within the paragraph. The sentence talks about "productive dualism" in developing countries, and it logically fits right after the introduction of this concept in the first sentence of the paragraph. This placement helps to establish the context and sets the stage for the subsequent discussion about the changing relevance of this dualism and the widening gap between winners and those left behind.



Explanation:-

The highlighted sentence emphasizes a re-evaluation of historical documentation regarding kissing practices.

In the first two lines, the passage suggests that lip kissing's earliest evidence, traced to South Asia 3,500 years ago, possibly influenced the spread of the practice and herpes simplex virus 1 to other regions. Additionally, the research by Dr. Troels Pank Arbøll and Dr. Sophie Lund Rasmussen indicates that kissing was established in the Middle East 4,500 years ago, drawing from early Mesopotamian sources. So it will be correct to put the emphasis part after this to continue the correct flow of information. So option 1 is the right choice.

QNo:- 19 ,Correct Answer:- 2

Explanation:-

Sentence 2 is the odd one out.

The sentences form a coherent paragraph discussing an early indication of broader censorship, the escalating trend in banning and challenging books in the US, the specific example of the widely acclaimed fantasy novel Northern Lights being banned, and the American Library Association documenting an unprecedented number of reported book challenges in 2022. While option 2 is talking about efforts to ban books are essentially attempts to stifle the voices of authors who have demonstrated immense bravery in sharing their stories, highlighting the censorship's impact on freedom of expression and diverse narratives and making it the odd one in the same order.

QNo:- 20 ,Correct Answer:- 3

Explanation:-

The other sentences (1, 2, 4, and 5) form a coherent paragraph discussing the concept of "children in self-care," its association with negative outcomes like loneliness and academic problems, the replacement of "latchkey" with "children in self-care" in research and practice, and recent research findings contradicting the belief that self-care is beneficial for development. While sentence 3 highlights a cautionary note in the discussion about self-care and its association with negative outcomes.

QNo:- 21 ,Correct Answer:- 4132

Explanation:-

The correct sequence is 4132:

sentence 4 introduces the idea that human consciousness is considered an emergent property of the brain, setting the context for the discussion.

sentence 1 then elaborates on the concept introduced in Sentence 4, comparing the organization of neurons to that of ants in a colony and emphasizing that no single neuron holds complex information.



sentence 3 builds on the idea by highlighting the collective contribution of all neurons to generate complex human emotions.

Sentence 2 finally provides additional information about the complexity of the human brain and how neurobiologists recognize that complex interconnections give rise to emergent qualities.

Together, these sentences form a coherent paragraph that explores the concept of human consciousness as an emergent property of the brain and the intricate interplay of neurons in generating complex mental processes.

QNo:- 22 ,Correct Answer:- 4312

Explanation:-

The correct sequence 4312:

Sentence 4 introduces the idea that Western Christian concepts often overlook or deny the presence of a genuine and lasting African tradition.

Sentence 3 follows up on the idea from Sentence 4, contradicting the views that deny the existence of African tradition and asserting the reality of a rich local cultural ethos. Sentence 1 introduces an example of contemporary African writing, 'The Bottled Leopard,' that expresses the theme discussed earlier by using two children and backgrounds to contrast different cultures.

Sentence 2 provides more information about Chukwuemeka Ike's exploration of the conflict, portraying the Western tradition as condescending and unaccommodating towards local African practices.

Together, these sentences form a coherent paragraph by presenting the theme of conflict between Western and African traditions, offering an example from contemporary African writing, and providing insights into the views and realities of the coexistence of these cultures.

QNo:- 23 ,Correct Answer:- A

Explanation:-

Option A is the right choice as the passage talks about how Heatwaves are worsening due to climate change, disproportionately affecting vulnerable groups like the elderly, children, and those with medical conditions or low incomes. Research in the UK suggests that even at-risk individuals may not perceive themselves as vulnerable during extreme heat, impacting the effectiveness of early warnings. The passage emphasizes the role of news media in conveying the dangers and societal impacts of extreme heat.

QNo:- 24 ,Correct Answer:- C

Explanation:-

The passage talks about how People naturally create counterfactual alternatives to reality, pondering "if only" or "what if" scenarios that explain the past and influence future decisions.

This cognitive process, develops ping throughout childhood, also impacts emotions, moral judgments, and reasoning about others' beliefs. Counterfactual thinking serves multifaceted roles, shaping perceptions of causality and contributing to various aspects of human cognition and decision-making. So, option 3 is the right choice.

Section : DI & Reasoning

hitbullseye

QNo:- 25 ,Correct Answer:- C

Explanation:-

Given that each firm raised Rs 1 crore in its first and last year. Also, each annual increase and decrease was either of Rs 1 crore or by Rs 2 crores. Let us consider for Alfloo, First year of existence, 2009 = Rs 1 crore = Last year of existence, 2016 Let amount raised in 2010, 2011, 2012, 2013, 2014, 2015 be a, b, c, d, e and f respectively Solving, 1 + a + b + c + d + e + f + 1 = 21 \Rightarrow a + b + c + d + e + f = 19 Now, even if we consider minimum annual increase and decrease annually, The values can be a = 2, b = 3, c = 4 or 5, d = 5 or 4, e = 3 and f = 2Now for Bzygoo, First year of existence, 2012 = Rs 1 crore = Last year of existence, 2015 The possibilities for the amount raised in 2013 = 2 or 3 and in 2014 = 3 or 2 respectively Thus the total amount raised by Bzygoo = Rs 7 crores Now for Czechy, First year of existence, 2013 = Rs 1 crore Total amount raised = Rs 9 crores Now, if we consider Year 2016 as the last year of existence The possible values of amount raised for Year 2014 = 2 or 3, Year 2015 = 3 or 2 and Year 2016 = 1 The possible sum = Rs 7 crores (maximum) So, the last year of existence for the firm Czechy has to be 2017 with only possible values Year 2013 = 1, Year 2014 = 2, Year 2015 = 3, Year 2016 = 2 and Year 2017 = 1 Thus, the total amount raised = Rs 9 crores Now for Drjbna, First year of existence, 2011 = Rs 1 crore = Last year of existence, 2015 Total amount raised = Rs 10 crores The only possible value of amount raised for Year 2012 = 2, Year 2013 = 4 and Year 2014 = 2 Now for Elavalaki, Total amount raised = Rs 13 crores First year of existence, 2011 = Rs 1 crore but last year of existence is not given Considering the minimum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 2, Year 2012 = 3 or 4, Year 2013 = 4 or 3, Year 2014 = 2 and Year 2015 = 1 (such that Year 2015 is the last year of existence) Considering the maximum amounts the possible values of amount raised for



Year 2010 = 1, Year 2011 = 3, Year 2012 = 5, Year 2013 = 3, Year 2014 = 1 (such that Year 2014 is the last year of existence)

The rest of the information can be gathered as follows-

Year/Firm	Alfloo	Bzygoo	Czechy	Drjbna	Elava	alaki	Total (crores)
2009	1	_	—	_	_	_	1
2010	2	-	_	_	1	1	3
2011	3	_	—	1	2	3	6/7
2012	4/5	1	-	2	3/4	5	10/11/12/13
2013	5/4	2/3	1	4	4/3	3	14/15/16/17
2014	3	3/2	2	2	2	1	10/11/12
2015	2	1	3	1	1	_	7/8
2016	1	_	2	-	_	_	3
2017	_	_	1	_	_	_	1
Total (crores)	21	7	9	10	13	13	60

The amount raised by only firms Czechy and Drjbna can be concluded with certainty in each year.

QNo:- 26 ,Correct Answer:- D

Explanation:-

Given that each firm raised Rs 1 crore in its first and last year. Also, each annual increase and decrease was either of Rs 1 crore or by Rs 2 crores.

Let us consider for Alfloo,

First year of existence, 2009 = Rs 1 crore = Last year of existence, 2016 Let amount raised in 2010, 2011, 2012, 2013, 2014, 2015 be a, b, c, d, e and f respectively Solving, 1 + a + b + c + d + e + f + 1 = 21 \Rightarrow a + b + c + d + e + f = 19 Now, even if we consider minimum annual increase and decrease annually, The values can be a = 2, b = 3, c = 4 or 5, d = 5 or 4, e = 3 and f = 2Now for Bzygoo, First year of existence, 2012 = Rs 1 crore = Last year of existence, 2015 The possibilities for the amount raised in 2013 = 2 or 3 and in 2014 = 3 or 2 respectively Thus the total amount raised by Bzygoo = Rs 7 crores Now for Czechy, First year of existence, 2013 = Rs 1 crore Total amount raised = Rs 9 crores Now, if we consider Year 2016 as the last year of existence The possible values of amount raised for Year 2014 = 2 or 3, Year 2015 = 3 or 2 and Year 2016 = 1 The possible sum = Rs 7 crores (maximum) So, the last year of existence for the firm Czechy has to be 2017 with only possible values Year 2013 = 1, Year 2014 = 2, Year 2015 = 3, Year 2016 = 2 and Year 2017 = 1



Thus, the total amount raised = Rs 9 crores Now for Drjbna, First year of existence, 2011 = Rs 1 crore = Last year of existence, 2015 Total amount raised = Rs 10 crores The only possible value of amount raised for Year 2012 = 2, Year 2013 = 4 and Year 2014 = 2 Now for Elavalaki, Total amount raised = Rs 13 crores First year of existence, 2011 = Rs 1 crore but last year of existence is not given Considering the minimum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 2, Year 2012 = 3 or 4, Year 2013 = 4 or 3, Year 2014 = 2 and Year 2015 = 1 (such that Year 2015 is the last year of existence) Considering the maximum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 3, Year 2012 = 5, Year 2013 = 3, Year 2014 = 1 (such that Year 2014 is the last year of existence) The rest of the information can be gathered as follows-

Year/Firm	Alfloo	Bzygoo	Czechy	Drjbna	Elava	alaki	Total (crores)
2009	1	_	-	-	_	_	1
2010	2	_	_	_	1	1	3
2011	3	_	_	1	2	3	6/7
2012	4/5	1	_	2	3/4	5	10/11/12/13
2013	5/4	2/3	1	4	4/3	3	14/15/16/17
2014	3	3/2	2	2	2	1	10/11/12
2015	2	1	3	1	1	_	7/8
2016	1	_	2	_	_	_	3
2017	_	_	1	_	_	_	1
Total (crores)	21	7	9	10	13	13	60

The total amount of money raised in 2015 can be either Rs. 7 crores or Rs. 8 crores

QNo:- 27 ,Correct Answer:- 17

Explanation:-

Given that each firm raised Rs 1 crore in its first and last year. Also, each annual increase and decrease was either of Rs 1 crore or by Rs 2 crores.

Let us consider for Alfloo,

First year of existence, 2009 = Rs 1 crore = Last year of existence, 2016

Let amount raised in 2010, 2011, 2012, 2013, 2014, 2015 be a, b, c, d, e and f respectively Solving, 1 + a + b + c + d + e + f + 1 = 21

$$\Rightarrow a + b + c + d + e + f = 19$$

Now, even if we consider minimum annual increase and decrease annually, The values can be a = 2, b = 3, c = 4 or 5, d = 5 or 4, e = 3 and f = 2 Now for Bzygoo,



First year of existence, 2012 = Rs 1 crore = Last year of existence, 2015 The possibilities for the amount raised in 2013 = 2 or 3 and in 2014 = 3 or 2 respectively Thus the total amount raised by Bzygoo = Rs 7 crores Now for Czechy, First year of existence, 2013 = Rs 1 crore Total amount raised = Rs 9 crores Now, if we consider Year 2016 as the last year of existence The possible values of amount raised for Year 2014 = 2 or 3, Year 2015 = 3 or 2 and Year 2016 = 1 The possible sum = Rs 7 crores (maximum) So, the last year of existence for the firm Czechy has to be 2017 with only possible values Year 2013 = 1, Year 2014 = 2, Year 2015 = 3, Year 2016 = 2 and Year 2017 = 1 Thus, the total amount raised = Rs 9 crores Now for Drjbna, First year of existence, 2011 = Rs 1 crore = Last year of existence, 2015 Total amount raised = Rs 10 crores The only possible value of amount raised for Year 2012 = 2, Year 2013 = 4 and Year 2014 = 2 Now for Elavalaki, Total amount raised = Rs 13 crores First year of existence, 2011 = Rs 1 crore but last year of existence is not given Considering the minimum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 2, Year 2012 = 3 or 4, Year 2013 = 4 or 3, Year 2014 = 2 and Year 2015 = 1 (such that Year 2015 is the last year of existence) Considering the maximum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 3, Year 2012 = 5, Year 2013 = 3, Year 2014 = 1 (such that Year 2014 is the last year of existence) The rest of the information can be gathered as follows-

Year/Firm	Alfloo	Bzygoo	Czechy	Drjbna	Elava	alaki	Total (crores)
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2010	2	-	-	-	1	1	3
2011	3	-	—	1	2	3	6/7
2012	4/5	1	—	2	3/4	5	10/11/12/13
2013	5/4	2/3	1	4	4/3	3	14/15/16/17
2014	3	3/2	2	2	2	1	10/11/12
2015	2	1	3	1	1	_	7/8
2016	1	_	2	-	_	_	3
2017	_	-	1	-	_	_	1
Total (crores)	21	7	9	10	13	13	60

The largest possible total amount of money that could have been raised in 2013 = Rs. 17 crores

hitbullseye

Explanation:-

Given that each firm raised Rs 1 crore in its first and last year. Also, each annual increase and decrease was either of Rs 1 crore or by Rs 2 crores. Let us consider for Alfloo, First year of existence, 2009 = Rs 1 crore = Last year of existence, 2016 Let amount raised in 2010, 2011, 2012, 2013, 2014, 2015 be a, b, c, d, e and f respectively Solving, 1 + a + b + c + d + e + f + 1 = 21 \Rightarrow a + b + c + d + e + f = 19 Now, even if we consider minimum annual increase and decrease annually, The values can be a = 2, b = 3, c = 4 or 5, d = 5 or 4, e = 3 and f = 2Now for Bzygoo, First year of existence, 2012 = Rs 1 crore = Last year of existence, 2015 The possibilities for the amount raised in 2013 = 2 or 3 and in 2014 = 3 or 2 respectively Thus the total amount raised by Bzygoo = Rs 7 crores Now for Czechy, First year of existence, 2013 = Rs 1 crore Total amount raised = Rs 9 crores Now, if we consider Year 2016 as the last year of existence The possible values of amount raised for Year 2014 = 2 or 3, Year 2015 = 3 or 2 and Year 2016 = 1 The possible sum = Rs 7 crores (maximum) So, the last year of existence for the firm Czechy has to be 2017 with only possible values Year 2013 = 1, Year 2014 = 2, Year 2015 = 3, Year 2016 = 2 and Year 2017 = 1 Thus, the total amount raised = Rs 9 crores Now for Drjbna, First year of existence, 2011 = Rs 1 crore = Last year of existence, 2015 Total amount raised = Rs 10 crores The only possible value of amount raised for Year 2012 = 2, Year 2013 = 4 and Year 2014 = 2 Now for Elavalaki, Total amount raised = Rs 13 crores First year of existence, 2011 = Rs 1 crore but last year of existence is not given Considering the minimum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 2, Year 2012 = 3 or 4, Year 2013 = 4 or 3, Year 2014 = 2 and Year 2015 = 1 (such that Year 2015 is the last year of existence) Considering the maximum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 3, Year 2012 = 5, Year 2013 = 3, Year 2014 = 1 (such that Year 2014 is the last year of existence) The rest of the information can be gathered as follows-

Year/Firm	Alfloo	Bzygoo	Czechy	Drjbna	Elava	alaki	Total (crores)
2009	1	_	_	_	_	_	1
2010	2	-	-	-	1	1	3
2011	3	-	-	1	2	3	6/7
2012	4/5	1	_	2	3/4	5	10/11/12/13

bitbullseye

Actual CAT 2023 Slot II (Answer Keys)

2013	5/4	2/3	1	4	4/3	3	14/15/16/17
2014	3	3/2	2	2	2	1	10/11/12
2015	2	1	3	1	1	-	7/8
2016	1	—	2	_	_	_	3
2017	—	—	1	_	_	_	1
Total (crores)	21	7	9	10	13	13	60

If Elavalaki raised Rs. 3 crores in 2013, then Elavalaki raised Rs. 4 crores in 2014 Hence, the smallest possible total amount of money raised in 2012 = 4 + 1 + 2 + 4 = Rs. 11 crores

QNo:- 29 ,Correct Answer:- D

Explanation:-

Given that each firm raised Rs 1 crore in its first and last year. Also, each annual increase and decrease was either of Rs 1 crore or by Rs 2 crores. Let us consider for Alfloo, First year of existence, 2009 = Rs 1 crore = Last year of existence, 2016 Let amount raised in 2010, 2011, 2012, 2013, 2014, 2015 be a, b, c, d, e and f respectively Solving, 1 + a + b + c + d + e + f + 1 = 21 $\Rightarrow a + b + c + d + e + f = 19$ Now, even if we consider minimum annual increase and decrease annually, The values can be a = 2, b = 3, c = 4 or 5, d = 5 or 4, e = 3 and f = 2Now for Bzygoo, First year of existence, 2012 = Rs 1 crore = Last year of existence, 2015 The possibilities for the amount raised in 2013 = 2 or 3 and in 2014 = 3 or 2 respectively Thus the total amount raised by Bzygoo = Rs 7 crores Now for Czechy,

First year of existence, 2013 = Rs 1 crore

Total amount raised = Rs 9 crores

Now, if we consider Year 2016 as the last year of existence

The possible values of amount raised for

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Year 2014 = 2 or 3, Year 2015 = 3 or 2 and Year 2016 = 1
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The possible sum = Rs 7 crores (maximum)

So, the last year of existence for the firm Czechy has to be 2017 with only possible values Year 2013 = 1, Year 2014 = 2, Year 2015 = 3, Year 2016 = 2 and Year 2017 = 1 Thus, the total amount raised = Rs 9 crores Now for Drjbna, First year of existence, 2011 = Rs 1 crore = Last year of existence, 2015 Total amount raised = Rs 10 crores The only possible value of amount raised for Year 2012 = 2, Year 2013 = 4 and Year 2014 = 2 Now for Elavalaki, Total amount raised = Rs 13 crores

First year of existence, 2011 = Rs 1 crore but last year of existence is not given



Considering the minimum amounts the possible values of amount raised for Year 2010 = 1, Year 2011 = 2, Year 2012 = 3 or 4, Year 2013 = 4 or 3, Year 2014 = 2 and Year 2015 = 1 (such that Year 2015 is the last year of existence)

Considering the maximum amounts the possible values of amount raised for

Year 2010 = 1, Year 2011 = 3, Year 2012 = 5, Year 2013 = 3, Year 2014 = 1 (such that Year 2014 is the last year of existence)

The rest of the information can be gathered as follows-

Year/Firm	Alfloo	Bzygoo	Czechy	Drjbna	Elava	alaki	Total (crores)
2009	1	_	_	—	_	-	1
2010	2	-	_	—	1	1	3
2011	3	_	_	1	2	3	6/7
2012	4/5	1	_	2	3/4	5	10/11/12/13
2013	5/4	2/3	1	4	4/3	3	14/15/16/17
2014	3	3/2	2	2	2	1	10/11/12
2015	2	1	3	1	1	_	7/8
2016	1	-	2	-	_	_	3
2017	_	_	1	_	_	_	1
Total (crores)	21	7	9	10	13	13	60

If total amount raised in 2014 = Rs. 12 crores

 \Rightarrow amount raised by Bzygoo in 2014 = Rs. 3 crores

 \Rightarrow amount raised by Bzygoo in 2013 = Rs 2 crores

Also, amount raised by Elavalaki in 2013 = Rs 3 crore or Rs 4 crores

Hence, Bzygoo raised the same amount of money as Elavalaki in 2013, it is not possible

QNo:- 30 ,Correct Answer:- A

Explanation:-

Let the total score of Day 1, Day 2, Day 3, Day 4 and Day 5 of all the participants be a, b, c, d and e respectively. As per the Table 1, $a + b = 15 \times 2 = 30$, $b + c = 15.5 \times 2 = 31$, $c + d = 16 \times 2 = 32$ and $d + e = 17 \times 2 = 34$ Point 2, total score on Day 3 = total score on Day 4 $\Rightarrow c = d = 16$ (each) $\Rightarrow e = 34 - 16 = 18$, b = 31 - 16 = 15 and a = 30 - 15 = 15Point 1, Chatur score on any day = 3, 6 or 9 The only possibility of his Day 2 score being unique highest = 9 His only minimum score on Day 1 = 3 \Rightarrow Chatur's score on Day 3, Day 4 and Day 5 = 6 (each) Also, Akhil's Day 4 score = Chatur's Day 1 score = 3 \Rightarrow Bimal's Day 4 score = 16 - (3 + 6) = 7 Now being same rank, Akhil's Day 3 score = Bimal's Day 3 score = 5 (each)



Point 3, Bimal's Day 1 score = Bimal's Day 3 score = 5 \Rightarrow Akhil's Day 1 score = 15 - (5 + 3) = 7 Now for Day 2, let the score of Akhil = p and Bimal = q Solving, p + q + 9 = 15 \Rightarrow p + q = 6 Since, the rank of Akhil is 2 and Bimal is 3 Possible values of p = 4 or 5 and q = 2 or 1 Now for Day 5, let the score of Akhil = x and Bimal = y Solving, x + y + 6 = 18 \Rightarrow x + y = 12 Since, the rank of Akhil is 3 and Bimal is 1 Possible value of x = 5 or 4 and y = 7 or 8 (y cannot be 9 as that being unique highest) The rest of the information can be gathered as follows-

	Day 1	Day 2	Day 3	Day 4	Day 5	Total
Akhil	7	4/5	5	3	5/4	23/24/ 25
Bimal	5	2/1	5	7	7/8	27/26/25
Chatur	3	9	6	6	6	30
Total	15	15	16	16	18	80

Akhil's score on Day 1 = 7

QNo:- 31 ,Correct Answer:- D

Explanation:-

Let the total score of Day 1, Day 2, Day 3, Day 4 and Day 5 of all the participants be a, b, c, d and e respectively. As per the Table 1, a + b = 15 × 2 = 30, b + c = 15.5 × 2 = 31, c + d = 16 × 2 = 32 and d + e = 17 × 2 = 34 Point 2, total score on Day 3 = total score on Day 4 \Rightarrow c = d = 16 (each) \Rightarrow e = 34 - 16 = 18, b = 31 - 16 = 15 and a = 30 - 15 = 15 Point 1, Chatur score on any day = 3, 6 or 9The only possibility of his Day 2 score being unique highest = 9His only minimum score on Day 1 = 3 \Rightarrow Chatur's score on Day 3, Day 4 and Day 5 = 6 (each) Also, Akhil's Day 4 score = Chatur's Day 1 score = 3 \Rightarrow Bimal's Day 4 score = 16 - (3 + 6) = 7 Now being same rank, Akhil's Day 3 score = Bimal's Day 3 score = 5 (each) Point 3, Bimal's Day 1 score = Bimal's Day 3 score = 5 \Rightarrow Akhil's Day 1 score = 15 – (5 + 3) = 7 Now for Day 2, let the score of Akhil = p and Bimal = qSolving, $p + q + 9 = 15 \Rightarrow p + q = 6$ Since, the rank of Akhil is 2 and Bimal is 3



Possible values of p = 4 or 5 and q = 2 or 1 Now for Day 5, let the score of Akhil = x and Bimal = y Solving, $x + y + 6 = 18 \Rightarrow x + y = 12$ Since, the rank of Akhil is 3 and Bimal is 1 Possible value of x = 5 or 4 and y = 7 or 8 (y cannot be 9 as that being unique highest) The rest of the information can be gathered as follows-

	Day 1	Day 2	Day 3	Day 4	Day 5	Total
Akhil	7	4/5	5	3	5/4	23/24/ 25
Bimal	5	2/1	5	7	7/8	27/26/25
Chatur	3	9	6	6	6	30
Total	15	15	16	16	18	80

Chatur attains the maximum possible score

QNo:- 32 ,Correct Answer:- 25

Explanation:-

Let the total score of Day 1, Day 2, Day 3, Day 4 and Day 5 of all the participants be a, b, c, d and e respectively. As per the Table 1, a + b = 15 × 2 = 30, b + c = 15.5 × 2 = 31, c + d = 16 × 2 = 32 and d + e = 17 × 2 = 34 Point 2, total score on Day 3 = total score on Day 4 \Rightarrow c = d = 16 (each) \Rightarrow e = 34 – 16 = 18, b = 31 – 16 = 15 and a = 30 – 15 = 15 Point 1, Chatur score on any day = 3, 6 or 9 The only possibility of his Day 2 score being unique highest = 9 His only minimum score on Day 1 = 3 \Rightarrow Chatur's score on Day 3, Day 4 and Day 5 = 6 (each) Also, Akhil's Day 4 score = Chatur's Day 1 score = 3 \Rightarrow Bimal's Day 4 score = 16 - (3 + 6) = 7 Now being same rank, Akhil's Day 3 score = Bimal's Day 3 score = 5 (each) Point 3, Bimal's Day 1 score = Bimal's Day 3 score = 5 \Rightarrow Akhil's Day 1 score = 15 - (5 + 3) = 7Now for Day 2, let the score of Akhil = p and Bimal = q Solving, $p + q + 9 = 15 \Rightarrow p + q = 6$ Since, the rank of Akhil is 2 and Bimal is 3 Possible values of p = 4 or 5 and q = 2 or 1 Now for Day 5, let the score of Akhil = x and Bimal = ySolving, $x + y + 6 = 18 \Rightarrow x + y = 12$ Since, the rank of Akhil is 3 and Bimal is 1 Possible value of x = 5 or 4 and y = 7 or 8



(y cannot be 9 as that being unique highest) The rest of the information can be gathered as follows-

	Day 1	Day 2	Day 3	Day 4	Day 5	Total
Akhil	7	4/5	5	3	5/4	23/24/ 25
Bimal	5	2/1	5	7	7/8	27/26/25
Chatur	3	9	6	6	6	30
Total	15	15	16	16	18	80

The minimum possible total score of Bimal = 25

QNo:- 33 ,Correct Answer:- B

Explanation:-

Let the total score of Day 1, Day 2, Day 3, Day 4 and Day 5 of all the participants be a, b, c, d and e respectively. As per the Table 1, a + b = 15 × 2 = 30, b + c = 15.5 × 2 = 31, c + d = 16 × 2 = 32 and d + e = 17 × 2 = 34 Point 2, total score on Day 3 = total score on Day 4 \Rightarrow c = d = 16 (each) \Rightarrow e = 34 - 16 = 18, b = 31 - 16 = 15 and a = 30 - 15 = 15 Point 1, Chatur score on any day = 3, 6 or 9The only possibility of his Day 2 score being unique highest = 9 His only minimum score on Day 1 = 3 \Rightarrow Chatur's score on Day 3, Day 4 and Day 5 = 6 (each) Also, Akhil's Day 4 score = Chatur's Day 1 score = 3 \Rightarrow Bimal's Day 4 score = 16 - (3 + 6) = 7 Now being same rank, Akhil's Day 3 score = Bimal's Day 3 score = 5 (each) Point 3, Bimal's Day 1 score = Bimal's Day 3 score = 5 \Rightarrow Akhil's Day 1 score = 15 - (5 + 3) = 7Now for Day 2, let the score of Akhil = p and Bimal = q Solving, $p + q + 9 = 15 \Rightarrow p + q = 6$ Since, the rank of Akhil is 2 and Bimal is 3 Possible values of p = 4 or 5 and q = 2 or 1 Now for Day 5, let the score of Akhil = x and Bimal = ySolving, $x + y + 6 = 18 \Rightarrow x + y = 12$ Since, the rank of Akhil is 3 and Bimal is 1 Possible value of x = 5 or 4 and y = 7 or 8 (y cannot be 9 as that being unique highest) The rest of the information can be gathered as follows-

	Day 1	Day 2	Day 3	Day 4	Day 5	Total
Akhil	7	4/5	5	3	5/4	23/24/ 25



Bimal	5	2/1	5	7	7/8	27/26/25
Chatur	3	9	6	6	6	30
Total	15	15	16	16	18	80

If the total score of Bimal is a multiple of 3, the only possibility = 27 \Rightarrow Bimal's Day 2 score = 2 \Rightarrow Akhil's Day 2 score = 4

QNo:- 34 ,Correct Answer:- 26

Explanation:-

Let the total score of Day 1, Day 2, Day 3, Day 4 and Day 5 of all the participants be a, b, c, d and e respectively. As per the Table 1, a + b = 15 × 2 = 30, b + c = 15.5 × 2 = 31, c + d = 16 × 2 = 32 and d + e = 17 × 2 = 34 Point 2, total score on Day 3 = total score on Day 4 \Rightarrow c = d = 16 (each) \Rightarrow e = 34 - 16 = 18, b = 31 - 16 = 15 and a = 30 - 15 = 15 Point 1, Chatur score on any day = 3, 6 or 9 The only possibility of his Day 2 score being unique highest = 9 His only minimum score on Day 1 = 3 \Rightarrow Chatur's score on Day 3, Day 4 and Day 5 = 6 (each) Also, Akhil's Day 4 score = Chatur's Day 1 score = 3 \Rightarrow Bimal's Day 4 score = 16 - (3 + 6) = 7 Now being same rank, Akhil's Day 3 score = Bimal's Day 3 score = 5 (each) Point 3, Bimal's Day 1 score = Bimal's Day 3 score = 5 \Rightarrow Akhil's Day 1 score = 15 - (5 + 3) = 7Now for Day 2, let the score of Akhil = p and Bimal = q Solving, $p + q + 9 = 15 \Rightarrow p + q = 6$ Since, the rank of Akhil is 2 and Bimal is 3 Possible values of p = 4 or 5 and q = 2 or 1 Now for Day 5, let the score of Akhil = x and Bimal = ySolving, $x + y + 6 = 18 \Rightarrow x + y = 12$ Since, the rank of Akhil is 3 and Bimal is 1 Possible value of x = 5 or 4 and y = 7 or 8 (y cannot be 9 as that being unique highest) The rest of the information can be gathered as follows-

	Day 1	Day 2	Day 3	Day 4	Day 5	Total
Akhil	7	4/5	5	3	5/4	23/24/ 25
Bimal	5	2/1	5	7	7/8	27/26/25
Chatur	3	9	6	6	6	30
Total	15	15	16	16	18	80

If Akhil's total score = $24 \Rightarrow$ Bimal's total score = 26. Answer is 26

QNo:- 35 ,Correct Answer:- B

hitbullseye

Explanation:-

Firstly, if all the given three conditions satisfy, the sum of number of coins in the box could be = 1 + 1 + 9 = 11, but that is not giving the average as distinct integer. Thus, either exactly one condition satisfies or exactly two conditions satisfy.

For 1st row, 2nd column box, the median number of coins is 9, so the maximum number of coins is also 9. Thus as mentioned in Table 2, two sacks have more than 5 coins and exactly one condition (iii) satisfies. So, the third sack must contain coins less than or equal to 5. Also, the average number of coins per sack in any box is a distinct integer, so the only value that satisfies the coins in third sack = 3, such that the average coins in the box = (3 + 9 + 9)/3 = 7 For 2nd row, 1st column box, given that two or more conditions satisfies, but since the median number of coins = 2, so, exactly two conditions (i and iii) satisfies. Also, only one sack contains more than 5 coins. Thus the average coins in the box = 1 + 2 + 9 = 12/3 = 4 For 3rd row, 1st column, median number of coins in the box = 8, all three sacks contains more than 5 coins and only 1 condition satisfies. So, that condition must be (iii) condition i.e. the maximum coins = 9. Also, to make average an integer, the number of coins in third sack must be 7. The average number of coins in the box = (7 + 8 + 9)/3 = 8

For 3^{rd} row, 2^{nd} column, two conditions satisfies and two sacks contain more than 5 coins. Thus, the conditions that satisfy must be (i) and (iii). So, the only possible average in the box = (1 + 8 + 9)/3 = 6

Now, since for each and each column the total is same, so the average is also the same. Sum of distinct integers from 1 to 9 = 45, so the sum of each row and each column = 15, which is also the average of the boxes for each row and each column. Hence, the sum of number of coins in each row and each column must be = 45

The sum for 1st row, 1st column = 45 – (12 + 36) = 9 Only possible average = (1 + 1 + 7)/3 = 3 satisfying other given conditions as well The sum of 2nd row, 2nd column = 45 – (21 + 18) = 6 Only possible average = (1 + 2 + 3)/3 = 2 satisfying other given conditions as well The sum of 1st row, 3rd column = 45 – (9 + 21) = 15 Only possible average = (1 + 6 + 8)/3 = 5 satisfying other given conditions as well The sum of 2nd row, 3rd column = 45 – (12 + 6) = 27 Only possible average = (9 + 9 + 9)/3 = 9 satisfying other given conditions as well The sum of 3rd row, 3rd column = 45 – (24 + 18) = 3 Only possible average = (1 + 1 + 1)/3 = 1 satisfying other given conditions as well The rest of the information can be gathered as follows-

	1 st column	2 nd column	3 rd column	Total
1 st row	Sum = $1 + 1 + 7 = 9$ Average = 3	Sum = $3 + 9 + 9 = 21$ Average = 7	Sum = 1 + 6 + 8 = 15 Average = 5	45
	, werage s	, werage ,	, werage s	



and row	Sum = 1 + 2 + 9 = 12	Sum = 1 + 2 + 3 = 6	Sum = 9 + 9 + 9 = 27	15
2 10W	Average = 4	Average = 2	Average = 9	45
ord nour	Sum = 7 + 8 + 9 = 24	Sum = 1 + 8 + 9 = 18	Sum = 1 + 1 + 1 = 3	15
3. Tow	Average = 8	Average = 6	Average = 1	45
Total	45	45	45	

The total number of coins in all the boxes in the 3^{rd} row = 45

QNo:- 36 ,Correct Answer:- D

Explanation:-

Firstly, if all the given three conditions satisfy, the sum of number of coins in the box could be = 1 + 1 + 9 = 11, but that is not giving the average as distinct integer. Thus, either exactly one condition satisfies or exactly two conditions satisfy.

For 1st row, 2nd column box, the median number of coins is 9, so the maximum number of coins is also 9. Thus as mentioned in Table 2, two sacks have more than 5 coins and exactly one condition (iii) satisfies. So, the third sack must contain coins less than or equal to 5. Also, the average number of coins per sack in any box is a distinct integer, so the only value that satisfies the coins in third sack = 3, such that the average coins in the box = (3 + 9 + 9)/3 = 7 For 2nd row, 1st column box, given that two or more conditions satisfies, but since the median number of coins = 2, so, exactly two conditions (i and iii) satisfies. Also, only one sack contains more than 5 coins. Thus the average coins in the box = 1 + 2 + 9 = 12/3 = 4 For 3rd row, 1st column, median number of coins in the box = 8, all three sacks contains more than 5 coins and only 1 condition satisfies. So, that condition must be (iii) condition i.e. the maximum coins = 9. Also, to make average an integer, the number of coins in third sack must be 7. The average number of coins in the box = (7 + 8 + 9)/3 = 8

For 3^{rd} row, 2^{nd} column, two conditions satisfies and two sacks contain more than 5 coins. Thus, the conditions that satisfy must be (i) and (iii). So, the only possible average in the box = (1 + 8 + 9)/3 = 6

Now, since for each and each column the total is same, so the average is also the same. Sum of distinct integers from 1 to 9 = 45, so the sum of each row and each column = 15, which is also the average of the boxes for each row and each column. Hence, the sum of number of coins in each row and each column must be = 45

The sum for 1^{st} row, 1^{st} column = 45 - (12 + 36) = 9

Only possible average = (1 + 1 + 7)/3 = 3 satisfying other given conditions as well The sum of 2nd row, 2nd column = 45 - (21 + 18) = 6

Only possible average = (1 + 2 + 3)/3 = 2 satisfying other given conditions as well The sum of 1st row, 3rd column = 45 - (9 + 21) = 15

Only possible average = (1 + 6 + 8)/3 = 5 satisfying other given conditions as well The sum of 2nd row, 3rd column = 45 - (12 + 6) = 27

Only possible average = (9 + 9 + 9)/3 = 9 satisfying other given conditions as well The sum of 3rd row, 3rd column = 45 - (24 + 18) = 3

Only possible average = (1 + 1 + 1)/3 = 1 satisfying other given conditions as well



	1 st column	2 nd column	3 rd column	Total
1 St row	Sum = 1 + 1 + 7 = 9	Sum = 3 + 9 + 9 = 21	Sum = 1 + 6 + 8 = 15	15
1 st row	Average = 3	Average = 7	Average = 5	45
and	Sum = 1 + 2 + 9 = 12	Sum = 1 + 2 + 3 = 6	Sum = 9 + 9 + 9 = 27	15
2 nd row	Average = 4	Average = 2	Average = 9	45
ard	Sum = 7 + 8 + 9 = 24	Sum = 1 + 8 + 9 = 18	Sum = 1 + 1 + 1 = 3	15
3 ^r row	Average = 8	Average = 6	Average = 1	45
Total	45	45	45	

The rest of the information can be gathered as follows-

The boxes having at least one sack containing 9 coins = 5

(1st row, 2nd column), (2nd row, 1st column), (2nd row, 3rd column), (3rd row, 1st column) and (3rd row, 2nd column)

QNo:- 37 ,Correct Answer:- 4

Explanation:-

Firstly, if all the given three conditions satisfy, the sum of number of coins in the box could be = 1 + 1 + 9 = 11, but that is not giving the average as distinct integer. Thus, either exactly one condition satisfies or exactly two conditions satisfy.

For 1st row, 2nd column box, the median number of coins is 9, so the maximum number of coins is also 9. Thus as mentioned in Table 2, two sacks have more than 5 coins and exactly one condition (iii) satisfies. So, the third sack must contain coins less than or equal to 5. Also, the average number of coins per sack in any box is a distinct integer, so the only value that satisfies the coins in third sack = 3, such that the average coins in the box = (3 + 9 + 9)/3 = 7 For 2nd row, 1st column box, given that two or more conditions satisfies, but since the median number of coins = 2, so, exactly two conditions (i and iii) satisfies. Also, only one sack contains more than 5 coins. Thus the average coins in the box = 1 + 2 + 9 = 12/3 = 4 For 3rd row, 1st column, median number of coins in the box = 8, all three sacks contains more than 5 coins and only 1 condition satisfies. So, that condition must be (iii) condition i.e. the maximum coins = 9. Also, to make average an integer, the number of coins in third sack must be 7. The average number of coins in the box = (7 + 8 + 9)/3 = 8

For 3^{rd} row, 2^{nd} column, two conditions satisfies and two sacks contain more than 5 coins. Thus, the conditions that satisfy must be (i) and (iii). So, the only possible average in the box = (1 + 8 + 9)/3 = 6

Now, since for each and each column the total is same, so the average is also the same. Sum of distinct integers from 1 to 9 = 45, so the sum of each row and each column = 15, which is also the average of the boxes for each row and each column. Hence, the sum of number of coins in each row and each column must be = 45

The sum for 1^{st} row, 1^{st} column = 45 - (12 + 36) = 9

Only possible average = (1 + 1 + 7)/3 = 3 satisfying other given conditions as well The sum of 2nd row, 2nd column = 45 - (21 + 18) = 6

Only possible average = (1 + 2 + 3)/3 = 2 satisfying other given conditions as well



The sum of 1^{st} row, 3^{rd} column = 45 - (9 + 21) = 15

Only possible average = (1 + 6 + 8)/3 = 5 satisfying other given conditions as well The sum of 2nd row, 3rd column = 45 - (12 + 6) = 27

Only possible average = (9 + 9 + 9)/3 = 9 satisfying other given conditions as well The sum of 3rd row, 3rd column = 45 - (24 + 18) = 3

Only possible average = (1 + 1 + 1)/3 = 1 satisfying other given conditions as well The rest of the information can be gathered as follows-

	1 st column	2 nd column	3 rd column	Total
1 st	Sum = 1 + 1 + 7 = 9	Sum = 3 + 9 + 9 = 21	Sum = 1 + 6 + 8 = 15	15
1 st row	Average = 3	Average = 7	Average = 5	45
and	Sum = 1 + 2 + 9 = 12	Sum = 1 + 2 + 3 = 6	Sum = 9 + 9 + 9 = 27	15
2 nd row	Average = 4	Average = 2	Average = 9	45
ard	Sum = 7 + 8 + 9 = 24	Sum = 1 + 8 + 9 = 18	Sum = 1 + 1 + 1 = 3	45
3' ^{or} row	Average = 8	Average = 6	Average = 1	45
Total	45	45	45	

The number of boxes having the average and median number of coins in the three sacks in that box is same = 4

(2nd row, 2nd column), 2nd row, 3rd column), (3rd row, 1st column) and (3rd row, 3rd column)

QNo:- 38 ,Correct Answer:- 9

Explanation:-

Firstly, if all the given three conditions satisfy, the sum of number of coins in the box could be = 1 + 1 + 9 = 11, but that is not giving the average as distinct integer. Thus, either exactly one condition satisfies or exactly two conditions satisfy.

For 1st row, 2nd column box, the median number of coins is 9, so the maximum number of coins is also 9. Thus as mentioned in Table 2, two sacks have more than 5 coins and exactly one condition (iii) satisfies. So, the third sack must contain coins less than or equal to 5. Also, the average number of coins per sack in any box is a distinct integer, so the only value that satisfies the coins in third sack = 3, such that the average coins in the box = (3 + 9 + 9)/3 = 7 For 2nd row, 1st column box, given that two or more conditions satisfies, but since the median number of coins = 2, so, exactly two conditions (i and iii) satisfies. Also, only one sack contains more than 5 coins. Thus the average coins in the box = 1 + 2 + 9 = 12/3 = 4 For 3rd row, 1st column, median number of coins in the box = 8, all three sacks contains more than 5 coins and only 1 condition satisfies. So, that condition must be (iii) condition i.e. the maximum coins = 9. Also, to make average an integer, the number of coins in third sack must be 7. The average number of coins in the box = (7 + 8 + 9)/3 = 8

For 3^{rd} row, 2^{nd} column, two conditions satisfies and two sacks contain more than 5 coins. Thus, the conditions that satisfy must be (i) and (iii). So, the only possible average in the box = (1 + 8 + 9)/3 = 6

Now, since for each and each column the total is same, so the average is also the same. Sum of distinct integers from 1 to 9 = 45, so the sum of each row and each column = 15, which is

also the average of the boxes for each row and each column. Hence, the sum of number of coins in each row and each column must be = 45

The sum for 1st row, 1st column = 45 – (12 + 36) = 9 Only possible average = (1 + 1 + 7)/3 = 3 satisfying other given conditions as well The sum of 2nd row, 2nd column = 45 – (21 + 18) = 6 Only possible average = (1 + 2 + 3)/3 = 2 satisfying other given conditions as well The sum of 1st row, 3rd column = 45 – (9 + 21) = 15 Only possible average = (1 + 6 + 8)/3 = 5 satisfying other given conditions as well The sum of 2nd row, 3rd column = 45 – (12 + 6) = 27 Only possible average = (9 + 9 + 9)/3 = 9 satisfying other given conditions as well The sum of 3rd row, 3rd column = 45 – (24 + 18) = 3 Only possible average = (1 + 1 + 1)/3 = 1 satisfying other given conditions as well The rest of the information can be gathered as follows-

	1 st column	2 nd column	3 rd column	Total
1 st	Sum = 1 + 1 + 7 = 9	Sum = 3 + 9 + 9 = 21	Sum = 1 + 6 + 8 = 15	45
1 st row	Average = 3	Average = 7	Average = 5	45
and	Sum = 1 + 2 + 9 = 12	Sum = 1 + 2 + 3 = 6	Sum = 9 + 9 + 9 = 27	45
2 nd row	Average = 4	Average = 2	Average = 9	45
ard	Sum = 7 + 8 + 9 = 24	Sum = 1 + 8 + 9 = 18	Sum = 1 + 1 + 1 = 3	45
3 ^{°°} row	Average = 8	Average = 6	Average = 1	45
Total	45	45	45	

Number of sacks having exactly one coin = 9

QNo:- 39 ,Correct Answer:- 5

hitbullseye

Explanation:-

Firstly, if all the given three conditions satisfy, the sum of number of coins in the box could be = 1 + 1 + 9 = 11, but that is not giving the average as distinct integer. Thus, either exactly one condition satisfies or exactly two conditions satisfy.

For 1st row, 2nd column box, the median number of coins is 9, so the maximum number of coins is also 9. Thus as mentioned in Table 2, two sacks have more than 5 coins and exactly one condition (iii) satisfies. So, the third sack must contain coins less than or equal to 5. Also, the average number of coins per sack in any box is a distinct integer, so the only value that satisfies the coins in third sack = 3, such that the average coins in the box = (3 + 9 + 9)/3 = 7 For 2nd row, 1st column box, given that two or more conditions satisfies, but since the median number of coins = 2, so, exactly two conditions (i and iii) satisfies. Also, only one sack contains more than 5 coins. Thus the average coins in the box = 1 + 2 + 9 = 12/3 = 4 For 3rd row, 1st column, median number of coins in the box = 8, all three sacks contains more than 5 coins and only 1 condition satisfies. So, that condition must be (iii) condition i.e. the maximum coins = 9. Also, to make average an integer, the number of coins in third sack must be 7. The average number of coins in the box = (7 + 8 + 9)/3 = 8



For 3^{rd} row, 2^{nd} column, two conditions satisfies and two sacks contain more than 5 coins. Thus, the conditions that satisfy must be (i) and (iii). So, the only possible average in the box = (1 + 8 + 9)/3 = 6

Now, since for each and each column the total is same, so the average is also the same. Sum of distinct integers from 1 to 9 = 45, so the sum of each row and each column = 15, which is also the average of the boxes for each row and each column. Hence, the sum of number of coins in each row and each column must be = 45

The sum for 1st row, 1st column = 45 – (12 + 36) = 9 Only possible average = (1 + 1 + 7)/3 = 3 satisfying other given conditions as well The sum of 2nd row, 2nd column = 45 – (21 + 18) = 6 Only possible average = (1 + 2 + 3)/3 = 2 satisfying other given conditions as well The sum of 1st row, 3rd column = 45 – (9 + 21) = 15 Only possible average = (1 + 6 + 8)/3 = 5 satisfying other given conditions as well The sum of 2nd row, 3rd column = 45 – (12 + 6) = 27 Only possible average = (9 + 9 + 9)/3 = 9 satisfying other given conditions as well The sum of 3rd row, 3rd column = 45 – (24 + 18) = 3

Only possible average = (1 + 1 + 1)/3 = 1 satisfying other given conditions as well The rest of the information can be gathered as follows-

	1 st column	2 nd column 3 rd column		Total
1 st	Sum = 1 + 1 + 7 = 9	Sum = 1 + 1 + 7 = 9 Sum = 3 + 9 + 9 = 21S		15
1 st row	Average = 3	Average = 7	Average = 5	45
and	Sum = 1 + 2 + 9 = 12	Sum = 1 + 2 + 3 = 6	Sum = 9 + 9 + 9 = 27	15
2 nd row	Average = 4	Average = 2	Average = 9	45
ard	Sum = 7 + 8 + 9 = 24	Sum = 1 + 8 + 9 = 18	Sum = 1 + 1 + 1 = 3	15
3 rd row	Average = 8	Average = 6	Average = 1	45
Total	45	45	45	

Number of boxes having all three sacks contain different number of coins = 5 (1st row, 3rd column), (2nd row, 1st column), (2nd row, 2nd column), (3rd row, 1st column) and (3rd row, 2nd column)

QNo:- 40 ,Correct Answer:- C

Explanation:-

Since the time slot varies for different visitors as well as rides, so let's arrange the data with respect to rides vs visitors and fill the time slot and corresponding spending accordingly. From point 1, Chitra spend Rs 50 and completed her rides by 11 am without any wait, so she must have taken 2 rides Ride-1 (Rs 20) and Ride-3 (Rs 30) From point 2, Anjali took Ride-1 at 11 am after waiting for Chitra to complete, so Chitra took Ride-3 from 9 am to 10 am and Ride-1 from 10 am to 11 am respectively From point 3, Bipasha first of three rides is from 11:30 am to 12:30 pm Also, by 12:15 pm, all three have spent same amount = Rs 50 each (same as Chitra's complete spending by 11 am)



So, Bipasha's ride from 11:30 am to 12:30 am must be Ride 2 amounting Rs 50 Also, Anjali's second ride must be Ride-3 from 12 pm to 1 pm (without any wait and total spending of Rs 50 by 12:15 pm)

Also, Bipasha's other two rides cannot be Ride-3 as it should be completed by 1 pm From point 4, the last ride taken by Anjali and Bipasha was the same

Let's say Anjali's last ride was Ride-4 from 1 pm to 2 pm just after Ride-3 taken from 12 pm to 1 pm as Anjali never took a break mentioned

So, for Bipasha's last ride, she could have reached 1:30 pm and taken the Ride-4 from 2 pm to 3 pm after 30 mins wait for Anjali

So, Bipasha's second ride could be Ride-1 from 12:30 pm to 1:30 pm

But that is not possible as she took a 1-hour coffee break after completing her second ride. Thus, this is only possible if Anjali took Ride-2 from 1 pm to 2 pm and her last ride is Ride-4 from 2 pm to 3 pm respectively

Such that Bipasha's second ride is Ride-1 from 12:30 pm to 1:30 pm and then 1-hour coffee break from 1:30 pm to 2:30 pm and then 30 min wait for Anjali from 2:30 pm to 3 pm and finally the last ride, Ride-4 from 3 pm to 4 pm

The rest of the information can be gathered as follows-

Ride	Price (Rs)	Anjali	Bipasha	Chitra
Dida 1	20	11 am to 12	12:30 pm to	10 am to 11
Ride-1	20	pm	1:30 pm	am
Dido 2	FO	1 pm to 2	11:30 am to	
Ride-2	50	pm	12:30 pm	_
Dido 2	20	12 pm to 1		0 am to 10 am
Ride-5	50	pm	_	
Ride-4	40	2 pm to 3	3 nm to 4 nm	_
		pm		
Total		Rs 140	Rc 110	Rc 50
Spending		13 140		1/3 50

The total amount spent on tickets by Bipasha = Rs 110

QNo:- 41 ,Correct Answer:- C

Explanation:-

Since the time slot varies for different visitors as well as rides, so let's arrange the data with respect to rides vs visitors and fill the time slot and corresponding spending accordingly. From point 1, Chitra spend Rs 50 and completed her rides by 11 am without any wait, so she must have taken 2 rides Ride-1 (Rs 20) and Ride-3 (Rs 30)

From point 2, Anjali took Ride-1 at 11 am after waiting for Chitra to complete, so Chitra took Ride-3 from 9 am to 10 am and Ride-1 from 10 am to 11 am respectively

From point 3, Bipasha first of three rides is from 11:30 am to 12:30 pm

Also, by 12:15 pm, all three have spent same amount = Rs 50 each (same as Chitra's complete spending by 11 am)

So, Bipasha's ride from 11:30 am to 12:30 am must be Ride 2 amounting Rs 50

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Also, Anjali's second ride must be Ride-3 from 12 pm to 1 pm (without any wait and total spending of Rs 50 by 12:15 pm)

Also, Bipasha's other two rides cannot be Ride-3 as it should be completed by 1 pm From point 4, the last ride taken by Anjali and Bipasha was the same

Let's say Anjali's last ride was Ride-4 from 1 pm to 2 pm just after Ride-3 taken from 12 pm to 1 pm as Anjali never took a break mentioned

So, for Bipasha's last ride, she could have reached 1:30 pm and taken the Ride-4 from 2 pm to 3 pm after 30 mins wait for Anjali

So, Bipasha's second ride could be Ride-1 from 12:30 pm to 1:30 pm

But that is not possible as she took a 1-hour coffee break after completing her second ride. Thus, this is only possible if Anjali took Ride-2 from 1 pm to 2 pm and her last ride is Ride-4 from 2 pm to 3 pm respectively

Such that Bipasha's second ride is Ride-1 from 12:30 pm to 1:30 pm and then 1-hour coffee break from 1:30 pm to 2:30 pm and then 30 min wait for Anjali from 2:30 pm to 3 pm and finally the last ride, Ride-4 from 3 pm to 4 pm

Ride	Price (Rs)	Anjali	Bipasha	Chitra
Pido 1	20	11 am to 12	12:30 pm to	10 am to 11
Ride-1	20	pm	1:30 pm	am
Dido 2	FO	1 pm to 2	11:30 am to	
Ride-2	50	pm	12:30 pm	_
Dido 2	20	12 pm to 1		0 am to 10 am
Ride-3	50	pm	_	
Dido 4	40	2 pm to 3	2 pm to 1 pm	
Ride-4	40	pm	5 pm to 4 pm	_
Total		Pc 140	Pc 110	Pc FO
Spending		rs 140		00 87

The rest of the information can be gathered as follows-

All the rides that Anjali completed by 2 pm were Ride-1, Ride-2, and Ride-3

QNo:- 42 ,Correct Answer:- D

Explanation:-

Since the time slot varies for different visitors as well as rides, so let's arrange the data with respect to rides vs visitors and fill the time slot and corresponding spending accordingly. From point 1, Chitra spend Rs 50 and completed her rides by 11 am without any wait, so she must have taken 2 rides Ride-1 (Rs 20) and Ride-3 (Rs 30)

From point 2, Anjali took Ride-1 at 11 am after waiting for Chitra to complete, so Chitra took Ride-3 from 9 am to 10 am and Ride-1 from 10 am to 11 am respectively

From point 3, Bipasha first of three rides is from 11:30 am to 12:30 pm

Also, by 12:15 pm, all three have spent same amount = Rs 50 each (same as Chitra's complete spending by 11 am)

So, Bipasha's ride from 11:30 am to 12:30 am must be Ride 2 amounting Rs 50 Also, Anjali's second ride must be Ride-3 from 12 pm to 1 pm (without any wait and total



spending of Rs 50 by 12:15 pm)

Also, Bipasha's other two rides cannot be Ride-3 as it should be completed by 1 pm From point 4, the last ride taken by Anjali and Bipasha was the same

Let's say Anjali's last ride was Ride-4 from 1 pm to 2 pm just after Ride-3 taken from 12 pm to 1 pm as Anjali never took a break mentioned

So, for Bipasha's last ride, she could have reached 1:30 pm and taken the Ride-4 from 2 pm to 3 pm after 30 mins wait for Anjali

So, Bipasha's second ride could be Ride-1 from 12:30 pm to 1:30 pm

But that is not possible as she took a 1-hour coffee break after completing her second ride. Thus, this is only possible if Anjali took Ride-2 from 1 pm to 2 pm and her last ride is Ride-4 from 2 pm to 3 pm respectively

Such that Bipasha's second ride is Ride-1 from 12:30 pm to 1:30 pm and then 1-hour coffee break from 1:30 pm to 2:30 pm and then 30 min wait for Anjali from 2:30 pm to 3 pm and finally the last ride, Ride-4 from 3 pm to 4 pm

Ride	Price (Rs)	Anjali	Bipasha	Chitra
Dida 1	20	11 am to 12	12:30 pm to	10 am to 11
Ride-1	20	pm	1:30 pm	am
Dido 2	50	1 pm to 2	11:30 am to	
Ride-2	50	pm	12:30 pm	_
Pido 2	20	12 pm to 1		9 am to 10 am
Ride-3	50	pm		9 and to 10 and
Rido-1	40	2 pm to 3	3 nm to 1 nm	
Nue-4	40	pm	5 pm to 4 pm	_
Total		Rc 140	Rc 110	Rc 50
Spending		NS 140	KS I IU	N3 30

The rest of the information can be gathered as follows-

Ride-1 was taken by all three visitors

QNo:- 43 ,Correct Answer:- 6

Explanation:-

Since the time slot varies for different visitors as well as rides, so let's arrange the data with respect to rides vs visitors and fill the time slot and corresponding spending accordingly. From point 1, Chitra spend Rs 50 and completed her rides by 11 am without any wait, so she must have taken 2 rides Ride-1 (Rs 20) and Ride-3 (Rs 30)

From point 2, Anjali took Ride-1 at 11 am after waiting for Chitra to complete, so Chitra took Ride-3 from 9 am to 10 am and Ride-1 from 10 am to 11 am respectively

From point 3, Bipasha first of three rides is from 11:30 am to 12:30 pm

Also, by 12:15 pm, all three have spent same amount = Rs 50 each (same as Chitra's complete spending by 11 am)

So, Bipasha's ride from 11:30 am to 12:30 am must be Ride 2 amounting Rs 50 Also, Anjali's second ride must be Ride-3 from 12 pm to 1 pm (without any wait and total spending of Rs 50 by 12:15 pm)



Also, Bipasha's other two rides cannot be Ride-3 as it should be completed by 1 pm From point 4, the last ride taken by Anjali and Bipasha was the same

Let's say Anjali's last ride was Ride-4 from 1 pm to 2 pm just after Ride-3 taken from 12 pm to 1 pm as Anjali never took a break mentioned

So, for Bipasha's last ride, she could have reached 1:30 pm and taken the Ride-4 from 2 pm to 3 pm after 30 mins wait for Anjali

So, Bipasha's second ride could be Ride-1 from 12:30 pm to 1:30 pm

But that is not possible as she took a 1-hour coffee break after completing her second ride. Thus, this is only possible if Anjali took Ride-2 from 1 pm to 2 pm and her last ride is Ride-4 from 2 pm to 3 pm respectively

Such that Bipasha's second ride is Ride-1 from 12:30 pm to 1:30 pm and then 1-hour coffee break from 1:30 pm to 2:30 pm and then 30 min wait for Anjali from 2:30 pm to 3 pm and finally the last ride, Ride-4 from 3 pm to 4 pm

Ride	Price (Rs)	Anjali	Bipasha	Chitra
Dido 1	20	11 am to 12	12:30 pm to	10 am to 11
Ride-1	20	pm	1:30 pm	am
Dido 2	50	1 pm to 2	11:30 am to	
Ride-2	50	pm	12:30 pm	_
Pido 2	20	12 pm to 1		9 am to 10 am
Ride-5	50	pm	_	
Pido 4	40	2 pm to 3	2 pm to 1 pm	
	40	pm	5 pm to 4 pm	_
Total		Pc 140	Pc 110	Pc 50
Spending		NS 140		NS 20

The rest of the information can be gathered as follows-

Total rides taken by Anjali and Chitra = 4 + 2 = 6

QNo:- 44 ,Correct Answer:- 140

Explanation:-

Since the time slot varies for different visitors as well as rides, so let's arrange the data with respect to rides vs visitors and fill the time slot and corresponding spending accordingly. From point 1, Chitra spend Rs 50 and completed her rides by 11 am without any wait, so she must have taken 2 rides Ride-1 (Rs 20) and Ride-3 (Rs 30)

From point 2, Anjali took Ride-1 at 11 am after waiting for Chitra to complete, so Chitra took Ride-3 from 9 am to 10 am and Ride-1 from 10 am to 11 am respectively

From point 3, Bipasha first of three rides is from 11:30 am to 12:30 pm

Also, by 12:15 pm, all three have spent same amount = Rs 50 each (same as Chitra's complete spending by 11 am)

So, Bipasha's ride from 11:30 am to 12:30 am must be Ride 2 amounting Rs 50 Also, Anjali's second ride must be Ride-3 from 12 pm to 1 pm (without any wait and total spending of Rs 50 by 12:15 pm)

Also, Bipasha's other two rides cannot be Ride-3 as it should be completed by 1 pm

From point 4, the last ride taken by Anjali and Bipasha was the same

Let's say Anjali's last ride was Ride-4 from 1 pm to 2 pm just after Ride-3 taken from 12 pm to 1 pm as Anjali never took a break mentioned

So, for Bipasha's last ride, she could have reached 1:30 pm and taken the Ride-4 from 2 pm to 3 pm after 30 mins wait for Anjali

So, Bipasha's second ride could be Ride-1 from 12:30 pm to 1:30 pm

But that is not possible as she took a 1-hour coffee break after completing her second ride. Thus, this is only possible if Anjali took Ride-2 from 1 pm to 2 pm and her last ride is Ride-4 from 2 pm to 3 pm respectively

Such that Bipasha's second ride is Ride-1 from 12:30 pm to 1:30 pm and then 1-hour coffee break from 1:30 pm to 2:30 pm and then 30 min wait for Anjali from 2:30 pm to 3 pm and finally the last ride, Ride-4 from 3 pm to 4 pm

The rest of the information can be gathered as follows-

Ride	Price (Rs)	Anjali	Bipasha	Chitra
Dido 1	20	11 am to 12	12:30 pm to	10 am to 11
	20	pm	1:30 pm	am
Dido 2	FO	1 pm to 2	11:30 am to	
Ride-2	50	pm	12:30 pm	
Pido 2	20	12 pm to 1		9 am to 10 am
	- 30	pm	_	
Ride-1	40	2 pm to 3	3 nm to 1 nm	_
	40	pm	5 pm to 4 pm	
Total		Pc 140	Rc 110	Pc 50
Spending		1\5 140	1/2 110	1/3 30

The total amount spent by Anjali = Rs 140

Section : Quantitative Ability

QNo:- 45 ,Correct Answer:- C

Explanation:-

$$\frac{x}{y} < \frac{x+3}{y-3}$$

$$\Rightarrow \frac{x}{y} - \frac{x+3}{y-3} < 0$$

$$\Rightarrow \frac{-3(x+y)}{y(y-3)} < 0 \Rightarrow \frac{x+y}{y(y-3)} > 0 \dots \dots (1)$$

Three cases arise: **Case 1**: When y < 0 then y & y - 3 both are negative From (1), x + y > 0So, when y < 0 then y > - xwhich is correct





Case 2: When 0 < y < 3 then y > 0 but y - 3 < 0So, from (1), x + y < 0So, when 0 < y < 3 then x + y < 0**Case 3:** When y > 3, then both y > 0 and y - 3 > 0So, from (1), x + y > 0So, when y > 3 then x + y > 0

QNo:- 46 ,Correct Answer:- D

Explanation:-

Since k divides (m + 2n), k must also divides (2m + 4n)Also, k divides (3m + 4n) => k divides (m + 2m + 4n)So, k must divide m as well Again k divides (m + 2n), k must also divides (3m + 6n)Also, k divides (3m + 4n) => k divides (3m + 6n - 2n)So, k must divide 2n as well Hence, k must be a common divisor of m and 2n

QNo:- 47 ,Correct Answer:- C

Explanation:-Given equation can be written as $(2^{2x^2})^2 - 2 \cdot 2^{2x^2} \cdot 2^{x+15} + (2^{x+15})^2 = 0$ (1) As we know, $(a - b)^2 = a^2 - 2ab + b^2$ So the above equation reduces to $(2^{2x^2} - 2^{x+15})^2 = 0$ $\Rightarrow 2^{2x^2} = 2^{x+15}$ $=> 2x^2 - 2^{x+15} = 0$ $=> 2x^2 - x - 15 = 0$ $=> 2x^2 - 6x + 5x - 15 = 0$ => (2x + 5)(x - 3) = 0 => x = -5/2 or 3Required sum = -5/2 + 3 = 1/2

QNo:- 48 ,Correct Answer:- C

Explanation:-

 $\begin{array}{l} a^m \times b^n = 144^{145} = (2^4 \times 3^2)^{145} = 2^{580} \times 3^{290} \\ = > a^m \times b^n = (3^{290})^1 \times 2^{580} \\ \end{array}$ To maximise (n - m), n has to be maximum and m has to be minimum The maximum possible value of n = 580 when b = 2 and the minimum possible value of m =



1 when a = 3^{290} Hence, maximum value of (n – m) = 580 - 1 = 579

QNo:- 49 ,Correct Answer:- 6

Explanation:-

 $(x - 1)^{2} + 2kx + 11 = 0$ => $x^{2} - 2x + 1 + 2kx + 11 = 0$ => $x^{2} + x (2k - 2) + 12 = 0$ Since roots are not real, => $(2k - 2)^{2} - 4 \times 1 \times 12 < 0$ => $4k^{2} + 4 - 8k - 48 < 0$ => $4k^{2} - 8k - 44 < 0$ => $k^{2} - 2k - 11 < 0$ => $k^{2} - 2k + 1 - 12 < 0$ => $(k - 1)^{2} < 12$

So, the largest integral value of k = 4 which satisfies the above inequality Now, since k and y are positive numbers, AM \ge GM

So,
$$\frac{\frac{k}{4y} + 9y}{2} \ge \sqrt{\frac{k}{4y} \cdot 9y}$$

 $\Rightarrow \frac{k}{4y} + 9y \ge 2\sqrt{\frac{9k}{4}}$
 $\Rightarrow \frac{k}{4y} + 9y \ge 3\sqrt{k}$
Now $k = 4$, So, $\frac{k}{4y} + 9y \ge 3\sqrt{4}$ i.e. 6

Hence, the required answer is 6

QNo:- 50 ,Correct Answer:- 15

Explanation:-

Since the required number has exactly 4 factors

So, the number should be either in the form of p^3 or $p \times q$, where p and q are prime numbers For p^3 , possible numbers < 50 are 2^3 and 3^3 , 2 such numbers are possible

For p ×q, possible numbers < 50 are 2 × 3, 2 × 5, 2 × 7, 2 × 11, 2 × 13, 2 × 17, 2 × 19, 2 × 23, 3×5 , 3×7 , 3×11 , 3×13 , 5×7 , 13 such numbers are there Hence, in total, there are 15 such numbers



Explanation:-

Given $\log_{\sqrt{3}} x + \frac{\log_x 5^2}{\log_x 5^{-3}} = \frac{16}{3}$ (because $5^2 = 25$ and $0.008 = 5^{-3}$) $\Rightarrow 2\log_3 x + \frac{2\log_x 5}{(-3)\log_x 5} = \frac{16}{3}$ $\Rightarrow 2\log_3 x = \frac{16}{3} + \frac{2}{3} = 6$ $\Rightarrow \log_3 x = 3 \Rightarrow x = 27$ Now, $\log_3 (3x^2) = \log_3 3 \times 27 \times 27 = \log_3 3^7$ $\Rightarrow x = 7$

QNo:- 52 ,Correct Answer:- D

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Explanation:-

Let time taken by inlet pipe A = a hrs. Then time taken by outlet pipe B = (a - 1) hrs. Then time taken by outlet pipe C = C hrs. When all pipes work together, tank gets filled in 2 hrs. So, $\frac{1}{a} + \frac{1}{c} - \frac{1}{a-1} = \frac{1}{2}$(1)

When B & C are turned on together and pipe B is turned off after one hour, then pipe C takes another 1. 25 hours to fill the tank.



QNo:- 53 ,Correct Answer:- A

Explanation:-

Minu's profit for the 1st time selling to Kanu = 20% of 1000 = Rs 200 So, cost price for Kanu = 1000 + 200 = Rs 1200 Now, cost price for Minu for the 2nd time = 1200 - 20% of 1200 = Rs 960 Since, total profit for Minu = Rs 500, so profit for the 2nd time = 500 - 200 = Rs 300 Percenetage profit by Minu when sold to Tanu = $300/960 \times 100 = 31.25\%$

QNo:- 54 ,Correct Answer:- B

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Explanation:-

Let the total number of employee = 5x and total salary = 6y So, number of employees in manufacturing deaprtment = 20% of 5x = x=> number of non-manufacturing employees = 5x - x = 4xTotal salary withdrawn by manufacturing employees = $1/6 \times 6y = y$ Total salary withdrawn by non-manufacturing employees = 6y - y = 5yAverage salary of manufacturing employees = y/xAverage salary of non-manufacturing employees = 5y/4xHence, required ratio = y/x : 5y/4x = 4:5

QNo:- 55 ,Correct Answer:- A



 $=\frac{225}{90}\times\frac{18}{5}=9$ secs.

That means V should meet R after 9 secs

So, speed of Ravi =
$$\frac{54}{(V-40)\frac{5}{18}} = 9$$

 $\Rightarrow V - 40 = \frac{54}{9} \times \frac{18}{5} = \frac{108}{5}$ kmph
So, V = 40 + 21.6 = 61.6 kmph

QNo:- 56 ,Correct Answer:- B

Explanation:-

Let price and weight of stone be P and w

So, P is directly proportional to w^2

 $=> P = kw^2$ where k is a constant

Also weight of stone = 18 units and the stone is broken into four parts of distinct weights Now, maximum possible total price of all 4 pieces would be when one of the piece has maximum possible weight

So, the weights would be 1, 2, 3 and 12

And similarly, minimum possible total price of all 4 pieces would be when the weights are as



closest as possible So, the weights would be 3, 4, 5 and 6 So, maximum price = $k (1^2 + 2^2 + 3^2 + 12^2) = k (1 + 4 + 9 + 144) = 158k$ and minimum price = $k (3^2 + 4^2 + 5^2 + 6^2) = k (9 + 16 + 25 + 36) = 86k$ Given 158k - 86 k = 72k = 288000 => k = 4000 Price of original piece = $kw^2 = 4000 (18)^2 = Rs 1296000$

QNo:- 57 ,Correct Answer:- C

Explanation:-

Given, P = Rs 200000 and R% = 8% p.a. => 4% per half year Amount after first year

 $= 200000 \left(1 + \frac{4}{100}\right)^2 = 216320 \, \mathrm{Rs}.$

Interest paid after 1st year = Rs 10320 Outstanding amount to be paid = 216320 - 10320 = Rs 206000

Compound amount after two more years = $206000 \left(1 + \frac{4}{100}\right)^4 = 240991$ Rs. (approx.)

Compound interest of last 2 years = 240991 - 200000 = Rs 40991Compound interest paid in all 3 years = 10320 + 40991 = Rs 51311

QNo:- 58 ,Correct Answer:- 407

Explanation:-

Let the number of white shirts = x and blue shirts = y Total CP = 1000x + 1125y=> Total MP = $1.25 \times (1000x + 1125y)$ and Total SP = $0.9 \times 1.25 \times (1000x + 1125y) = 1.125 (1000x + 1125y)$ Profit = 0.125 (1000x + 1125y) = 51000=> 1000x + 1125y = 408000=> 8x + 9y = 3264=> 9y = 8 (408 - x)So, y should be a multiple of 8 If y = 8, x = 399 = > x + y = 407If y = 16, y = 390 = > x + y = 406If y = 24, y = 381 = > x + y = 405and so on Hence, maximum possible value of x + y = 407

Alternate approach

Let average cost of all shirts = 4a Then average MP = 4a + 25% of 4a = 5a Average S.P. = $5a - \frac{10}{100}(5a) = 4.5a$



Average Profit = S.P. - C.P. = 0.5a Let the total number of shirts = n Then n (0.5) a = 51000 \Rightarrow an = 102000 (1) Now n has to be maximized i.e. a has to be minimized i.e. 4a has to be minimized. i.e. 4a > 1000 \Rightarrow a > 250 $\Rightarrow \frac{102000}{n} > 250$ (from (1)) \Rightarrow n < 408 $n_{max} = 407$

QNo:- 59 ,Correct Answer:- 16

Explanation:-

The total amount = 352nAlso, $352n = 2 \times 506 + (n - 2) y$, where $y \le 330$ where y = per head money received by other people

$$\Rightarrow \frac{352n - 1012}{n - 2} = y$$

$$\Rightarrow \frac{352n - 1012}{n - 2} \le 330$$

$$\Rightarrow \frac{352n - 1012 - 330n + 660}{n - 2} \le 0$$

$$\Rightarrow \frac{22n - 352}{n - 2} \le 0$$

$$\Rightarrow \frac{n - 16}{n - 2} \le 0$$

$$\Rightarrow \frac{(n - 16)(n - 2)}{(n - 2)^2} \le 0 \Rightarrow (n - 16)(n - 2) \le 0$$

$$\Rightarrow 2 \le n \le 16$$
So, the maximum possible value of n = 16

QNo:- 60 ,Correct Answer:- 7

Explanation:-

The volume of milk in the container becomes less than that of water means the percentage of milk should be < 50% of the total

Every time 4 litres is removed out of 40 litres i.e. 1/10th is removed

Let the process is repeated n number of times

So, the remaining milk

 $=1\times\frac{9}{10}\times\frac{9}{10}\times\frac{9}{10}\dots$ n times $<\frac{1}{2}$

 $\Rightarrow \left(\frac{9}{10}\right)^n < \frac{1}{2}$

By trial and error, we may calculate that the smallest value of n = 7

QNo:- 61 ,Correct Answer:- C

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Explanation:-

Given AC : BC = a : b So, let us assume AC = ax, BC = bx Since angle made in semi-circle is 90° So, AC² + BC² = AB² \Rightarrow (ax)² + (bx)² = (2r)²



QNo:- 62 ,Correct Answer:- B

Explanation:-



Let the area of triangle ABP = k => area of AQCD = 4 (Area of ABP) = 4k Now area (ABP), area (APQ) and area (AQCD) are in GP => k, ?, 4k are in GP



=> area (APQ) = 2k Let area (AQC) = m Also, area (ADC) = 4k - m = half of the rectangle = area (ACB) = 3k + m=> 4k - m = 3k + m=> k = 2mNow the rectangle looks like



Now Area (APB) : Area (AQP) : Area (ACQ) = $\frac{1}{2}$ AB . BP : $\frac{1}{2}$ AB . PQ : $\frac{1}{2}$ AB . CQ = BP : PQ : CQ = K : 2k : $\frac{k}{2}$ = 2: 4: 1

QNo:- 63 ,Correct Answer:- 45

Explanation:-Case 1: When x - y > 0 & x - 5 > 0 Equation becomes, x - y - (x - 5) = 2 \Rightarrow y = 3 where x > 5 and x > y **Case 2:** When x - y < 0 and x - 5 < 0 \Rightarrow x < y and x < 5 So, equation becomes, -(x - y) + (x - 5) = 2 \Rightarrow y = 7 where x < 5 and x < y **Case 3:** When x - y < 0 & x - 5 > 0 $\Rightarrow x < y \& x > 5$ So, equation becomes -(x - y) - (x - 5) = 2 \Rightarrow y - 2x = - 3 \Rightarrow 2x - y = 3, x < y, x > 5 **Case 4:** When x - y > 0 and x - 5 < 0 \Rightarrow x > y and x < 5 So, equation becomes x - y + x - 5 = 2 \Rightarrow 2x - y = 7 where x > y and x < 5





So, we can see the required figure is a trapezium. So required area is 1/2. (14 + 4) 5 = 45

QNo:- 64 ,Correct Answer:- A

Explanation:-

Let both the series are a, a + q, a + 2q..... = a_1 , a_2 , a_3 and b, b + p, b + 2p = b_1 , b_2 , b_3 ... Where p & q are prime nos. Given $b_2 = 0 \Rightarrow b + p = 0 \Rightarrow b = -p$ So, the series becomes, - p, 0, p, 2p, = bn series. Now, $b_{19} = -p + (19 - 1)p = 17p$. And similarly $b_9 = 7p$ $a_5 = b_9 = 7p \& a_{19} = b_{19} = 17p$ $\Rightarrow a + 4q = 7p$ and a + 18q = 17pBy solving both eqns, we will get $q = \frac{5}{7}p$ Since p & q are primes; So, p = 7, q = 5 & a = 29. So, $a_{11} = a + 10q = 29 + 10$ (5) = 79

QNo:- 65 ,Correct Answer:- B

Explanation:-

Since 2 pq - 20 = 52 - 2 pq \Rightarrow 4pq = 72 \Rightarrow pq = 18 Also, p² + q² - 29 = 2pq - 20



 $\Rightarrow p^{2} + q^{2} = 36 - 20 + 29 = 45.$ Now $p^{3} - q^{3} = (p - q) (p^{2} + q^{2} + pq)$ = $(p - q) (45 + 18) = 63 (p - q) \dots (1)$ Also, $p^{2} + q^{2} - 29 = 2pq - 20$ $\Rightarrow p^{2} + q^{2} - 2pq = 9$ $\Rightarrow (p - q)^{2} = 9 \Rightarrow p - q = \pm 3.....(2)$ Combining (1) & (2), $(p^{3} - q^{3})_{max} = 63 \times 3 = 189$ $(p^{3} - q^{3})_{min} = 63 \times (-3) = -189$ So, required difference = 189 - (-189) = 378

QNo:- 66 ,Correct Answer:- 967

Explanation:-

 $a_n = 13 + 6 (n - 1) = 6n + 7 = 7, 13, 19, 25, 31, 37, 43....$ $b_n = 15 + 7 (n - 1) = 8 + 7n = 8, 15, 22, 29, 36, 43.....$ Since, we are looking for common terms.First common term is 43.All the common terms should be in the form ofn(L.C.M. (6, 7)) + 43 = 42n + 43.Now 42n + 43 < 1000⇒ 42 n < 957 $⇒ n < <math>\frac{957}{42}$ ⇒ n < 22.7..... ⇒ the largest possible value of n = 22. So, the largest 3 digit integer = 42n + 43 = 42 (22) + 43 = 967.