Actual CAT 2023 Slot III (Answer Keys)

Section : Verbal Ability

QNo:- 1 ,Correct Answer:- D

Explanation:- The passage emphasizes Pinker's focus on how rationality improves decision-making in various real-world contexts.
- 1 is incorrect because the passage doesn't specifically link Pinker's views to public attention on development issues.
- 2 is incorrect as the passage suggests that Pinker doesn't fully develop the ethical dimensions of rationality.
- 3 is incorrect because, although Pinker discusses statistics, the passage doesn't limit his views on rationality to gaining expertise in scientific disciplines.

QNo:- 2 ,Correct Answer:- D

Explanation:- The passage suggests that Pinker's focus on conscious reasoning contrasts with the role of epiphanies in significant achievements, a point not fully aligned with ancient philosophers.
- 1 is incorrect to eliminate because both Pinker and the philosophers recognize an ethical dimension to rationality.
- 2 is incorrect to eliminate as awareness of assumptions and knowledge gaps is central to both Pinker’s and the philosophers' views.
- 3 is incorrect to eliminate because independent conclusions regardless of speaker authority are in line with both Pinker’s and the philosophers' rational approach.

QNo:- 3 ,Correct Answer:- B

Explanation:- The author highlights that Pinker's treatment of the moral aspects of rationality is less developed compared to ancient philosophers.
- 1 is incorrect because the author doesn’t focus on similarities but rather on Pinker's lack of depth compared to the philosophers.
- 3 is incorrect because there’s no explicit mention of the philosophers' influence on Pinker’s arguments.
- 4 is incorrect as the reference to philosophers is more about ethical and rational thinking, not about dreams and visions.

QNo:- 4 ,Correct Answer:- B

Explanation:- These examples are used to show that significant achievements can arise from intuitive insights, not just conscious reasoning.
- 1 is incorrect because the passage doesn’t make a distinction between sciences and other

fields in the context of these achievements.
- 3 is incorrect as it focuses narrowly on scientific fields, whereas the passage discusses broader domains including music and arts.
- 4 is incorrect because the passage doesn't suggest that European achievements contradict Pinker's views; rather, it highlights the role of intuition alongside reasoning.

QNo:- 5 ,Correct Answer:- C

Explanation:- The central idea is that strict cultural property laws diminish archaeological discoveries. If UNESCO finances research, it counters the negative impact of these laws.
- 1 is incorrect because museums in source countries displaying antiques align with the passage's emphasis on cultural property laws.
- 2 is incorrect as it doesn't undermine the central idea; the passage focuses on poor countries.
- 4 is incorrect because apologies from Western countries don't directly address the issue of reduced archaeological discoveries.

QNo:- 6 ,Correct Answer:- A

Explanation:- The paradox in the passage is that while patrimony laws were meant to protect artifacts, they led to fewer discoveries.
- 2 is incorrect as it focuses on auctioneers, which is not the central paradox discussed.
- 3 is incorrect because the withholding of treasures from museums is not the paradox addressed.
- 4 is incorrect as it suggests neglect of historical sites, which is not the main issue presented in the passage.

QNo:- 7 ,Correct Answer:- A

Explanation:- The passage mentions that new archaeological discoveries typically increase tourism and enhance cultural pride.
- 2 is incorrect as it's the strictness of the laws, not the laws themselves, that's a concern.
- 3 is incorrect because generating funds for future discoveries isn't directly stated as a reason for their importance.
- 4 is incorrect as Western imperialism is not cited as a reason for their importance in the passage.

QNo:- 8 ,Correct Answer:- C

Explanation:- The author advocates for collaborative international archaeological research but does not suggest allowing foreign countries to exhibit artifacts found in the source countries.

Option A) allowing foreign countries to analyze and exhibit archaeological finds could be inferred as a recommended strategy, as it aligns with the idea of international collaboration and sharing the benefits of discoveries.
Option B) is in appropriate because the author praises China's approach of dropping restrictive laws and engaging in international collaboration.
Option C) funding institutes in other countries to undertake archaeological exploration in the source country, reaping the benefits of cutting-edge techniques, does not directly align with the author's recommendations. The passage suggests easing restrictions to encourage foreign investment and collaboration but does not specifically recommend funding foreign institutions to conduct the exploration. The focus is more on modifying laws to enable and encourage international collaboration and investment directly within the source countries, rather than funding external entities to carry out the work
Option D) is incorrect to eliminate because it aligns with the author’s suggestion to incentivize foreign investment in archaeological explorations.

QNo:- 9 ,Correct Answer:- C

Explanation:- The passage mentions that recent studies do not overlook the differences between national romanticisms but characterize them in terms of philosophical questions and concerns.

- 1 is incorrect to eliminate as the passage supports the idea that characterizing romantic aesthetics is both possible and desirable.
- 2 is incorrect to eliminate because the passage states that romantic aesthetics are often expressed through fragments, aphorisms, and poems.
- 4 is incorrect to eliminate as the passage mentions that many romantics rejected the idea of aesthetics as a separate domain.

QNo:- 10 ,Correct Answer:- A

Explanation:- The passage suggests that recent studies characterize romanticism in terms of "particular philosophical questions and concerns" rather than a single definition or specific time/place.

- 2 is incorrect because discrediting Lovejoy’s skepticism is not the stated reason for their approach.
- 3 is incorrect as the passage doesn't suggest that a general analysis is impossible.
- 4 is incorrect because the passage does not indicate that recent studies prefer to highlight the paradox of romantic aesthetics.

QNo:- 11 ,Correct Answer:- D

Explanation:- The passage quotes Lovejoy, who pointed out the difficulty due to the lack of

a “single real entity, or type of entity” that romanticism designates, indicating unclear conceptual contours.

- 1 is incorrect because the passage doesn't describe the history of romantic literature as controversial or scandalous.
- 2 is incorrect because the elusive nature of romantic aesthetics is a challenge, but not the main difficulty.
- 3 is incorrect as the passage does not suggest the absence of written accounts as the main difficulty.

QNo:- 12 ,Correct Answer:- B

Explanation:- The passage states that the most characteristic romantic commitment is the idea that the character of art and beauty should shape all aspects of human life.

- 1 is incorrect because the passage explicitly states that many romantics rejected this view.
- 3 is incorrect as the passage suggests that beauty and art should be central in the lives of ordinary people, not just philosophers and artists.
- 4 is incorrect because the passage does not suggest that aesthetics is considered irrelevant to human existence.

QNo:- 13 ,Correct Answer:- D

Explanation:- The passage does not suggest that the decentralized nature of renewable resources like solar power is a reason for the failure of climate change policies. Instead, it points to power utilities sabotaging decentralized solar power for their own interests.

- 1 is incorrect to eliminate because the marginalization of non-European perspectives is mentioned as a contributing factor to policy failures.
- 2 is incorrect to eliminate as it's mentioned that greed benefiting from non-renewable resources is a challenge.
- 3 is incorrect to eliminate because the global dominance of oil economies is discussed as a significant hurdle.

QNo:- 14 ,Correct Answer:- D

Explanation:- The use of the pronoun “who” for Gaia reflects a view of the Earth as a living entity, which is aligned with Ghosh’s incorporation of non-European perspectives on the Earth. If it were true that non-European societies predominantly perceived the Earth as a non-living resource, this would contradict the basis for using a pronoun that implies personification, making its use inappropriate.

- 1 is incorrect because establishing a cause-effect relationship between human activities and

climate change aligns with personifying the Earth, not contradicting it.
- 2 is incorrect as the title of Ghosh's book is irrelevant to the appropriateness of the pronoun for Gaia.
- 3 is incorrect because new evidence from modern western science about the Earth being inanimate does not directly relate to the use of the pronoun in the context of Ghosh's focus on non-European perspectives.

QNo:- 15 ,Correct Answer:- C

Explanation:- The passage suggests that the colonization of the Banda Islands by the Dutch is used by Ghosh as an example of how European colonialism's view of Earth as a resource to exploit contributed to the current climate crisis.

- 1 is incorrect because systemic violence is not the main focus of the discussion in the context of climate change.
- 2 is incorrect as the passage does not imply that this was the first historical instance of climate change processes.
- 4 is incorrect because the passage does not primarily focus on the role of crop cultivation in contributing to climate change.

QNo:- 16 ,Correct Answer:- D

Explanation:- The passage suggests that academic discourses have often supported the viewpoints of colonialists and their backers, rather than consistently raising awareness about environmental preservation.

- 1 is incorrect to eliminate as the passage implies a connection between colonialism and climate change.
- 2 is incorrect to eliminate because the passage suggests that contemporary perceptions of nature are rooted in colonialist processes.
- 3 is incorrect to eliminate as it's implied that there is much to learn from non-European and pre-colonial societies regarding environmental policy.

QNo:- 17 ,Correct Answer:- C

Explanation:- The sentence fits best at position (C). The paragraph initially discusses how an argument can be defined and how the relation of support between premises and conclusion works. After these theoretical definitions and views, the sentence at C provides a contrasting perspective by suggesting a shift from theoretical abstraction to considering arguments within the context of actual human activities. It serves as a transitional statement that bridges the more abstract, theoretical discussion of arguments with their practical, real-world applications, as mentioned in the final sentence of the paragraph.

- (A) is incorrect because the beginning of the paragraph is already defining an argument, and the missing sentence would be out of context as an introduction.
- (B) is incorrect because it continues the theoretical discussion on how premises support conclusions, and the missing sentence introduces a different perspective.
- (D) is incorrect as it is the conclusion of the paragraph where the focus shifts to the practical applications of arguments in human communication, and the sentence would be out of place here.

QNo:- 18 ,Correct Answer:- C

Explanation:- The paragraph introduces the interconnected nature of different elements and their collective impact on violence and governance. It further Delves into how criminal activities can financially fuel armed conflicts, supporting NSAGs. Finally Concluding with the aftermath of conflicts, discussing the surplus arms and the challenges in achieving sustainable peace. The right placement of the given sentence should be 3rd blank as the sentence Expands on the consequences of armed conflicts by highlighting how they weaken state control and foster an environment conducive to organized crime. This can be seen as a continuation of the idea that armed conflicts provide financial streams to NSAGs, indicating a broader socio-political impact.

QNo:- 19 ,Correct Answer:- 2

Explanation:- The sentence fits best at position (C). The paragraph initially discusses how an argument can be defined and how the relation of support between premises and conclusion works. After these theoretical definitions and views, the sentence at C provides a contrasting perspective by suggesting a shift from theoretical abstraction to considering arguments within the context of actual human activities. It serves as a transitional statement that bridges the more abstract, theoretical discussion of arguments with their practical, real-world applications, as mentioned in the final sentence of the paragraph.

- (A) is incorrect because the beginning of the paragraph is already defining an argument, and the missing sentence would be out of context as an introduction.
- (B) is incorrect because it continues the theoretical discussion on how premises support conclusions, and the missing sentence introduces a different perspective.
- (D) is incorrect as it is the conclusion of the paragraph where the focus shifts to the practical applications of arguments in human communication, and the sentence would be out of place here.

QNo:- 20 ,Correct Answer:- 2

Explanation:- Sentence 2, while related to the broader theme of indigenous populations and their decline, is more focused on the historical context of colonization and its impact on

the indigenous population as a whole, rather than specifically on the Bo language or its speakers. Therefore, the odd sentence should be 2
It addresses the broader historical context of the decline of the indigenous population due to colonization, which, although related, does not directly tie into the specific narrative about the Bo language and its last speaker, which is the central theme in the other sentences.

QNo:- 21 ,Correct Answer:- 3142

Explanation:- The correct sequence is 3-1-4-2

3rd sentence sets the stage by introducing the issue of e-waste and its potential for recycling. It identifies the problem, making it a natural starting point for the paragraph. 1st sentence introduces Veena Sahajwalla and her belief in a new solution to this problem. This builds on the context provided in sentence 3. 4th sentence describes Sahajwalla's specific plan to address the e-waste problem, which logically follows her introduction and her belief in a new solution. 2nd sentence provides the detailed method of how Sahajwalla's plan (introduced in sentence 4) will be executed, making it an appropriate conclusion to the paragraph.
In this sequence, the paragraph flows logically from identifying the broader issue (e-waste recycling), to introducing an expert who believes in a new solution, to outlining her specific plan, and finally detailing the execution of that plan.

QNo:- 22 ,Correct Answer:- 2431

Explanation:- The correct sequence is: 2-4-3-1

- Start with sentence 2, which sets the historical context of learning methods before the printing press. Continue with sentence 4, which describes the direct impact of the printing press on learning. Follow with sentence 3, which elaborates on the broader cultural shift to reading and literacy. Conclude with sentence 1, which brings the discussion to the present day, showing the lasting influence of these historical changes.

QNo:- 23 ,Correct Answer:- B

Explanation:- The passage discusses how societal expectations of perfectionism have shifted over time. In the 1950s, perfectionism was about conforming to the mass culture's norms, while contemporary perfectionism involves standing out through individuality. This summary effectively encapsulates this evolution from conformism to non-conformism. The essence is captured by 2nd option only. 1 is incorrect because it oversimplifies the passage's focus on perfectionism as a means to attract attention, which is not the main point. 3 is incorrect as it focuses solely on the role of media in reflecting and perpetuating perfectionism, while the passage discusses a broader societal shift in the concept of perfectionism. 4 is incorrect because it emphasizes the tension and conflict arising from the changing definition of perfectionism, which isn't the central focus of the passage. The

passage is more about the evolution of what constitutes perfectionism rather than the conflicts it causes.

QNo:- 24 ,Correct Answer:- A

Explanation:-
Option 1 effectively encapsulates the main idea of the passage, which is the improvement in the island's ecosystem, particularly the increase in bird populations and plant growth, following the reduction or absence of pests. It covers both the revival of birds and the positive impact on the plant life. 2 is incorrect because it overemphasizes the aspect of environmental protection without specifically mentioning the crucial role of the absence of pests, which is a key point in the passage. 3 is incorrect as it inaccurately suggests an increase in predatory birds due to pests, which contradicts the passage's focus on the recovery of the ecosystem after the reduction of pests. 4 is incorrect because it narrows the focus to only the protection of plants and birds, missing the broader ecological improvement and the interconnectedness of various elements in the ecosystem described in the passage.

Section : DI & Reasoning

QNo:- 25 ,Correct Answer:- 14

Explanation:- Let us assume, A is the total number of AC's sold
$\Longrightarrow$ From the information that the total number of ACs sold in the city, 25% were of Window variant
$\Longrightarrow$ Window AC's = A/4 and Split AC's = 3A/4
Now, let us assume B is the total number of inverter ACs
$\Longrightarrow$ From the information that among the Inverter ACs sold, 20% were of Window variant.
$\Longrightarrow$ Window Inverter AC's = B/5 and Window Non-Inverter AC's = 4B/5

Table (A)			
Split (3A/4)		**Window (A/4)**	
Inv (4B/5)	Non - Inv	Inv (B/5)	Non – Inv

From - Condition-3
$\Longrightarrow$ A/4 – B/5 = 6 and 4B/5 = 36 $\Longrightarrow$ B = 46 and A = 60.

Total = 60			
Split = 45		**Window = 15**	
Inv = 36	Non – Inv = 9	Inv = 9	Non – Inv = 6

Now, from condition-6

a) D1 & D4 sold "0" window Non-inverter ACs ⟹ D2 & D3 sold 6 window non-inverter ACs, it is given that D2 sold twice as many as D3 ⟹ D2 sold 4 and D3 sold 2 ACs of this type.
From condition-2
b) Let us assume, D1 sold "x" window inverter ACs ⟹ Number of split inverter ACs sold is 13-x From condition-4
c) Number of split ACs sold by D1 will be "2x"
From condition-5
d) Let us assume 'y' is the number of window ACs sold by D3 & D4 ⟹ D2 sold 3y ACs of this type. From condition-7
e) Let us assume 'z' is the number of split inverter ACs sold by D3 and D4 ⟹ D2 sold 2z ACs of this type. Let us use a, b, c, d, and e make a table:

D1 Total =			
Split =		**Window = x**	
Inv = 13 – x	Non – Inv =	Inv = x	Non – Inv = 0
D2 Total =			
Split =		**Window = 3y**	
Inv = 2z	Non – Inv =	Inv =	Non – Inv = 4
D3 Total =			
Split =		**Window = y**	
Inv = z	Non – Inv = 3	Inv =	Non – Inv = 2
D4 Total			
Split =		**Window = y**	
Inv = z	Non – Inv =	Inv =	Non – Inv = 0

We know that the total number of window ACs is 15
⟹ x + 3y + y + y = 15 ⟹ x + 5y = 15, also x and y should be greater than or equal to 2 from condition – 1
⟹ x = 5 and y = 2 is the only solution.
Filling this in the table:

D1 Total =			
Split =		**Window = 5**	
Inv = 8	Non – Inv =	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		**Window = 6**	
Inv = 2z	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			

Split =		Window = 2	
Inv = z	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		Window = 2	
Inv = z	Non – Inv =	Inv = 2	Non – Inv = 0

Now, Number of split inverter ACs is 36
$\Longrightarrow 8 + 2z + z + z = 36 \Longrightarrow 4z = 28 \Longrightarrow z = 7$.
Filling this and using (5), the number of split AC's sold by D1 is 2*5 = 10.

D1 Total = 15			
Split = 10		Window = 5	
Inv = 8	Non – Inv = 2	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		Window = 6	
Inv = 14	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split = 10		Window = 2	
Inv = 7	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		Window = 2	
Inv = 7	Non – Inv =	Inv = 2	Non – Inv = 0

From the table, we see that 14 split inverter ACs are sold.

QNo:- 26 ,Correct Answer:- 25

Explanation:- Let us assume, A is the total number of AC's sold
$\Longrightarrow$ From the information that the total number of ACs sold in the city, 25% were of Window variant
$\Longrightarrow$ Window AC's = A/4 and Split AC's = 3A/4
Now, let us assume B is the total number of inverter ACs
$\Longrightarrow$ From the information that among the Inverter ACs sold, 20% were of Window variant.
$\Longrightarrow$ Window Inverter AC's = B/5 and Window Non-Inverter AC's = 4B/5

Table (A)			
Split (3A/4)		Window (A/4)	
Inv (4B/5)	Non - Inv	Inv (B/5)	Non – Inv

From - Condition-3
$\Rightarrow A/4 - B/5 = 6$ and $4B/5 = 36 \Rightarrow B = 46$ and $A = 60$.

Total = 60			
Split = 45		Window = 15	
Inv = 36	Non – Inv = 9	Inv = 9	Non – Inv = 6

Now, from condition-6
a) D1 & D4 sold "0" window Non-inverter ACs $\Rightarrow$ D2 & D3 sold 6 window non-inverter ACs, it is given that D2 sold twice as many as D3 $\Rightarrow$ D2 sold 4 and D3 sold 2 ACs of this type.
From condition-2
b) Let us assume, D1 sold "x" window inverter ACs $\Rightarrow$ Number of split inverter ACs sold is 13-x From condition-4
c) Number of split ACs sold by D1 will be "2x"
From condition-5
d) Let us assume 'y' is the number of window ACs sold by D3 & D4 $\Rightarrow$ D2 sold 3y ACs of this type. From condition-7
e) Let us assume 'z' is the number of split inverter ACs sold by D3 and D4 $\Rightarrow$ D2 sold 2z ACs of this type. Let us use a, b, c, d, and e make a table:

D1 Total =			
Split =		Window = x	
Inv = 13 – x	Non – Inv =	Inv = x	Non – Inv = 0
D2 Total =			
Split =		Window = 3y	
Inv = 2z	Non – Inv =	Inv =	Non – Inv = 4
D3 Total =			
Split =		Window = y	
Inv = z	Non – Inv = 3	Inv =	Non – Inv = 2
D4 Total			
Split =		Window = y	
Inv = z	Non – Inv =	Inv =	Non – Inv = 0

We know that the total number of window ACs is 15
$\Rightarrow x + 3y + y + y = 15 \Rightarrow x + 5y = 15$, also x and y should be greater than or equal to 2 from condition – 1
$\Rightarrow x = 5$ and $y = 2$ is the only solution.
Filling this in the table:

D1 Total =

Split =		Window = 5	
Inv = 8	Non – Inv =	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		Window = 6	
Inv = 2z	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split =		Window = 2	
Inv = z	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		Window = 2	
Inv = z	Non – Inv =	Inv = 2	Non – Inv = 0

Now, Number of split inverter ACs is 36
$\Longrightarrow 8 + 2z + z + z = 36 \Longrightarrow 4z = 28 \Longrightarrow z = 7$.
Filling this and using (5), the number of split AC's sold by D1 is 2*5 = 10.

D1 Total = 15			
Split = 10		Window = 5	
Inv = 8	Non – Inv = 2	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		Window = 6	
Inv = 14	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split = 10		Window = 2	
Inv = 7	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		Window = 2	
Inv = 7	Non – Inv =	Inv = 2	Non – Inv = 0

From this table, we see that total number of non-inverter ACs is 9 + 6 = 15.
Required percentage is 15 out of 60 $\Longrightarrow$ 25%.

QNo:- 27 ,Correct Answer:- 33

Explanation:- Let us assume, A is the total number of AC's sold
$\Longrightarrow$ From the information that the total number of ACs sold in the city, 25% were of Window

variant
⟹ Window AC's = A/4 and Split AC's = 3A/4
Now, let us assume B is the total number of inverter ACs
⟹ From the information that among the Inverter ACs sold, 20% were of Window variant.
⟹ Window Inverter AC's = B/5 and Window Non-Inverter AC's = 4B/5

Table (A)			
Split (3A/4)		**Window (A/4)**	
Inv (4B/5)	Non - Inv	Inv (B/5)	Non – Inv

From - Condition-3
⟹ A/4 – B/5 = 6 and 4B/5 = 36 ⟹ B = 46 and A = 60.

Total = 60			
Split = 45		**Window = 15**	
Inv = 36	Non – Inv = 9	Inv = 9	Non – Inv = 6

Now, from condition-6
a) D1 & D4 sold "0" window Non-inverter ACs ⟹ D2 & D3 sold 6 window non-inverter ACs, it is given that D2 sold twice as many as D3 ⟹ D2 sold 4 and D3 sold 2 ACs of this type.
From condition-2
b) Let us assume, D1 sold "x" window inverter ACs ⟹ Number of split inverter ACs sold is 13-x From condition-4
c) Number of split ACs sold by D1 will be "2x"
From condition-5
d) Let us assume 'y' is the number of window ACs sold by D3 & D4 ⟹ D2 sold 3y ACs of this type. From condition-7
e) Let us assume 'z' is the number of split inverter ACs sold by D3 and D4 ⟹ D2 sold 2z ACs of this type. Let us use a, b, c, d, and e make a table:

D1 Total =			
Split =		**Window = x**	
Inv = 13 – x	Non – Inv =	Inv = x	Non – Inv = 0
D2 Total =			
Split =		**Window = 3y**	
Inv = 2z	Non – Inv =	Inv =	Non – Inv = 4
D3 Total =			
Split =		**Window = y**	
Inv = z	Non – Inv = 3	Inv =	Non – Inv = 2
D4 Total			
Split =		**Window = y**	

Inv = z	Non – Inv =	Inv =	Non – Inv = 0

We know that the total number of window ACs is 15
$\Longrightarrow x + 3y + y + y = 15 \Longrightarrow x + 5y = 15$, also x and y should be greater than or equal to 2 from condition – 1
$\Longrightarrow x = 5$ and $y = 2$ is the only solution.
Filling this in the table:

D1 Total =			
Split =		**Window = 5**	
Inv = 8	Non – Inv =	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		**Window = 6**	
Inv = 2z	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split =		**Window = 2**	
Inv = z	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		**Window = 2**	
Inv = z	Non – Inv =	Inv = 2	Non – Inv = 0

Now, Number of split inverter ACs is 36
$\Longrightarrow 8 + 2z + z + z = 36 \Longrightarrow 4z = 28 \Longrightarrow z = 7$.
Filling this and using (5), the number of split AC's sold by D1 is 2*5 = 10.

D1 Total = 15			
Split = 10		**Window = 5**	
Inv = 8	Non – Inv = 2	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		**Window = 6**	
Inv = 14	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split = 10		**Window = 2**	
Inv = 7	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		**Window = 2**	
Inv = 7	Non – Inv =	Inv = 2	Non – Inv = 0

Total number of ACs sold by D2 and D4 = 60 - D1 - D3 = 60 - 15 - 12 = 33.

QNo:- 28 ,Correct Answer:- A

Explanation:- Let us assume, A is the total number of AC's sold
⟹ From the information that the total number of ACs sold in the city, 25% were of Window variant
⟹ Window AC's = A/4 and Split AC's = 3A/4
Now, let us assume B is the total number of inverter ACs
⟹ From the information that among the Inverter ACs sold, 20% were of Window variant.
⟹ Window Inverter AC's = B/5 and Window Non-Inverter AC's = 4B/5

Table (A)			
Split (3A/4)		**Window (A/4)**	
Inv (4B/5)	Non - Inv	Inv (B/5)	Non – Inv

From - Condition-3
⟹ A/4 – B/5 = 6 and 4B/5 = 36 ⟹ B = 46 and A = 60.

Total = 60			
Split = 45		**Window = 15**	
Inv = 36	Non – Inv = 9	Inv = 9	Non – Inv = 6

Now, from condition-6
a) D1 & D4 sold "0" window Non-inverter ACs ⟹ D2 & D3 sold 6 window non-inverter ACs, it is given that D2 sold twice as many as D3 ⟹ D2 sold 4 and D3 sold 2 ACs of this type.
From condition-2
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c) Number of split ACs sold by D1 will be "2x"
From condition-5
d) Let us assume 'y' is the number of window ACs sold by D3 & D4 ⟹ D2 sold 3y ACs of this type. From condition-7
e) Let us assume 'z' is the number of split inverter ACs sold by D3 and D4 ⟹ D2 sold 2z ACs of this type. Let us use a, b, c, d, and e make a table:

D1 Total =			
Split =		**Window = x**	
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Split =		**Window = 3y**	

Inv = 2z	Non – Inv =	Inv =	Non – Inv = 4
D3 Total =			
Split =		**Window = y**	
Inv = z	Non – Inv = 3	Inv =	Non – Inv = 2
D4 Total			
Split =		**Window = y**	
Inv = z	Non – Inv =	Inv =	Non – Inv = 0

We know that the total number of window ACs is 15
$\Longrightarrow x + 3y + y + y = 15 \Longrightarrow x + 5y = 15$, also x and y should be greater than or equal to 2 from condition – 1
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Inv = 2z	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split =		**Window = 2**	
Inv = z	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		**Window = 2**	
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D2 Total =			
Split =		**Window = 6**	
Inv = 14	Non – Inv =	Inv = 2	Non – Inv = 4

D3 Total =			
Split = 10		**Window = 2**	
Inv = 7	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		**Window = 2**	
Inv = 7	Non – Inv =	Inv = 2	Non – Inv = 0

We see that D1 & D3 sold 27 ACs together which is less than 60 – 27 = 33 sold by D2 & D4.
⟹ Option – A is definitely false.

QNo:- 29 ,Correct Answer:- A

Explanation:- Let us assume, A is the total number of AC's sold
⟹ From the information that the total number of ACs sold in the city, 25% were of Window variant
⟹ Window AC's = A/4 and Split AC's = 3A/4
Now, let us assume B is the total number of inverter ACs
⟹ From the information that among the Inverter ACs sold, 20% were of Window variant.
⟹ Window Inverter AC's = B/5 and Window Non-Inverter AC's = 4B/5

Table (A)			
Split (3A/4)		**Window (A/4)**	
Inv (4B/5)	Non - Inv	Inv (B/5)	Non – Inv

From - Condition-3
⟹ A/4 – B/5 = 6 and 4B/5 = 36 ⟹ B = 46 and A = 60.

Total = 60			
Split = 45		**Window = 15**	
Inv = 36	Non – Inv = 9	Inv = 9	Non – Inv = 6

Now, from condition-6
a) D1 & D4 sold "0" window Non-inverter ACs ⟹ D2 & D3 sold 6 window non-inverter ACs, it is given that D2 sold twice as many as D3 ⟹ D2 sold 4 and D3 sold 2 ACs of this type.
From condition-2
b) Let us assume, D1 sold "x" window inverter ACs ⟹ Number of split inverter ACs sold is 13-x From condition-4
c) Number of split ACs sold by D1 will be "2x"
From condition-5
d) Let us assume 'y' is the number of window ACs sold by D3 & D4 ⟹ D2 sold 3y ACs of this type. From condition-7

e) Let us assume 'z' is the number of split inverter ACs sold by D3 and D4 ⟹ D2 sold 2z ACs of this type. Let us use a, b, c, d, and e make a table:

D1 Total =			
Split =		**Window = x**	
Inv = 13 – x	Non – Inv =	Inv = x	Non – Inv = 0
D2 Total =			
Split =		**Window = 3y**	
Inv = 2z	Non – Inv =	Inv =	Non – Inv = 4
D3 Total =			
Split =		**Window = y**	
Inv = z	Non – Inv = 3	Inv =	Non – Inv = 2
D4 Total			
Split =		**Window = y**	
Inv = z	Non – Inv =	Inv =	Non – Inv = 0

We know that the total number of window ACs is 15
⟹ x + 3y + y + y = 15 ⟹ x + 5y = 15, also x and y should be greater than or equal to 2 from condition – 1
⟹ x = 5 and y = 2 is the only solution.
Filling this in the table:

D1 Total =			
Split =		**Window = 5**	
Inv = 8	Non – Inv =	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		**Window = 6**	
Inv = 2z	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split =		**Window = 2**	
Inv = z	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		**Window = 2**	
Inv = z	Non – Inv =	Inv = 2	Non – Inv = 0

Now, Number of split inverter ACs is 36
⟹ 8 + 2z + z + z = 36 ⟹ 4z = 28 ⟹ z = 7.

Filling this and using (5), the number of split AC's sold by D1 is 2*5 = 10.

D1 Total = 15			
Split = 10		Window = 5	
Inv = 8	Non – Inv = 2	Inv = 5	Non – Inv = 0
D2 Total =			
Split =		Window = 6	
Inv = 14	Non – Inv =	Inv = 2	Non – Inv = 4
D3 Total =			
Split = 10		Window = 2	
Inv = 7	Non – Inv = 3	Inv = 0	Non – Inv = 2
D4 Total			
Split =		Window = 2	
Inv = 7	Non – Inv =	Inv = 2	Non – Inv = 0

Number of non-inverter ACs sold is 1 + 4 = 5

QNo:- 30 ,Correct Answer:- 60

Explanation:-
It is given that there are only three female students - Amala, Koli, and Rini - and only three male students - Biman, Mathew, and Shyamal - in a course.
It is also known that the aggregate score in the course is a weighted average of the two components, with the weights being positive and adding to 1.
Let the project score component be x, which implies the test score component will be (1-x).
The projects are done in groups of two, with each group consisting of a female and a male student, which implies there are three groups for the project. It is also known that both the group members obtain the same score in the project. The score obtained in the project is 40, 60, and 80, respectively.
Therefore, we can say that each female student will consist of a different group, and no two male students or female students will be in the same group.
For the test scores, there are six scores given for six students among which four are distinct and the remaining two are average scores, which is 60. It is also known that the maximum score possible is 80, and the minimum score is 40.
Hence, the distinct scores are 80, 70, 50, and 40 (since all the test scores are multiple of 10), and the remaining two scores are 60, and 60, respectively.
From point 3, we know that Amala's score in the project was double that of Koli in the same, but Koli scored 20 more than Amala in the test. Hence, we can say the score obtained by Amala in the project is 80, and the score obtained by Koli is 40, which implies the score obtained by Rini in the project is 60. Now, Koli scored 20 more than Amala in the test, which implies the score obtained by Koli can be either 80, 70, or 60.

The score obtained by them is given below:

Students	Test Scores	Project Scores
Amala	40/50/60	80
Koli	60/70/80	40
Rini		60
Biman		
Mathew		
Shyamal		

It is known that Amala had the highest aggregate score, and Shyamal scored the second highest on the test. He scored two more than Koli, but two less than Amala in the aggregate. Hence, the score obtained by Shyamal in the test is 70, which implies Koli can't score 70 in the test $\Longrightarrow$ Amala can't score 50 in the test.

Students	Test Scores	Project Scores
Amala	40/60	80
Koli	60/80	40
Rini		60
Biman		
Mathew		
Shyamal	70	

It is given that Shyamal scored two more than Koli, but two less than Amala in the aggregate. Hence, the aggregate score of Amala is 4 more than Koli. It is also known that Amala had the highest aggregate score.

Case 1: The test score of Amala is 40

Students	Test Scores	Project Scores	Aggregate Score
Amala	40	80	40 (1 – x) + 80x
Koli	60	40	60 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, $40(1 - x) + 80x = 60(1 - x) + 40x + 4$
$\Longrightarrow 60x = 24$
$\Longrightarrow x = 0.4$
Hence, the aggregate score obtained by Amala is $40(1 – 0.4) + 80 * 4 = 56$
The minimum aggregate score of Shyamal is $70(1 – 0.4) + 40 * 0.4 = 58$, which is greater than Amala.
Hence, Case 1 is not possible.

Hence, the table is given below:

Students	Test Scores	Project Scores	Aggregate Score
Amala	60	80	60 (1 – x) + 80x
Koli	80	40	80 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 60(1 - x) + 80x = 80(1 - x) + 40x + 4
$\Longrightarrow$ 60 + 20x = 84 – 40x
$\Longrightarrow$ 60x = 24 $\Longrightarrow$ x = 0.4
Hence, the aggregate score of Amala is 60 (1 – 0.4) + 80 * 0.4 = 68, which implies the aggregate score of Shyamal is (68 – 2) = 66
Hence, the score obtained by Shyamal in Project is {66 – 70*(0.6)}/0.4 = 60.
It is also known that Biman scored second lowest in the test, which implies the score of Biman in the test is 50, and he scored the lowest in the aggregate. It is also known that Mathew scored more than Rini in the project, but less than her in the test. Hence, Mathew scored 80 in the project (since Rini scored 60 in the project), and Biman scored 40 in the project.

Similarly, Rini Scored more than Mathew on the test, which implies the score obtained by Rini is 60, and the score obtained by Mathew is 40 in the test.
Hence, the final table will look like this:

Students	Test Scores (T)	Project Scores (P)	Aggregate Score (T * 0.6 + P* 0.4)	Project Pair
Amala	60	80	68	Amala, Mathew
Koli	80	40	64	Koli, Biman
Rini	60	60	60	Rini, Shyamal
Biman	50	40	46	Biman, Koli
Mathew	40	80	56	Mathew, Amala
Shyamal	70	60	66	Shyamal, Rini

Hence, the score obtained by Rini in the project is 60

QNo:- 31 ,Correct Answer:- B

Explanation:-
It is given that there are only three female students - Amala, Koli, and Rini - and only three male students - Biman, Mathew, and Shyamal - in a course.
It is also known that the aggregate score in the course is a weighted average of the two

components, with the weights being positive and adding to 1.
Let the project score component be x, which implies the test score component will be (1-x).
The projects are done in groups of two, with each group consisting of a female and a male student, which implies there are three groups for the project. It is also known that both the group members obtain the same score in the project. The score obtained in the project is 40, 60, and 80, respectively.
Therefore, we can say that each female student will consist of a different group, and no two male students or female students will be in the same group.
For the test scores, there are six scores given for six students among which four are distinct and the remaining two are average scores, which is 60. It is also known that the maximum score possible is 80, and the minimum score is 40.
Hence, the distinct scores are 80, 70, 50, and 40 (since all the test scores are multiple of 10), and the remaining two scores are 60, and 60, respectively.
From point 3, we know that Amala's score in the project was double that of Koli in the same, but Koli scored 20 more than Amala in the test. Hence, we can say the score obtained by Amala in the project is 80, and the score obtained by Koli is 40, which implies the score obtained by Rini in the project is 60. Now, Koli scored 20 more than Amala in the test, which implies the score obtained by Koli can be either 80, 70, or 60.
The score obtained by them is given below:

Students	Test Scores	Project Scores
Amala	40/50/60	80
Koli	60/70/80	40
Rini		60
Biman		
Mathew		
Shyamal		

It is known that Amala had the highest aggregate score, and Shyamal scored the second highest on the test. He scored two more than Koli, but two less than Amala in the aggregate.
Hence, the score obtained by Shyamal in the test is 70, which implies Koli can't score 70 in the test $\Longrightarrow$ Amala can't score 50 in the test.

Students	Test Scores	Project Scores
Amala	40/60	80
Koli	60/80	40
Rini		60
Biman		
Mathew		
Shyamal	70	

It is given that Shyamal scored two more than Koli, but two less than Amala in the aggregate.
Hence, the aggregate score of Amala is 4 more than Koli. It is also known that Amala had the highest aggregate score.

Case 1: The test score of Amala is 40

Students	Test Scores	Project Scores	Aggregate Score
Amala	40	80	40 (1 – x) + 80x
Koli	60	40	60 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 40(1 - x) + 80x = 60(1 - x) + 40x + 4
$\Longrightarrow$ 60x = 24
$\Longrightarrow$ x = 0.4
Hence, the aggregate score obtained by Amala is 40(1 – 0.4) + 80 * 4 = 56
The minimum aggregate score of Shyamal is 70(1 – 0.4) + 40 * 0.4 = 58, which is greater than Amala.
Hence, Case 1 is not possible.
Hence, the table is given below:

Students	Test Scores	Project Scores	Aggregate Score
Amala	60	80	60 (1 – x) + 80x
Koli	80	40	80 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 60(1 - x) + 80x = 80(1 - x) + 40x + 4
$\Longrightarrow$ 60 + 20x = 84 – 40x
$\Longrightarrow$ 60x = 24 $\Longrightarrow$ x = 0.4
Hence, the aggregate score of Amala is 60 (1 – 0.4) + 80 * 0.4 = 68, which implies the aggregate score of Shyamal is (68 – 2) = 66
Hence, the score obtained by Shyamal in Project is {66 – 70*(0.6)}/0.4 = 60.
It is also known that Biman scored second lowest in the test, which implies the score of Biman in the test is 50, and he scored the lowest in the aggregate. It is also known that Mathew scored more than Rini in the project, but less than her in the test. Hence, Mathew scored 80 in the project (since Rini scored 60 in the project), and Biman scored 40 in the project.
Similarly, Rini Scored more than Mathew on the test, which implies the score obtained by Rini is 60, and the score obtained by Mathew is 40 in the test.
Hence, the final table will look like this:

Students	Test Scores (T)	Project Scores (P)	Aggregate Score (T * 0.6 + P* 0.4)	Project Pair

Amala	60	80	68	Amala, Mathew
Koli	80	40	64	Koli, Biman
Rini	60	60	60	Rini, Shyamal
Biman	50	40	46	Biman, Koli
Mathew	40	80	56	Mathew, Amala
Shyamal	70	60	66	Shyamal, Rini

Hence, the weight of the test component is 0.60
The correct option is B

QNo:- 32 ,Correct Answer:- A

Explanation:-
It is given that there are only three female students - Amala, Koli, and Rini - and only three male students - Biman, Mathew, and Shyamal - in a course.
It is also known that the aggregate score in the course is a weighted average of the two components, with the weights being positive and adding to 1.
Let the project score component be x, which implies the test score component will be (1-x).
The projects are done in groups of two, with each group consisting of a female and a male student, which implies there are three groups for the project. It is also known that both the group members obtain the same score in the project. The score obtained in the project is 40, 60, and 80, respectively.
Therefore, we can say that each female student will consist of a different group, and no two male students or female students will be in the same group.
For the test scores, there are six scores given for six students among which four are distinct and the remaining two are average scores, which is 60. It is also known that the maximum score possible is 80, and the minimum score is 40.
Hence, the distinct scores are 80, 70, 50, and 40 (since all the test scores are multiple of 10), and the remaining two scores are 60, and 60, respectively.
From point 3, we know that Amala's score in the project was double that of Koli in the same, but Koli scored 20 more than Amala in the test. Hence, we can say the score obtained by Amala in the project is 80, and the score obtained by Koli is 40, which implies the score obtained by Rini in the project is 60. Now, Koli scored 20 more than Amala in the test, which implies the score obtained by Koli can be either 80, 70, or 60.
The score obtained by them is given below:

Students	Test Scores	Project Scores
Amala	40/50/60	80
Koli	60/70/80	40
Rini		60
Biman		
Mathew		

Shyamal		

It is known that Amala had the highest aggregate score, and Shyamal scored the second highest on the test. He scored two more than Koli, but two less than Amala in the aggregate. Hence, the score obtained by Shyamal in the test is 70, which implies Koli can't score 70 in the test ⟹ Amala can't score 50 in the test.

Students	Test Scores	Project Scores
Amala	40/60	80
Koli	60/80	40
Rini		60
Biman		
Mathew		
Shyamal	70	

It is given that Shyamal scored two more than Koli, but two less than Amala in the aggregate. Hence, the aggregate score of Amala is 4 more than Koli. It is also known that Amala had the highest aggregate score.

Case 1: The test score of Amala is 40

Students	Test Scores	Project Scores	Aggregate Score
Amala	40	80	40 (1 – x) + 80x
Koli	60	40	60 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 40(1 - x) + 80x = 60(1 - x) + 40x + 4
⟹ 60x = 24
⟹ x = 0.4
Hence, the aggregate score obtained by Amala is 40(1 – 0.4) + 80 * 4 = 56
The minimum aggregate score of Shyamal is 70(1 – 0.4) + 40 * 0.4 = 58, which is greater than Amala.
Hence, Case 1 is not possible.
Hence, the table is given below:

Students	Test Scores	Project Scores	Aggregate Score
Amala	60	80	60 (1 – x) + 80x
Koli	80	40	80 (1 – x) + 40x
Rini		60	
Biman			
Mathew			

Shyamal	70		

Therefore, 60(1 – x) + 80x = 80(1 – x) + 40x + 4
⟹ 60 + 20x = 84 – 40x
⟹ 60x = 24 ⟹ x = 0.4
Hence, the aggregate score of Amala is 60 (1 – 0.4) + 80 * 0.4 = 68, which implies the aggregate score of Shyamal is (68 – 2) = 66
Hence, the score obtained by Shyamal in Project is {66 – 70*(0.6)}/0.4 = 60.
It is also known that Biman scored second lowest in the test, which implies the score of Biman in the test is 50, and he scored the lowest in the aggregate. It is also known that Mathew scored more than Rini in the project, but less than her in the test. Hence, Mathew scored 80 in the project (since Rini scored 60 in the project), and Biman scored 40 in the project.

Similarly, Rini Scored more than Mathew on the test, which implies the score obtained by Rini is 60, and the score obtained by Mathew is 40 in the test.
Hence, the final table will look like this:

Students	**Test Scores (T)**	**Project Scores (P)**	**Aggregate Score (T * 0.6 + P* 0.4)**	**Project Pair**
Amala	60	80	68	Amala, Mathew
Koli	80	40	64	Koli, Biman
Rini	60	60	60	Rini, Shyamal
Biman	50	40	46	Biman, Koli
Mathew	40	80	56	Mathew, Amala
Shyamal	70	60	66	Shyamal, Rini

Hence, the maximum aggregate score obtained is 68. The correct option is A

QNo:- 33 ,Correct Answer:- 40

Explanation:-
It is given that there are only three female students - Amala, Koli, and Rini - and only three male students - Biman, Mathew, and Shyamal - in a course.
It is also known that the aggregate score in the course is a weighted average of the two components, with the weights being positive and adding to 1.
Let the project score component be x, which implies the test score component will be (1-x).
The projects are done in groups of two, with each group consisting of a female and a male student, which implies there are three groups for the project. It is also known that both the group members obtain the same score in the project. The score obtained in the project is 40, 60, and 80, respectively.
Therefore, we can say that each female student will consist of a different group, and no two male students or female students will be in the same group.

For the test scores, there are six scores given for six students among which four are distinct and the remaining two are average scores, which is 60. It is also known that the maximum score possible is 80, and the minimum score is 40.
Hence, the distinct scores are 80, 70, 50, and 40 (since all the test scores are multiple of 10), and the remaining two scores are 60, and 60, respectively.
From point 3, we know that Amala's score in the project was double that of Koli in the same, but Koli scored 20 more than Amala in the test. Hence, we can say the score obtained by Amala in the project is 80, and the score obtained by Koli is 40, which implies the score obtained by Rini in the project is 60. Now, Koli scored 20 more than Amala in the test, which implies the score obtained by Koli can be either 80, 70, or 60.
The score obtained by them is given below:

Students	Test Scores	Project Scores
Amala	40/50/60	80
Koli	60/70/80	40
Rini		60
Biman		
Mathew		
Shyamal		

It is known that Amala had the highest aggregate score, and Shyamal scored the second highest on the test. He scored two more than Koli, but two less than Amala in the aggregate.
Hence, the score obtained by Shyamal in the test is 70, which implies Koli can't score 70 in the test $\Rightarrow$ Amala can't score 50 in the test.

Students	Test Scores	Project Scores
Amala	40/60	80
Koli	60/80	40
Rini		60
Biman		
Mathew		
Shyamal	70	

It is given that Shyamal scored two more than Koli, but two less than Amala in the aggregate. Hence, the aggregate score of Amala is 4 more than Koli. It is also known that Amala had the highest aggregate score.

Case 1: The test score of Amala is 40

Students	Test Scores	Project Scores	Aggregate Score
Amala	40	80	40 (1 – x) + 80x
Koli	60	40	60 (1 – x) + 40x
Rini		60	
Biman			

Mathew			
Shyamal	70		

Therefore, 40(1 - x) + 80x = 60(1 - x) + 40x + 4
$\Longrightarrow$ 60x = 24
$\Longrightarrow$ x = 0.4
Hence, the aggregate score obtained by Amala is 40(1 – 0.4) + 80 * 4 = 56
The minimum aggregate score of Shyamal is 70(1 – 0.4) + 40 * 0.4 = 58, which is greater than Amala.
Hence, Case 1 is not possible.
Hence, the table is given below:

Students	**Test Scores**	**Project Scores**	**Aggregate Score**
Amala	60	80	60 (1 – x) + 80x
Koli	80	40	80 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 60(1 – x) + 80x = 80(1 – x) + 40x + 4
$\Longrightarrow$ 60 + 20x = 84 – 40x
$\Longrightarrow$ 60x = 24 $\Longrightarrow$ x = 0.4
Hence, the aggregate score of Amala is 60 (1 – 0.4) + 80 * 0.4 = 68, which implies the aggregate score of Shyamal is (68 – 2) = 66
Hence, the score obtained by Shyamal in Project is {66 – 70*(0.6)}/0.4 = 60.
It is also known that Biman scored second lowest in the test, which implies the score of Biman in the test is 50, and he scored the lowest in the aggregate. It is also known that Mathew scored more than Rini in the project, but less than her in the test. Hence, Mathew scored 80 in the project (since Rini scored 60 in the project), and Biman scored 40 in the project.

Similarly, Rini Scored more than Mathew on the test, which implies the score obtained by Rini is 60, and the score obtained by Mathew is 40 in the test.
Hence, the final table will look like this:

Students	**Test Scores (T)**	**Project Scores (P)**	**Aggregate Score (T * 0.6 + P* 0.4)**	**Project Pair**
Amala	60	80	68	Amala, Mathew
Koli	80	40	64	Koli, Biman
Rini	60	60	60	Rini, Shyamal
Biman	50	40	46	Biman, Koli
Mathew	40	80	56	Mathew, Amala

Shyamal	70	60	66	Shyamal, Rini

Hence, the score obtained by Mathew in the test is 40

QNo:- 34 ,Correct Answer:- C

Explanation:-
It is given that there are only three female students - Amala, Koli, and Rini - and only three male students - Biman, Mathew, and Shyamal - in a course.
It is also known that the aggregate score in the course is a weighted average of the two components, with the weights being positive and adding to 1.
Let the project score component be x, which implies the test score component will be (1-x).
The projects are done in groups of two, with each group consisting of a female and a male student, which implies there are three groups for the project. It is also known that both the group members obtain the same score in the project. The score obtained in the project is 40, 60, and 80, respectively.
Therefore, we can say that each female student will consist of a different group, and no two male students or female students will be in the same group.
For the test scores, there are six scores given for six students among which four are distinct and the remaining two are average scores, which is 60. It is also known that the maximum score possible is 80, and the minimum score is 40.
Hence, the distinct scores are 80, 70, 50, and 40 (since all the test scores are multiple of 10), and the remaining two scores are 60, and 60, respectively.
From point 3, we know that Amala's score in the project was double that of Koli in the same, but Koli scored 20 more than Amala in the test. Hence, we can say the score obtained by Amala in the project is 80, and the score obtained by Koli is 40, which implies the score obtained by Rini in the project is 60. Now, Koli scored 20 more than Amala in the test, which implies the score obtained by Koli can be either 80, 70, or 60.
The score obtained by them is given below:

Students	**Test Scores**	**Project Scores**
Amala	40/50/60	80
Koli	60/70/80	40
Rini		60
Biman		
Mathew		
Shyamal		

It is known that Amala had the highest aggregate score, and Shyamal scored the second highest on the test. He scored two more than Koli, but two less than Amala in the aggregate.
Hence, the score obtained by Shyamal in the test is 70, which implies Koli can't score 70 in the test $\Longrightarrow$ Amala can't score 50 in the test.

Students	**Test Scores**	**Project Scores**

Amala	40/60	80
Koli	60/80	40
Rini		60
Biman		
Mathew		
Shyamal	70	

It is given that Shyamal scored two more than Koli, but two less than Amala in the aggregate. Hence, the aggregate score of Amala is 4 more than Koli. It is also known that Amala had the highest aggregate score.

Case 1: The test score of Amala is 40

Students	Test Scores	Project Scores	Aggregate Score
Amala	40	80	40 (1 – x) + 80x
Koli	60	40	60 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 40(1 - x) + 80x = 60(1 - x) + 40x + 4
$\Longrightarrow$ 60x = 24
$\Longrightarrow$ x = 0.4
Hence, the aggregate score obtained by Amala is 40(1 – 0.4) + 80 * 4 = 56
The minimum aggregate score of Shyamal is 70(1 – 0.4) + 40 * 0.4 = 58, which is greater than Amala.
Hence, Case 1 is not possible.
Hence, the table is given below:

Students	Test Scores	Project Scores	Aggregate Score
Amala	60	80	60 (1 – x) + 80x
Koli	80	40	80 (1 – x) + 40x
Rini		60	
Biman			
Mathew			
Shyamal	70		

Therefore, 60(1 – x) + 80x = 80(1 – x) + 40x + 4
$\Longrightarrow$ 60 + 20x = 84 – 40x
$\Longrightarrow$ 60x = 24 $\Longrightarrow$ x = 0.4
Hence, the aggregate score of Amala is 60 (1 – 0.4) + 80 * 0.4 = 68, which implies the aggregate score of Shyamal is (68 – 2) = 66
Hence, the score obtained by Shyamal in Project is {66 – 70*(0.6)}/0.4 = 60.

It is also known that Biman scored second lowest in the test, which implies the score of Biman in the test is 50, and he scored the lowest in the aggregate. It is also known that Mathew scored more than Rini in the project, but less than her in the test. Hence, Mathew scored 80 in the project (since Rini scored 60 in the project), and Biman scored 40 in the project.

Similarly, Rini Scored more than Mathew on the test, which implies the score obtained by Rini is 60, and the score obtained by Mathew is 40 in the test.
Hence, the final table will look like this:

Students	Test Scores (T)	Project Scores (P)	Aggregate Score (T * 0.6 + P* 0.4)	Project Pair
Amala	60	80	68	Amala, Mathew
Koli	80	40	64	Koli, Biman
Rini	60	60	60	Rini, Shyamal
Biman	50	40	46	Biman, Koli
Mathew	40	80	56	Mathew, Amala
Shyamal	70	60	66	Shyamal, Rini

From the table, we can see that (Amala, Mathew), (Koli, Biman), and (Shyama, Rini) are the three groups for the project.
Hence, the correct option is C

QNo:- 35 ,Correct Answer:- D

Explanation:-
It is given that none of the streets has more than one team traveling along it in any direction at any point in time (point 1), which implies at 9.00 hrs, all 4 teams have chosen different roots from the starting point.

It is also known that Teams 2 and 3 are the only ones in stations E and D respectively at 10:00 hrs, and Team 1 and Team 4 are the only teams that patrol the street connecting stations A and E.

It is only possible when Team 2 traveled (A – E) via F, and Team 3 reached station D via station C.

It is also known that Teams 1 and 3 are the only ones in Station E at 10:30 hrs, and Team 4 never passes through Stations B, D, or F. Hence, Team 1 must have chosen the (A – B) root at the starting point, and Team 4 has chosen the (A – E) root at 9.00 hrs.

Hence, Team 1 will reach B at 9.30, and come to A at 10.00 hrs. After that, they will go to E at 10.30 hrs.

Since Team 4 never passes through stations B, D, or F. Team 4 only can pass through stations A, E, and C. Hence, the roots of team 4 to reach station E at 11.30 will be (A – E – A – C – A – E) or (A – E – A – E – A– E).

Since team 1 is already traveling to E from A at 10.00 hrs, at that time team 4 can't choose the same route. Hence, the final route for team 4 to reach E at 11.30 is (A – E – A – C – A – E), and at 12.00 hrs, team 4 will come back to station A.

Hence, the complete route diagram for team 4 is (A – E – A – C – A – E – A)

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E			
2	A	F	E				
3	A	C	D				
4	A	E	A	C	A	E	A

We can see that team 1 is at station E at 10.30 hrs, and they will reach station B at 11.30 hrs, which is only possible when they travel to B via A.

Hence, the complete route diagram for team 1 is (A – B – A – E – A – B – A). It is also known that Teams 1 and 3 are the only ones in station E at 10:30 hrs.

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E				
3	A	C	D	E			
4	A	E	A	C	A	E	A

The only possible root for Team 2 at 10.00 hrs is from E to F since they can't choose E to D because Team 3 is already on this route. Since team 3 has to reach A at 12.00. The only possible combination for team 3 is E – D – C – A

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F			
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

Now the roots for team 2 going back to A is from F at 10.30 hrs (F – A – F – A) or (F – E – F – A).
Hence, the final table is given below:

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A

2	A	F	E	F	A/E	F	A
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

From the table, we can see that among the options station E is visited the largest number of times.

QNo:- 36 ,Correct Answer:- 2

Explanation:-
It is given that none of the streets has more than one team traveling along it in any direction at any point in time (point 1), which implies at 9.00 hrs, all 4 teams have chosen different roots from the starting point.

It is also known that Teams 2 and 3 are the only ones in stations E and D respectively at 10:00 hrs, and Team 1 and Team 4 are the only teams that patrol the street connecting stations A and E.

It is only possible when Team 2 traveled (A – E) via F, and Team 3 reached station D via station C.

It is also known that Teams 1 and 3 are the only ones in Station E at 10:30 hrs, and Team 4 never passes through Stations B, D, or F. Hence, Team 1 must have chosen the (A – B) root at the starting point, and Team 4 has chosen the (A – E) root at 9.00 hrs.

Hence, Team 1 will reach B at 9.30, and come to A at 10.00 hrs. After that, they will go to E at 10.30 hrs.

Since Team 4 never passes through stations B, D, or F. Team 4 only can pass through stations A, E, and C. Hence, the roots of team 4 to reach station E at 11.30 will be (A – E – A – C – A – E) or (A – E – A – E – A– E).

Since team 1 is already traveling to E from A at 10.00 hrs, at that time team 4 can't choose the same route. Hence, the final route for team 4 to reach E at 11.30 is (A – E – A – C – A – E), and at 12.00 hrs, team 4 will come back to station A.

Hence, the complete route diagram for team 4 is (A – E – A – C – A – E – A)

Team	**9.00**	**9.30**	**10.00**	**10.30**	**11.00**	**11.30**	**12.00**
1	A	B	A	E			
2	A	F	E				
3	A	C	D				
4	A	E	A	C	A	E	A

We can see that team 1 is at station E at 10.30 hrs, and they will reach station B at 11.30 hrs, which is only possible when they travel to B via A.

Hence, the complete route diagram for team 1 is (A – B – A – E – A – B – A). It is also known that Teams 1 and 3 are the only ones in station E at 10:30 hrs.

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E				
3	A	C	D	E			
4	A	E	A	C	A	E	A

The only possible root for Team 2 at 10.00 hrs is from E to F since they can't choose E to D because Team 3 is already on this route. Since team 3 has to reach A at 12.00. The only possible combination for team 3 is E – D – C – A

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F			
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

Now the roots for team 2 going back to A is from F at 10.30 hrs (F – A – F – A) or (F – E – F – A).
Hence, the final table is given below:

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F	A/E	F	A
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

From the table, we can see that the teams have passed through B 2 times in this given period.

QNo:- 37 ,Correct Answer:- A

Explanation:-
It is given that none of the streets has more than one team traveling along it in any direction at any point in time (point 1), which implies at 9.00 hrs, all 4 teams have chosen different roots from the starting point.

It is also known that Teams 2 and 3 are the only ones in stations E and D respectively at 10:00 hrs, and Team 1 and Team 4 are the only teams that patrol the street connecting stations A

and E.

It is only possible when Team 2 traveled (A – E) via F, and Team 3 reached station D via station C.

It is also known that Teams 1 and 3 are the only ones in Station E at 10:30 hrs, and Team 4 never passes through Stations B, D, or F. Hence, Team 1 must have chosen the (A – B) root at the starting point, and Team 4 has chosen the (A – E) root at 9.00 hrs.

Hence, Team 1 will reach B at 9.30, and come to A at 10.00 hrs. After that, they will go to E at 10.30 hrs.

Since Team 4 never passes through stations B, D, or F. Team 4 only can pass through stations A, E, and C. Hence, the roots of team 4 to reach station E at 11.30 will be (A – E – A – C – A – E) or (A – E – A – E – A– E).

Since team 1 is already traveling to E from A at 10.00 hrs, at that time team 4 can't choose the same route. Hence, the final route for team 4 to reach E at 11.30 is (A – E – A – C – A – E), and at 12.00 hrs, team 4 will come back to station A.

Hence, the complete route diagram for team 4 is (A – E – A – C – A – E – A)

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E			
2	A	F	E				
3	A	C	D				
4	A	E	A	C	A	E	A

We can see that team 1 is at station E at 10.30 hrs, and they will reach station B at 11.30 hrs, which is only possible when they travel to B via A.

Hence, the complete route diagram for team 1 is (A – B – A – E – A – B – A). It is also known that Teams 1 and 3 are the only ones in station E at 10:30 hrs.

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E				
3	A	C	D	E			
4	A	E	A	C	A	E	A

The only possible root for Team 2 at 10.00 hrs is from E to F since they can't choose E to D because Team 3 is already on this route. Since team 3 has to reach A at 12.00. The only possible combination for team 3 is E – D – C – A

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00

1	A	B	A	E	A	B	A
2	A	F	E	F			
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

Now the roots for team 2 going back to A is from F at 10.30 hrs (F – A – F – A) or (F – E – F – A).
Hence, the final table is given below:

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F	A/E	F	A
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

From the table, we can see that at 10.15 hrs, team 3 is travelling from station D to station E.
The correct option is A.

QNo:- 38 ,Correct Answer:- 2

Explanation:-
It is given that none of the streets has more than one team traveling along it in any direction at any point in time (point 1), which implies at 9.00 hrs, all 4 teams have chosen different roots from the starting point.

It is also known that Teams 2 and 3 are the only ones in stations E and D respectively at 10:00 hrs, and Team 1 and Team 4 are the only teams that patrol the street connecting stations A and E.

It is only possible when Team 2 traveled (A – E) via F, and Team 3 reached station D via station C.

It is also known that Teams 1 and 3 are the only ones in Station E at 10:30 hrs, and Team 4 never passes through Stations B, D, or F. Hence, Team 1 must have chosen the (A – B) root at the starting point, and Team 4 has chosen the (A – E) root at 9.00 hrs.

Hence, Team 1 will reach B at 9.30, and come to A at 10.00 hrs. After that, they will go to E at 10.30 hrs.

Since Team 4 never passes through stations B, D, or F. Team 4 only can pass through stations A, E, and C. Hence, the roots of team 4 to reach station E at 11.30 will be (A – E – A – C – A – E) or (A – E – A – E – A– E).

Since team 1 is already traveling to E from A at 10.00 hrs, at that time team 4 can't choose

the same route. Hence, the final route for team 4 to reach E at 11.30 is (A – E – A – C – A – E), and at 12.00 hrs, team 4 will come back to station A.

Hence, the complete route diagram for team 4 is (A – E – A – C – A – E – A)

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E			
2	A	F	E				
3	A	C	D				
4	A	E	A	C	A	E	A

We can see that team 1 is at station E at 10.30 hrs, and they will reach station B at 11.30 hrs, which is only possible when they travel to B via A.

Hence, the complete route diagram for team 1 is (A – B – A – E – A – B – A). It is also known that Teams 1 and 3 are the only ones in station E at 10:30 hrs.

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E				
3	A	C	D	E			
4	A	E	A	C	A	E	A

The only possible root for Team 2 at 10.00 hrs is from E to F since they can't choose E to D because Team 3 is already on this route. Since team 3 has to reach A at 12.00. The only possible combination for team 3 is E – D – C – A

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F			
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

Now the roots for team 2 going back to A is from F at 10.30 hrs (F – A – F – A) or (F – E – F – A).
Hence, the final table is given below:

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F	A/E	F	A
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

From the table, we can see that team 4 passed station E 2 times in a day

QNo:- 39 ,Correct Answer:- C

Explanation:-
It is given that none of the streets has more than one team traveling along it in any direction at any point in time (point 1), which implies at 9.00 hrs, all 4 teams have chosen different roots from the starting point.

It is also known that Teams 2 and 3 are the only ones in stations E and D respectively at 10:00 hrs, and Team 1 and Team 4 are the only teams that patrol the street connecting stations A and E.

It is only possible when Team 2 traveled (A – E) via F, and Team 3 reached station D via station C.

It is also known that Teams 1 and 3 are the only ones in Station E at 10:30 hrs, and Team 4 never passes through Stations B, D, or F. Hence, Team 1 must have chosen the (A – B) root at the starting point, and Team 4 has chosen the (A – E) root at 9.00 hrs.

Hence, Team 1 will reach B at 9.30, and come to A at 10.00 hrs. After that, they will go to E at 10.30 hrs.

Since Team 4 never passes through stations B, D, or F. Team 4 only can pass through stations A, E, and C. Hence, the roots of team 4 to reach station E at 11.30 will be (A – E – A – C – A – E) or (A – E – A – E – A– E).

Since team 1 is already traveling to E from A at 10.00 hrs, at that time team 4 can't choose the same route. Hence, the final route for team 4 to reach E at 11.30 is (A – E – A – C – A – E), and at 12.00 hrs, team 4 will come back to station A.

Hence, the complete route diagram for team 4 is (A – E – A – C – A – E – A)

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E			
2	A	F	E				
3	A	C	D				
4	A	E	A	C	A	E	A

We can see that team 1 is at station E at 10.30 hrs, and they will reach station B at 11.30 hrs, which is only possible when they travel to B via A.

Hence, the complete route diagram for team 1 is (A – B – A – E – A – B – A). It is also known that Teams 1 and 3 are the only ones in station E at 10:30 hrs.

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00

1	A	B	A	E	A	B	A
2	A	F	E				
3	A	C	D	E			
4	A	E	A	C	A	E	A

The only possible root for Team 2 at 10.00 hrs is from E to F since they can't choose E to D because Team 3 is already on this route. Since team 3 has to reach A at 12.00. The only possible combination for team 3 is E – D – C – A

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F			
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

Now the roots for team 2 going back to A is from F at 10.30 hrs (F – A – F – A) or (F – E – F – A).
Hence, the final table is given below:

Team	9.00	9.30	10.00	10.30	11.00	11.30	12.00
1	A	B	A	E	A	B	A
2	A	F	E	F	A/E	F	A
3	A	C	D	E	D	C	A
4	A	E	A	C	A	E	A

From the table, we can see that 2 teams (teams 3 and 4) have passed through station C on the given day.
The correct option is C

QNo:- 40 ,Correct Answer:- 120

Explanation:-
Given that in every month, both online and offline registration numbers were multiples of 10.
From (2), in Jan, the number of offline registrations was twice that of online registrations.
$\Longrightarrow$ If x is number of online registrations $\Longrightarrow$ 2x is the number of offline registrations $\Longrightarrow$ 3x is the total number of registrations.
According to the data given in the table $\Longrightarrow$ 3x should lie between the minimum and maximum total number of registrations. $\Longrightarrow$ x = 40 (as x should also be a multiple of 10)
$\Longrightarrow$ In Jan $\Longrightarrow$ (40, 80) are the online and offline registrations respectively.
Similarly from (3) $\Longrightarrow$ In Apr (80, 40) are the online and offline registrations respectively.

From – 5, the number of online registrations is highest in May $\Longrightarrow$ In may there are 100 online registrations. The lowest possible number of offline registrations is 30 and maximum possible

total registrations is 130 ⟹ In May (100, 30) are the online and offline registrations respectively.

Let us assume, 'x' to be the number of offline registrations in May = number of online registrations in March.

Let us capture all this data in a table:

Month	Online	Offline	Total
Jan	40	80	120
Feb	y	x	
Mar	x	z	
Apr	80	40	120
May	100	30	130

From the table given in the question, 50 is the median for Offline data
⟹ x should lie between 50 and 80 (included)
For 80 to be the median for the online data ⟹ y lie between 80 and 100 (included).
Now, consider Feb ⟹ Minimum value of y + x = 80 + 50 = 130 (which is the maximum value possible of the total possible registrations)
⟹ x = 50 and y = 80
Since, 110 is the minimum number of total registrations, the only possibility is in March ⟹ 50 + z = 110 ⟹ z = 60.
Now, filling the complete table we get,

Month	Online	Offline	Total
Jan	40	80	120
Feb	80	50	130
Mar	50	60	110
Apr	80	40	120
May	100	30	130

The total number of registrations in April is 120.

QNo:- 41 ,Correct Answer:- 40

Explanation:-
Given that in every month, both online and offline registration numbers were multiples of 10.
From (2), in Jan, the number of offline registrations was twice that of online registrations.
⟹ If x is number of online registrations ⟹ 2x is the number of offline registrations ⟹ 3x is the total number of registrations.
According to the data given in the table ⟹ 3x should lie between the minimum and maximum total number of registrations. ⟹ x = 40 (as x should also be a multiple of 10)

$\Rightarrow$ In Jan $\Rightarrow$ (40, 80) are the online and offline registrations respectively.
Similarly from (3) $\Rightarrow$ In Apr (80, 40) are the online and offline registrations respectively.

From – 5, the number of online registrations is highest in May $\Rightarrow$ In may there are 100 online registrations. The lowest possible number of offline registrations is 30 and maximum possible total registrations is 130 $\Rightarrow$ In May (100, 30) are the online and offline registrations respectively.

Let us assume, 'x' to be the number of offline registrations in May = number of online registrations in March.

Let us capture all this data in a table:

Month	Online	Offline	Total
Jan	40	80	120
Feb	y	x	
Mar	x	z	
Apr	80	40	120
May	100	30	130

From the table given in the question, 50 is the median for Offline data
$\Rightarrow$ x should lie between 50 and 80 (included)
For 80 to be the median for the online data $\Rightarrow$ y lie between 80 and 100 (included).
Now, consider Feb $\Rightarrow$ Minimum value of y + x = 80 + 50 = 130 (which is the maximum value possible of the total possible registrations)
$\Rightarrow$ x = 50 and y = 80
Since, 110 is the minimum number of total registrations, the only possibility is in March $\Rightarrow$ 50 + z = 110 $\Rightarrow$ z = 60.
Now, filling the complete table we get,

Month	Online	Offline	Total
Jan	40	80	120
Feb	80	50	130
Mar	50	60	110
Apr	80	40	120
May	100	30	130

The number of online registrations in Jan is 40.

QNo:- 42 ,Correct Answer:- A

Explanation:-

Given that in every month, both online and offline registration numbers were multiples of 10.
From (2), in Jan, the number of offline registrations was twice that of online registrations.
$\Rightarrow$ If x is number of online registrations $\Rightarrow$ 2x is the number of offline registrations $\Rightarrow$ 3x is the total number of registrations.
According to the data given in the table $\Rightarrow$ 3x should lie between the minimum and maximum total number of registrations. $\Rightarrow$ x = 40 (as x should also be a multiple of 10)
$\Rightarrow$ In Jan $\Rightarrow$ (40, 80) are the online and offline registrations respectively.
Similarly from (3) $\Rightarrow$ In Apr (80, 40) are the online and offline registrations respectively.

From – 5, the number of online registrations is highest in May $\Rightarrow$ In may there are 100 online registrations. The lowest possible number of offline registrations is 30 and maximum possible total registrations is 130 $\Rightarrow$ In May (100, 30) are the online and offline registrations respectively.

Let us assume, 'x' to be the number of offline registrations in May = number of online registrations in March.

Let us capture all this data in a table:

Month	Online	Offline	Total
Jan	40	80	120
Feb	y	x	
Mar	x	z	
Apr	80	40	120
May	100	30	130

From the table given in the question, 50 is the median for Offline data
$\Rightarrow$ x should lie between 50 and 80 (included)
For 80 to be the median for the online data $\Rightarrow$ y lie between 80 and 100 (included).
Now, consider Feb $\Rightarrow$ Minimum value of y + x = 80 + 50 = 130 (which is the maximum value possible of the total possible registrations)
$\Rightarrow$ x = 50 and y = 80
Since, 110 is the minimum number of total registrations, the only possibility is in March $\Rightarrow$ 50 + z = 110 $\Rightarrow$ z = 60.
Now, filling the complete table we get,

Month	Online	Offline	Total
Jan	40	80	120
Feb	80	50	130
Mar	50	60	110
Apr	80	40	120
May	100	30	130

1) In May, there are 30 offline registrations (smallest) $\Rightarrow$ True

2) In Mar, we have smallest number of total registrations ⟹ False.

QNo:- 43 ,Correct Answer:- C

Explanation:-
Given that in every month, both online and offline registration numbers were multiples of 10.
From (2), in Jan, the number of offline registrations was twice that of online registrations.
⟹ If x is number of online registrations ⟹ 2x is the number of offline registrations ⟹ 3x is the total number of registrations.
According to the data given in the table ⟹ 3x should lie between the minimum and maximum total number of registrations. ⟹ x = 40 (as x should also be a multiple of 10)
⟹ In Jan ⟹ (40, 80) are the online and offline registrations respectively.
Similarly from (3) ⟹ In Apr (80, 40) are the online and offline registrations respectively.

From – 5, the number of online registrations is highest in May ⟹ In may there are 100 online registrations. The lowest possible number of offline registrations is 30 and maximum possible total registrations is 130 ⟹ In May (100, 30) are the online and offline registrations respectively.

Let us assume, 'x' to be the number of offline registrations in May = number of online registrations in March.

Let us capture all this data in a table:

Month	Online	Offline	Total
Jan	40	80	120
Feb	y	x	
Mar	x	z	
Apr	80	40	120
May	100	30	130

From the table given in the question, 50 is the median for Offline data
⟹ x should lie between 50 and 80 (included)
For 80 to be the median for the online data ⟹ y lie between 80 and 100 (included).
Now, consider Feb ⟹ Minimum value of y + x = 80 + 50 = 130 (which is the maximum value possible of the total possible registrations)
⟹ x = 50 and y = 80
Since, 110 is the minimum number of total registrations, the only possibility is in March ⟹ 50 + z = 110 ⟹ z = 60.
Now, filling the complete table we get,

Month	Online	Offline	Total
Jan	40	80	120

Feb	80	50	130
Mar	50	60	110
Apr	80	40	120
May	100	30	130

The number of offline registrations in Feb is 50.

QNo:- 44 ,Correct Answer:- C

Explanation:-
Given that in every month, both online and offline registration numbers were multiples of 10.
From (2), in Jan, the number of offline registrations was twice that of online registrations.
$\Rightarrow$ If x is number of online registrations $\Rightarrow$ 2x is the number of offline registrations $\Rightarrow$ 3x is the total number of registrations.
According to the data given in the table $\Rightarrow$ 3x should lie between the minimum and maximum total number of registrations. $\Rightarrow$ x = 40 (as x should also be a multiple of 10)
$\Rightarrow$ In Jan $\Rightarrow$ (40, 80) are the online and offline registrations respectively.
Similarly from (3) $\Rightarrow$ In Apr (80, 40) are the online and offline registrations respectively.

From – 5, the number of online registrations is highest in May $\Rightarrow$ In may there are 100 online registrations. The lowest possible number of offline registrations is 30 and maximum possible total registrations is 130 $\Rightarrow$ In May (100, 30) are the online and offline registrations respectively.

Let us assume, 'x' to be the number of offline registrations in May = number of online registrations in March.

Let us capture all this data in a table:

Month	Online	Offline	Total
Jan	40	80	120
Feb	y	x	
Mar	x	z	
Apr	80	40	120
May	100	30	130

From the table given in the question, 50 is the median for Offline data
$\Rightarrow$ x should lie between 50 and 80 (included)
For 80 to be the median for the online data $\Rightarrow$ y lie between 80 and 100 (included).
Now, consider Feb $\Rightarrow$ Minimum value of y + x = 80 + 50 = 130 (which is the maximum value possible of the total possible registrations)
$\Rightarrow$ x = 50 and y = 80
Since, 110 is the minimum number of total registrations, the only possibility is in March $\Rightarrow$ 50

+ z = 110 ⟹ z = 60.

Now, filling the complete table we get,

Month	Online	Offline	Total
Jan	40	80	120
Feb	80	50	130
Mar	50	60	110
Apr	80	40	120
May	100	30	130

Total registrations in Jan = Apr = 120 and Feb = May = 130.

Section : Quantitative Ability

QNo:- 45 ,Correct Answer:- A

Explanation:- If 3 terms a, b and c are in AP, then we know that 2b = a + c.

Using Base Change rule in this question, we can say that $\frac{\log_3(2^x-9)}{\log_3 4}$ can be written as $\log_4(2^x-9)$ and $\frac{\log_5(2^x+\frac{17}{2})}{\log_5 4}$ can be written as $\log_4(2^x+\frac{17}{2})$.

Also $\frac{1}{2}$ can be written as $\log_4 2$. So we get the new terms as $\log_4 2$, $\log_4(2^x-9)$ and $\log_4(2^x+\frac{17}{2})$.

Using the concept of AP, we get $2\times\log_4(2^x-9)=\log_4 2+\log_4(2^x+\frac{17}{2})$.

$\Rightarrow \log_4(2^x-9)^2=\log_4[2(2^x+\frac{17}{2})] \Rightarrow (2^x-9)^2=2.2^x+17.$

If we put 2^x = y, we get y^2 – 18y +81 = 2y +17 ⇒ y^2 – 20y + 64 = 0 ⇒ (y – 4)(y – 16) = 0 ⇒ y = 4 or 16 ⇒ x = 2 or 4.

But x = 2 is not valid because then (2^x – 9) will become negative. Hence x = 4 is the right solution.

So terms will be $\log_4 2$, $\log_4 7$. $\log_4(\frac{49}{2})$.

⇒ common difference = $\log_4 7 - \log_4 2 = \log_4(\frac{7}{2})$.

QNo:- 46 ,Correct Answer:- B

Explanation:-

$x^8+\frac{1}{x^8}=47$. Let us put $x^4=a \Rightarrow a^2+\frac{1}{a^2}=47$

Now $(a+\frac{1}{a})^2=a^2+\frac{1}{a^2}+2 \Rightarrow (a+\frac{1}{a})^2=49 \Rightarrow a+\frac{1}{a}=7 \Rightarrow x^4+\frac{1}{x^4}=7$

Put $x^2=b \Rightarrow b^2+\frac{1}{b^2}=47$. Now $(b+\frac{1}{b})^2=b^2+\frac{1}{b^2}+2 \Rightarrow (b+\frac{1}{b})^2=9$

$\Rightarrow b+\frac{1}{b}=3 \Rightarrow x^2+\frac{1}{x^2}=3.$

Also $(x+\frac{1}{x})^2=x^2+\frac{1}{x^2}+2 \Rightarrow (x+\frac{1}{x})^2=5 \Rightarrow x+\frac{1}{x}=\sqrt{5}$

Now $(x+\frac{1}{x})^3=x^3+\frac{1}{x^3}+3(x+\frac{1}{x}) \Rightarrow 5\sqrt{5}=x^3+\frac{1}{x^3}+3\sqrt{5} \Rightarrow x^3+\frac{1}{x^3}=2\sqrt{5}$

Lets put $x^3=d \Rightarrow d+\frac{1}{d}=2\sqrt{5}$.

Now $x^9+\frac{1}{x^9}=d^3+\frac{1}{d^3}$ is to be calculated.

$(d+\frac{1}{d})^3=d^3+\frac{1}{d^3}+3(d+\frac{1}{d}) \Rightarrow 40\sqrt{5}=d^3+\frac{1}{d^3}+6\sqrt{5} \Rightarrow d^3+\frac{1}{d^3}=34\sqrt{5}$

$\Rightarrow x^9+\frac{1}{x^9}=34\sqrt{5}$

QNo:- 47 ,Correct Answer:- B

Explanation:- x + y = 4 and (a +5)x + (b^2 – 15)y = 8b have infinitely many solutions for x and y.

Hence $\frac{a+5}{1}=\frac{b^2-15}{1}=\frac{8b}{4}$.

So b^2 – 15 = 2b ⇒ b^2 – 2b – 15 = 0

⇒ (b – 5)(b+3) = 0 ⇒ b = 5 or -3.

Also a + 5 = 2b ⇒ a + 5 = 10 or a + 5 = -6 ⇒ a = -11 or 5.

Maximum value of ab will be when we take a = -11 and b = -3.

So maximum product = 33.

QNo:- 48 ,Correct Answer:- A

Explanation:- 8^m = 2^{3m} and 8^n = 2^{3n}. Smallest value of n + m is asked. So we will take m as 1⇒ 2^{3m} = 2^3.

Since there are 41 integers between 8^m and 8^n, so they would be 2^4,2^5,....till 2^{44}.

So 2^{3n} should be 2^{45} ⇒ n = 15. Hence minimum value of n + m is 1 + 15 = 16.

QNo:- 49 ,Correct Answer:- 5

Explanation:- $5^{n-1} < 3^{n+1}$. n can take values from 1 to 5 because if n = 6, then we get $5^5 < 3^7$ which is wrong as 3125 is greater than 2187. Hence maximum value of n is 5. If we take n = 5, we get $3^{5+1} < 2^{5+m} \Rightarrow 729 < 2^{5+m} \Rightarrow$ m has to minimum 5 so that we get $729 < 2^{10}$ or 729 < 1024.
Hence answer is 5.

QNo:- 50 ,Correct Answer:- 9

Explanation:- $x^2 + bx + c = 0$. Let its roots be m and n. Hence m + n = -b and mn = c.

$$\text{Also } \frac{1}{n}-\frac{1}{m}=\frac{1}{3} \text{ and } \frac{1}{n^2}+\frac{1}{m^2}=\frac{5}{9}.$$

$$\text{Now } \left(\frac{1}{n}-\frac{1}{m}\right)^2=\frac{1}{n^2}+\frac{1}{m^2}-\frac{2}{mn} \Rightarrow \frac{1}{9}=\frac{5}{9}-\frac{2}{mn} \Rightarrow mn=\frac{9}{2}$$

$$\left(\frac{1}{n}+\frac{1}{m}\right)^2=\frac{1}{n^2}+\frac{1}{m^2}+\frac{2}{mn} \Rightarrow \frac{5}{9}+\frac{4}{9}=1$$

$$\Rightarrow \frac{1}{n}+\frac{1}{m}=1 \Rightarrow \frac{m+n}{mn}=1 \Rightarrow m+n=\frac{9}{2} \Rightarrow b=-\frac{9}{2}$$

$$\text{or } \frac{1}{n}+\frac{1}{m}=-1 \Rightarrow \frac{m+n}{mn}=-1 \Rightarrow m+n=-\frac{9}{2} \Rightarrow b=\frac{9}{2} \Rightarrow b+c=\frac{9}{2}+\frac{9}{2}=9$$

QNo:- 51 ,Correct Answer:- 468

Explanation:- Number of factors in number $N = a^p \times b^q \times c^r$..... where a, b and c are prime numbers.
As numbers have 15 factors $\Rightarrow a^2 \times b^4$ form is possible only. $\Rightarrow 3^2 \times 2^4 = 144$ and $2^2 \times 3^4 = 324$ are the two numbers. Hence their sum = 144 + 324 = 468.

QNo:- 52 ,Correct Answer:- A

Explanation:- Ratio of cocoa : sugar is 3 : 2 and ratio of coffee : sugar is 7 : 3.
Total 5 litres of A has 3 litres of cocoa and 2 litres of sugar
Total 10 litres of B has 7 litres of coffee and 3 litres of sugar
Since A and B are mixed in the ratio 2 : 3, so total 15 litres will be divided in this ratio. Hence we take 6 litres of A and 9 litres of B.

Quantity of cocoa will be $\frac{3}{5} \times 6 = 3.6$ litres (From A)

Quantity of sugar will be $\frac{2}{5} \times 6 = 2.4$ litres (From A)

Quantity of coffee will be $\frac{7}{10} \times 9 = 6.3$ litres (From B)

Quantity of sugar will be $\frac{3}{10} \times 9 = 2.7$ litres (From B)

Total mixture = 15 + 15 = 30 litres. Mixture C will have 3.6 litres cocoa, 6.3 litres coffee and 2.4 + 2.7 = 5.1 litres of sugar.

Hence required percentage = $\frac{5.1}{30} \times 100 = 17\%$.

QNo:- 53 ,Correct Answer:- C

Explanation:- Suppose Rahul takes a days, Rakshita takes b days and Gurmeet takes c days.

As per the question, $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}<\frac{1}{7}$ .....(1) and $\frac{1}{a}+\frac{1}{c}>\frac{1}{15}$ .....(2).

Also it is given that $6(\frac{1}{a}+\frac{1}{b}+\frac{1}{c})+\frac{3}{b}=1$ .....(3).

Putting the values from equation (1) and (2), we get $6(<\frac{1}{7})+\frac{3}{b}=1 \Rightarrow \frac{3}{b}=1-(<\frac{1}{7}) \Rightarrow$

$\frac{3}{b}>\frac{1}{7} \Rightarrow b<21$. Also $\frac{9}{b}+(>\frac{6}{15})=1 \Rightarrow \frac{9}{b}=1-(>\frac{6}{15}) \Rightarrow \frac{9}{b}<\frac{9}{15} \Rightarrow b>15$.

Hence b can be 16, 17 and 20. So 21 is not possible.

QNo:- 54 ,Correct Answer:- D

Explanation:- Population in 2020 = 100000

It is given that there is y% decrease in population from 2020 to 2021 and x% increase in population from 2021 to 2022. Also it is given that population of 2022 is greater than population of 2020.

This means x is greater than y because had it been x = y, even then population of 2022 would have been less the population of 2020.

Difference between x and y is 10. Minimum popuation in 2021 is to be calculated by options::

Option (1) which is 72000 ⇒ y = 28 and x = 38 ⇒ Population in 2022 = 72000 × 1.38 = 99360. Hence it is possible.

Option (2) which is 75000 ⇒ y = 25 and x = 35 ⇒ Population in 2022 = 75000 × 1.35 = 101250. Hence it is possible.

Option (3) which is 74000 ⇒ y = 26 and x = 36 ⇒ Population in 2022 = 74000 × 1.36 = 100640. Hence it is possible.

Option (4) which is 73000 ⇒ y = 27 and x = 37 ⇒ Population in 2022 = 73000 × 1.37 = 100010. Since 100010 is minimum of all ⇒ 73000 is the answer.

QNo:- 55 ,Correct Answer:- A

Explanation:- CP of cloth = 100 per metre. SP of cloth = 110 per metre. But he gets 5 cm free for 100 cm and also gives 95 cm instead of 100 cm.

So he gets $\frac{5}{100}$ and $\frac{5}{95}$ extra $\Rightarrow \frac{1}{20}$ and $\frac{1}{19}$. So SP $= 110 \times (1+\frac{1}{20})(1+\frac{1}{19})$

But he gives 5% discount $\Rightarrow$ Net SP $= 110 \times \frac{21}{20} \times \frac{20}{19} \times \frac{95}{100} = 115.5.$

So profit = 15.5%

QNo:- 56 ,Correct Answer:- B

Explanation:- Let the average of A, B and C = a ⇒ A + B + C = 3a.....(1)

Also $\frac{A+B+C+D}{4} = a - x$ .....(2) and $\frac{A+B+C+E}{4} = a + 2x$ .....(3)

It is given that E – D = 12 ⇒ 3a + D = 4a – 4x ⇒ D = a – 4x. Also 3a + E = 4a + 8x ⇒ E = a + 8x. As E – D = 12, so a + 8x – a + 4x = 12 ⇒ x = 1.

QNo:- 57 ,Correct Answer:- D

Explanation:- Let x be the speed of 1st boat in still water and y be the speed of river ⇒ speed of d/s = x + y and speed of u/s = x – y. As per the question, (x +y)2 = (x –y)3 ⇒ x +y : x – y = 3 : 2. Hence the ratio of speed of d/s : speed of u/s = 3 : 2 ⇒ x + y = 3 and x – y = 2 ⇒ x = 2.5 and y = 0.5 or x = 5 and y = 1⇒ Distance = (5 + 1)2 = 12 km

Let the speed of the other boat = a $\Rightarrow \frac{12}{a-1} + \frac{12}{a+1} = 6 \Rightarrow a^2 - 1 = 4a \Rightarrow a^2 - 4a - 1 = 0$

$\Rightarrow a = \frac{4 \pm 2\sqrt{5}}{2} = 2 + \sqrt{5}$.

Hence speed of slower boat = 2 + $\sqrt{5}$.

Time taken by slower boat to reach from A to B is

$$\frac{12}{2+\sqrt{5}+1} = \frac{12}{3+\sqrt{5}} \times \frac{3-\sqrt{5}}{3-\sqrt{5}} = \frac{36-12\sqrt{5}}{4} = 9 - 3\sqrt{5} = 3(3 - \sqrt{5})$$

QNo:- 58 ,Correct Answer:- 36

Explanation:- Let us assume the efficiency of Gautam as G and efficiency of Suhani as S. Hence we get the equation as (G + S)20 = (0.6G + 1.5S)20 ⇒ 4G = 5S ⇒ G : S = 5 : 4.
So ratio of time taken by G and S will be in the ratio 4 : 5.
Lets assume Gautam takes 4x days and Suhani takes 5x days to complete the work
$\Rightarrow \frac{1}{4x}+\frac{1}{5x}=\frac{1}{20} \Rightarrow x = 9.$
Hence faster worker takes 36 days to complete the work.

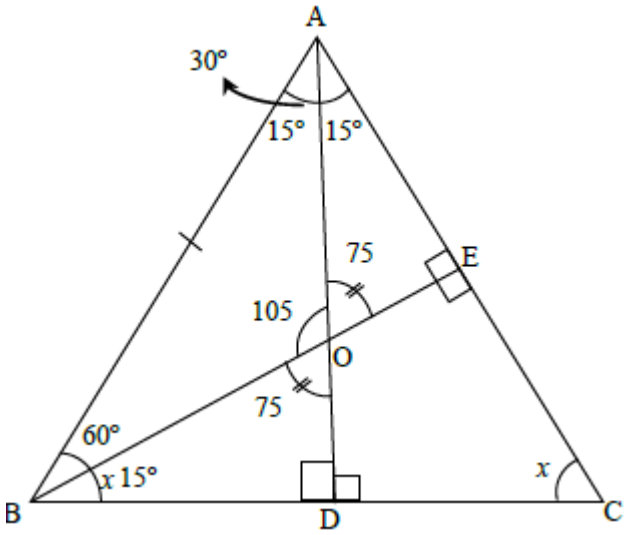
QNo:- 59 ,Correct Answer:- 42

Explanation:- A : B = 3 : 4. Let us take collection/week of A as 3x and B as 4x
⇒ In 5 weeks, A collected 3x × 5 = 15x which is a multiple of 7.
In 3 weeks, B collected 4x × 3 = 12x which is a multiple of 24 ⇒ x is an even multiple of 7
⇒ Lowest possible value of x is 14.
So number of coins collections by A in one week is 3x = 3 × 14 = 42.

QNo:- 60 ,Correct Answer:- 340

Explanation:- Let M be the number of mangoes, B be the number of bananas and A be the number of apples. So as per the question, M = 0.4 (M + B + A) ⇒ 5M = 2M + 2B + 2A ⇒ 3M = 2B + 2A.....(1).
$\text{Also } \frac{M}{2}+B-96+\frac{3}{5}A=\frac{1}{2}(M+B+A)$
⇒ 5B + 10B – 960 + 6A = 5M + 5B + 5A
⇒ A +5B = 960.....(2). Now we need to minimise M + B + A, so we should maximise B which should be 189. Hence we get A = 15. Putting these values in equation (1), we get the value of M as 136. Hence min imum total of M, B and A is 136 + 189 + 15 = 340.

QNo:- 61 ,Correct Answer:- C



Explanation:-

As ∠AOB = 105°, so ∠EOD = 105° (Vertically opp. angles)
Also as triangle ABC is isoceles with AB = AC, so ∠ABC = ∠ACB = x (say)
Now in Quadrilateral OECD, 105° + 90° + x + 90° = 360° ⇒ x = 75°
Hence ∠BAC = 180° – (75 + 75)° = 30°. Also ∠AOE =

$$\angle BOD = \frac{360-(105+105)}{2} = 75°$$

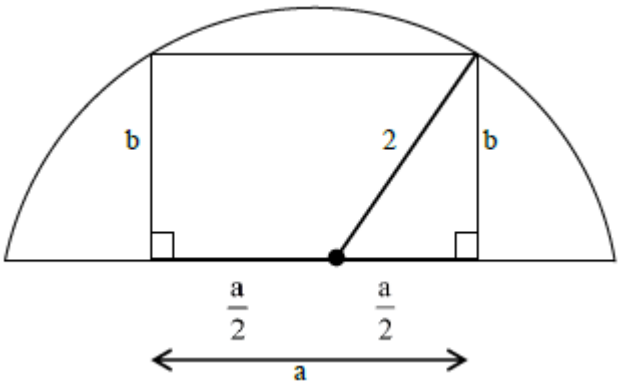
Now in triangle OBD, 75° + 90° + ∠OBD = 180° ⇒ ∠OBD = 15°.
Hence ∠ABO = 75° - 15° = 60°. Also in triangle BAO, 60° + ∠BAO + 105° = 180° ⇒ ∠BAO = 15°. Now we can see that triangle BAE is a 30° – 60° – 90° triangle.

If we take AB = h (hypotenuse), then $BE = \frac{h}{2}$ (side opposite to 30°).

Now in triangle ABD, $\frac{AD}{AB} = \sin 75 \Rightarrow \frac{AD}{h} = \sin 75 \Rightarrow AD = h \sin 75 = h \cos 15$

Hence ratio of $\frac{AD}{BE} = \frac{h\cos 15}{h/2} = 2\cos 15$

QNo:- 62 ,Correct Answer:- B



Explanation:-

Let length of the rectangle be a and breadth be b.

So we get the equation as $2^2 = b^2 + \left(\frac{a}{2}\right)^2$

$\Rightarrow \frac{a^2}{4} + b^2 = 4$ .....(1).

Area of rectangle = ab which can be written as twice of

Geometric Mean of $\frac{a^2}{4}$ and b^2 which is equal to $2\sqrt{\frac{a^2}{4} \times b^2}$

For maximum area, equality condition of AM and GM should be satisfied

$\Rightarrow \frac{\frac{a^2}{4} + b^2}{2} = \sqrt{\frac{a^2}{4} \times b^2} \Rightarrow \frac{a^2}{4} + b^2 = 2\sqrt{\frac{a^2}{4} \times b^2}$

Squaring both sides,

$(\frac{a^2}{4} + b^2)^2 = 4(\frac{a^2 \times b^2}{4}) \Rightarrow \frac{a^2}{16} + b^4 + \frac{2a^2b^2}{4} = a^2b^2 \Rightarrow \frac{a^2}{16} + b^4 = \frac{a^2b^2}{2}$

$\Rightarrow a^4 + 16b^4 = 8a^2b^2 \Rightarrow a^4 - 8a^2b^2 + 16b^4 = 0 \Rightarrow (a^2 - 4b^2)^2 = 0 \Rightarrow a^2 = 4b^2$.

Hence $\frac{a^2}{b^2} = 4 \Rightarrow \frac{a}{b} = 2 \Rightarrow a : b = 2 : 1$

QNo:- 63 ,Correct Answer:- 54

Explanation:- Let number of sides be n.

Hence $180 - \frac{360}{n} - \frac{360}{n} = 120 \Rightarrow \frac{720}{n} = 60 \Rightarrow n = 12.$

Number of diagonals = ${}^nC_2 - n$. Putting n = 12, we get ${}^{12}C_2 - 12 = 66 - 12 = 54$

QNo:- 64 ,Correct Answer:- C

Explanation:-

Given sequence is $1 + (1 + \frac{1}{3})\frac{1}{4} + (1 + \frac{1}{3} + \frac{1}{9})\frac{1}{16} + (1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27})\frac{1}{64} + ...$

Which can be written as

$1(1 + \frac{1}{4} + \frac{1}{16} + \frac{1}{64} .....) + \frac{1}{3}(\frac{1}{4} + \frac{1}{16} + \frac{1}{64} .....) + \frac{1}{9}(\frac{1}{16} + \frac{1}{64} + \frac{1}{256} + ...$

These are 3 different infinite GPs whose sums will be the first 3 terms of the final GP whose sum is required.

Hence 1st three terms of the final GP are $S_1 = \frac{1}{1-\frac{1}{4}} = \frac{4}{3}$,

$S_2 = \frac{1}{3}(\frac{\frac{1}{4}}{1-\frac{1}{4}}) = \frac{1}{9}$ and $S_3 = \frac{1}{9}(\frac{\frac{1}{16}}{1-\frac{1}{4}}) = \frac{1}{108}$.

Hence final sequence becomes $\frac{4}{3} + \frac{1}{9} + \frac{1}{108} + \ldots\ldots$

It is an infinite GP with 1st term $\frac{4}{3}$ and $r = \frac{1}{12}$

$\Rightarrow$ Final answer $= \frac{\frac{4}{3}}{1-\frac{1}{12}} = \frac{4}{3} \times \frac{12}{11} = \frac{16}{11}$

QNo:- 65 ,Correct Answer:- B

Explanation:- $a_n = 46 + 8n$, $b_n = 98 + 4n$.

Putting the values of n as 1, 2, 3….. in the 1st sequence we get values as 54, 62, 70……

Putting the values of n as 1, 2, 3….. in the 2nd sequence we get values as 102, 106, 110, 114……

So the common terms to both the sequences is 102, 110, 118……

But last term in the 1st sequence is 846 when we put n = 100 and last term in the 2nd sequence is 498 when we put n = 100.

Also the common sequence is 102, 110…….. is of the form 8k + 6. Hence last number of this form in this sequence is 494.

So we get the final sequence as 102, 110, 118, …….494. Number of terms in this sequence: 102 + (n -1) 8 = 494 ⇒ n = 50. Sum of these terms = 50/2 (102 + 494) = 14900.

QNo:- 66 ,Correct Answer:- 3

Explanation:- Given that f(3x+2y, 2x – 5y) = 19x.

Multiplying 1st function by 5 and 2nd function by 2, we get 15x + 10y and 4x – 10y.

Now on adding these 2 functions, we get 15x + 10y + 4x – 10y = 19x.

Using the same operation for f(x,2x), we get 5x + 2(2x) = 27 ⇒ 9x = 27 ⇒ x = 3