hitbullseye

Answer Key Actual CAT Slot - I

Q. No	Key	Q. No	Key	Q. No	Key
1.	D	25.	8	47.	C
2.	D	26.	4	48.	B
3.	D	27.	B	49.	15
4.	A	28.	3	50.	31
5.	A	29.	5	51.	A
6.	B	30.	3	52.	B
7.	B	31.	2	53.	38
8.	C	32.	4	54.	31
9.	A	33.	C	55.	B
10.	A	34.	D	56.	B
11.	C	35.	D	57.	B
12.	D	36.	C	58.	B
13.	B	37.	D	59.	A
14.	B	38.	45	60.	D
15.	B	39.	C	61.	A
16.	C	40.	2	62.	B
17.	A	41.	C	63.	10
18.	B	42.	D	64.	66
19.	B	43.	C	65.	B
20.	1	44.	C	66.	B
21.	D	45.	B	67.	6
22.	2	46.	B	68.	217
23.	B				
24.	B				

Explanation Actual CAT Slot - I

Q. No	Explanation
1.	Option A: While it mentions the mutable nature of digital art, the focus is on how such practices undermine trust in streaming services as custodians of cultural artifacts, not just on technological changes. **Too broad**. Option D: Correctly identifies the example's purpose: to validate fears about streaming services' reliability in preserving the integrity of cultural works. **Best aligns with the context**. Option B: Discusses control over the cultural commons, which is a broader theme of the passage but not the direct purpose of this specific example. **Less precise**. Option C: Suggests unsubstantiated reports lead to distrust, but the example is presented as evidence of real concerns, not baseless speculation. **Misinterprets the example**.
2.	Option B: VPNs solve geo-blocking but don't address DRM restrictions or content ownership. **Partially weakens**, not invalidates. Option C: Blu-ray shelf life strengthens the case for physical media but doesn't address streaming issues or data decay. **Limited impact**. Option A: Cloud storage addresses data decay but doesn't resolve DRM or ownership issues. **Partially weakens**. Option D: Perpetual, platform-independent access resolves the core issues of ownership and access restrictions, directly invalidating the argument.
3.	Option D: Accurately reflects the main argument, highlighting that digital art is paradoxically less accessible because of technology's rapid evolution and platform constraints. **Best captures the passage's argument**. Option B: Mentions retroactive changes to art, a minor point in the passage, but does not align with its overall focus on access and impermanence. **Too narrow**. Option C: While idealistic, the passage does not argue that art should universally belong to the cultural commons. The focus is on the limitations imposed by platforms, not ownership philosophies. **Misaligned**. Option A: Suggests rethinking art's immutability and accessibility, which is tangential to the passage's core argument about technological and platform constraints. **Misses the main point**.
4.	Option D: True historically but not the central point being made in the sentence. It doesn't contrast past and present expectations. **Incomplete**. Option C: Focuses on criticizing studios for removing access but isn't suggested by the given sentence, which highlights the shift in expectations, not current practices. **Irrelevant**. Option A: Captures the core idea: the shift from cinema's earlier ephemerality to today's expectation of long-term availability. **Best aligns with the sentence**. Option B: While technology has improved, the sentence does not directly reference technical advancements. It focuses on changing perceptions of film availability. **Misinterprets the sentence**.
5.	**blank 1**: This sentence follows a discussion of the **madrigal boom** and the golden age of music. Inserting the missing sentence here disrupts the flow, as it doesn't connect with the historical context being described. **Not suitable**. **blank 2**: The sentence following this point discusses how the **rebirth of literature and music** originated in Italy. Adding the missing sentence here would also feel out of place because it shifts focus to emotional balance in Renaissance music, which does not connect with the cultural migration theme. **Not suitable**. **blank 3**: This position follows the discussion of **polyphonic texture** in Renaissance music. The missing sentence, which focuses on the portrayal of emotions, ties well with this idea of Renaissance music's structural and expressive qualities. It transitions smoothly into the subsequent discussion about the lack of extreme dynamics, rhythm, or tone color contrasts. **Best fit**. **blank 4**: This position follows a detailed description of Renaissance rhythms, emphasizing smooth and soft flows. Adding the missing sentence here would interrupt the logical progression of ideas about rhythm and dynamics. **Not suitable**.
6.	This summary directly captures the essence of the passage, emphasizing that **technological developments** have made it necessary for cartographers to consider the **usability** of maps—something that was less of a concern in the past. Option D: "Modern mapmakers evaluate a map's effectiveness, efficiency, and satisfaction of the user through a series of experiments." This option is somewhat true, but it focuses too heavily on experiments, which is not the main emphasis of the passage. The passage talks more about the shift in focus due to societal and technological changes, rather than detailing experiments. Option C: "New technological developments have prompted cartographers to experiment with their maps by applying these new innovations."

	This is not the core message of the passage. While the passage acknowledges that technological developments are influencing cartographers, it does not focus on experimentation. The key shift mentioned is in cartographers' need to **consider usability** rather than just the tools or innovations themselves. Option A: "Maps are being used for a variety of reasons and therefore map readers have become more demanding." While this is true to some extent, this summary is too vague and does not adequately capture the full essence of the passage. The passage emphasizes how technological advancements have made cartographers more concerned with usability, not just the variety of reasons maps are used.
7.	Option C: "Workers made redundant by automation are unlikely to opt for crafts-related work." – The passage doesn't imply that workers would be unwilling to switch to crafts-related work. The primary concern is about whether the craft industry, as a whole, can accommodate such workers, not whether they would choose it. Option D: "The low scale of crafts production will not be able to absorb the mass of redundant labour." – While the passage acknowledges that the scale of craft production may be low, the primary issue raised regarding employment is **regulatory challenges**, which affect the viability of small businesses, rather than the scale of production itself. Option A: "Crafts guilds tend to resist new entrants and are unlikely to accept large numbers of trainees." – This refers more to **historical** issues with guilds and does not directly address current challenges to creating employment in the craft industry today. Therefore, Option B is the best fit as it reflects the challenge that **regulatory requirements** pose to small craft businesses, hindering their ability to compete and create substantial employment opportunities.
8.	Option A: Craft guilds may have focused on quality, but mass production emphasizes standardization, not necessarily quality. **Inaccurate**. Option D: Both systems were hierarchical, but the focus of the comparison is on creativity, not egalitarian processes. **Partially relevant but not the main idea**. Option C: Correctly identifies the similarity between both systems: their **failure to promote creativity**. **Best choice**. Option B: Restricting entry is true for craft guilds, but mass production systems do not inherently discourage entry or innovation through strict rules. **Inaccurate**.
9.	Option D: Correctly reflects the passage's discussion about environmental concerns being a motivator for the renewed interest in crafts. **Relevant**. Option C: Matches the passage, which mentions consumers wanting to support local workers or reduce their environmental impact. **Relevant**. Option B: Accurately reflects the niche market described for premium-quality craft goods. **Relevant**. Option A: While the passage emphasizes the human touch in crafts, it does not explicitly state that the revival is due to **support for individual creations** over mass production. **Not explicitly mentioned**.
10.	Option D: The **agile movement** in software is linked to modern craftsmanship and creativity, not the restrictive and hierarchical tenets of medieval craft guilds. **Inconsistent**. Option C: The passage emphasizes the importance of retaining creativity but does not explicitly state that support for crafts is the only way to preserve it. **Inconsistent**. Option A: Matches the passage's argument that **over-organization** could stifle creativity, as seen in historical examples like craft guilds. **Consistent**. Option B: The passage states that the **Arts and Crafts movement** was a **reaction** to the "American system" of production, not inspired by it. **Inconsistent**.
11.	Option D: Focuses on animals' intelligence in sensing danger and diseases, which is a minor point in the passage. **Too narrow**. Option C: Accurately links the similarity in brain structure to the emotional capabilities shared by animals and humans. **Best choice**. Option D: Mentions animals showing emotions, but it doesn't explain the underlying reason (shared brain structures). **Incomplete**. Option B: Misattributes animals' emotional abilities to their advanced sensory and motor skills, which the passage does not state. **Incorrect**.
12.	Option A: While the bandicoots are part of a revival effort, the flattering name is specifically linked to their environmental impact, not the species preservation. Option D: Correctly reflects that the nickname recognizes their role in altering and improving the desert environment. Option B: The passage attributes the recent rainfall surge to natural patterns, not the bandicoots. Option C: The bandicoot population has increased, but this is not linked to their nickname.
13.	Option C: Refers to making islands predator-free, but the **exclosures** are on the mainland desert, not islands.

	Incorrect. Option B: Accurately describes the purpose of exclosures as fencing areas to **bar invasive species** like rabbits and feral cats. **Correct**. Option A: While feral cats were excluded, large bilbies are part of the Wild Training Zone and not barred by exclosures. **Partially accurate but incorrect focus**. Option D: The exclosures contribute to environmental restoration, but their primary purpose is to **exclude invasive species**, not directly restore the landscape. **Misleading**.
14.	Option C: "Look of a rat but with a baby pouch and a slender snout" – This is consistent with the description in the passage, where the bandicoot was nicknamed the "zebra rat" due to its striped back and long, slender snout. Option A: "Shallow diggers having an elongated muzzle" – This is also correct, as the passage mentions that the western barred bandicoot has a long snout (elongated muzzle) and digs shallow, camouflaged shelters. Option D: "Long, thin nose, black striped back, pouch for joey" – This is an accurate description. The passage describes the bandicoot's long, thin nose (snout) and mentions its striped rump, as well as its pouch for carrying its babies. Option B: "Smallest black striped marsupial that uses camouflage and digs" – This is incorrect because the description in the passage doesn't call the western barred bandicoot the "smallest black striped marsupial." While it is the smallest bandicoot, the "black striped" characteristic is specifically about its back, not a defining trait of the entire species, and it doesn't mention being the "smallest black-striped marsupial." The use of "smallest" could apply to its size as a bandicoot, but the specific combination of "black striped marsupial" and "camouflage" in this option is misleading compared to how the bandicoot is described in the passage.
15.	Option B: Accurately summarizes the bandicoot's near extinction due to invasive species and the hope placed on the island population for conservation. **Best choice**. Option D: Overstates the extinction claim. The bandicoot wasn't entirely wiped out, as Shark Bay populations survived. **Partially accurate but not the gist**. Option A: Suggests that colonists' attitudes and naming caused the bandicoot's decline, which is inaccurate; invasive species caused the damage. **Incorrect**. Option C: Generalizes the issue to all marsupials and vegetation destruction, missing the specific focus on the bandicoot. **Too broad and misleading**.
16.	Option D: Suggests economists guarded their discipline from others, but the critique is about their refusal to integrate other perspectives into their analyses, not "poaching." **Too broad**. Option C: Accurately describes Becker's approach—applying economic tools to non-market behaviors while ignoring insights from other disciplines. **Best choice**. Option B: Suggests a benefit from applying economics to non-economic phenomena, but the passage focuses on the limitations of this one-sided approach. **Misleading**. Option A: Suggests borrowing concepts from other disciplines, which the passage explicitly states Becker did not do. **Incorrect**.
17.	Option C: Implies that the author is judgmental about economics failing to manage crises. However, the focus is on how economists' approaches have changed, not their ability to handle crises. **Too narrow**. Option D: Suggests the author is disparaging economists' predictive failures. While prediction failures may be implied, the tone is more sarcastic about their newfound openness to other disciplines. **Not the main focus**. Option A: Correctly captures the sarcasm about economists' earlier reluctance to engage with other fields and their current embrace of interdisciplinary approaches. **Best choice**. Option B: Suggests criticism of interdisciplinary borrowing, but the author does not criticize this shift. Instead, the tone is ironic and observational. **Incorrect**.
18.	Option A: Suggests Shiller denigrates institutions, but the critique is about their omission, not deliberate denigration. **Inaccurate**. Option D: Focuses on storytelling, but the author doesn't criticize Shiller for overusing storytelling—rather, for ignoring the mediating role of institutions. **Misleading**. Option B: Correctly identifies the critique: Shiller links emotions and behavior but overlooks how institutions mediate these dynamics. **Best choice**. Option C: Misrepresents the author's argument; the author sees media and politics as central, not marginal, to the mediation of perceptions. **Incorrect**.
19.	Option D: Suggests independence from others' preferences, but the focus of "homo economicus" is on individual rationality, not isolation. **Too narrow**. Option C: Suggests interdisciplinary collaboration, but "homo economicus" refers specifically to rational behavior, not borrowing ideas from other fields. **Incorrect**. Option A: Refers to nonmarket choices, but "homo economicus" typically involves market-like decision-

	making based on individual preferences. **Misleading**. Option B: Correctly describes **homo economicus** as someone who makes **rational decisions** based on their preferences, aligning with the passage. **Best choice**.
20.	**Sentence 2** introduces Peter Singer's philosophical perspective on animal rights, presenting his utilitarian view and contrasting it with other indirect positions like welfareism. **Sentence 3** follows up by explaining why Singer argues for extending moral consideration to animals, focusing on the idea that animals, like humans, have significant interests that deserve attention. **Sentence 5** reinforces this point, concluding that humans have direct moral duties towards animals, treating their interests as equal to human interests. **Sentence 4** provides historical context, explaining how Singer's *Animal Liberation* (1975) text publicly established animal rights as a legitimate issue within contemporary philosophy. However, **Sentence 1** is an outlier because it introduces a general statement about animals having basic needs and avoiding suffering. While the idea of moral consideration is central to the passage, **Sentence 1** does not directly connect with the specific philosophical argument or the historical context provided by the other sentences. Instead, it is a broad statement that could be more fitting as an introduction to a different argument or a different part of the passage.
21.	Option D: Correctly states that language and visual signs are codes, some of which seem naturally given due to widespread use and early learning, while also highlighting the concealment of the coding mechanism. **Best choice**. Option C: Accurately notes the naturalization of codes but misrepresents ideology as a primary aim to hide the coding mechanism, which is not explicitly stated in the passage. **Overgeneralized**. Option B: Focuses on early-age learning but oversimplifies the broader process of naturalization and its concealment of coding practices. **Too narrow**. Option A: Incorrectly claims that all codes have a natural origin, which the passage does not imply. It focuses on naturalization, not natural origins. **Inaccurate**.
22.	**Sentence 5** introduces the central idea: the puzzling decline in the use of urban public transport. **Sentence 3** explains why this decline is happening, citing issues such as worsening services, terrorist attacks, and rising fares. **Sentence 4** builds on this, suggesting that the decline in public transport is part of a structural shift due to changes in people's travel needs (smartphones, videoconferencing, etc.). **Sentence 1** then explains that urbanites now have better alternatives (like Uber, dockless bikes, and scooters), which support the idea that public transport is less necessary. **Sentence 2**, however, is about public transportation improving when more people use it, which doesn't fit the theme of decline in usage or alternatives. It seems out of place in this context.
23.	**blank 1**: Serves as a fitting introduction, contrasting intuitive organization (like a home office) with the brain's evolutionary complexity. **Best choice**. **blank 2**: Placing the sentence here disrupts the flow, as the paragraph already transitions into describing the brain's architecture. **Misplaced**. **blank 3**: This position focuses on the lack of harmony in the brain's systems, which builds on the earlier discussion and doesn't suit the introductory nature of the sentence. **Not suitable**. **blank 4**: The metaphor of the brain as a "big, old house" concludes the paragraph. Adding the sentence here would weaken the strong ending. **Unsuitable**.
24.	Placing the **sentence at blank 1** would interrupt the natural flow of thought. The paragraph at this point is introducing the idea that Silk Roads nations, despite being seen as "developing countries," have historically been crucial to global civilization. Adding the provided sentence here would make the transition feel abrupt and disconnected, as it would shift from describing the specific importance of the Silk Roads nations to a broader statement about understanding developments globally. The placement is not ideal because the context here does not yet call for such a global perspective. **Blank 2**: At this stage, the paragraph is focusing on the specific roles that the Silk Roads have played historically, particularly their function as networks for exchange—of people, goods, and ideas. Inserting the provided sentence here would feel out of place, as it does not directly build on this idea of exchanges along the Silk Roads. Instead, the sentence shifts focus toward the broader implications of understanding Central Asia's historical role in shaping global developments, which makes it mismatched for this location. **Blank 3**: Here, the paragraph discusses the dual nature of the Silk Roads—bringing both benefits and challenges. Inserting the provided sentence at this juncture would create a thematic mismatch. The sentence about understanding Central Asia's role does not naturally follow the ideas of destruction or disaster mentioned here. It fails to provide a logical connection or bridge between the existing ideas. **Blank 4**: This is the most suitable placement for the provided sentence. The paragraph is discussing the Silk Roads as a crucial and unifying global network, describing how they connect various regions and cultures. The provided sentence extends this idea by emphasizing the broader relevance of Central Asia's role in

global history, helping us see connections not only across Asia but also in other continents. This placement reinforces and expands on the main point, maintaining coherence and adding depth to the argument about the Silk Roads' significance.

25-29. It is given that the 6 teams are divided into two groups containing 3 teams each. As each team in the same group plays every other team once and in the other group twice, so there would be 3 matches among teams of same group and 6 matches among teams of different group. Hence we can find the total matches in the tournament as 3 + 3 + 6 + 6 + 6 = 24.
Also every team plays exactly one game in one round means each round will have 3 matches involving each team. Hence there will be 8 rounds in the tournament.

Now we will further analyse the given information:
As we can see that Team 3 played against Team 6 twice, Team 2 played against Team 5 twice and Team 1 played against Team 4 twice, so Teams 3 & 6, 2 & 5 and 1 & 4 are of different groups.
Now considering points 3 and 4, we get the information that Teams 4 and 6 are of different groups and Teams 1 and 5 are of same group.
Hence we can say that Teams 1, 5 and 6 make a group (say Group I) and correspondingly Teams 2, 3 and 4 (say Group II) make the other group.

So we can list down the matches which will be played among teams of Group I and Group II

Group I	Group II
Team 1 Vs Team 6	Team 2 Vs Team 3
Team 1 Vs Team 5	Team 2 Vs Team 4
Team 5 Vs Team 6	Team 3 Vs Team 4

Also we can make a list of matches which were played between teams of different groups::

Team 3 Vs Team 6
Team 2 Vs Team 5
Team 1 Vs Team 4
Team 3 Vs Team 5
Team 1 Vs Team 3
Team 2 Vs Team 6
Team 1 Vs Team 2
Team 4 Vs Team 6
Team 4 Vs Team 5

From point 6, it is given that Team 3 played Team 8 and Team 2 played Team 5. Clubbing this information with the information in point 1 that each team played against a team from the other group in Round 8, we can surely conclude that the 3rd match of Round 8 must have been played between Team 1 and 4.

Also as per point 2, match ups of Round 5 and Round 8 were identical. Hence we get the details of matches played in Round 5.
Now using information given in points 3, 4, 5 and 6, we will find the details of matches played in various rounds and put the information in a table where alphabet T stands for Team:

Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Round 7	Round 8
T4 Vs T6	T4 Vs T6	T3 Vs T4		T3 Vs T6	T1 Vs T6		T3 Vs T6
	T1 Vs T5			T2 Vs T5			T2 Vs T5
				T1 Vs T4			T1 Vs T4

As it is given that every team plays exactly one game in each round, so we can see that T6 would be definitely there in Round 4 and Round 7. Considering the list of matches given for different groups, only T2 is left to play against T6. Hence T2 and T6 would play against each other in Round 4 and 7.

Also match between T2 and T4 is to be played only once. This will be necessarily played in Round 6 as T4 is already playing in Rounds 1, 2 and 3.

Also match between T1 and T2 is to be played twice. This will be necessarily played in Round 1 and Round 3. It means match between T5 and T6 which is to be played only once will be in Round 3.

Also match between T4 and T5 is to be played twice. This will be necessarily played in Round 4 and Round 7. It means match between T1 and T3 which is to be played twice would also be played in Round 4 and Round 7.

So after filling all the above information, we get the final table as follows :

Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Round 7	Round 8
T4 Vs T6	T4 Vs T6	T3 Vs T4	T1 Vs T3	T3 Vs T6	T1 Vs T6	T1 Vs T3	T3 Vs T6
T3 Vs T5	T1 Vs T5	T5 Vs T6	T2 Vs T6	T2 Vs T5	T2 Vs T4	T2 Vs T6	T2 Vs T5
T1 VS T2	T2 Vs T3	T1 Vs T2	T4 Vs T5	T1 Vs T4	T3 Vs T5	T4 Vs T5	T1 Vs T4

Now all the questions can be answered.

25. As shown, there were 8 Rounds in the tournament.

26. As shown, Team 4 played Team 1 in Round 5.

27. We can see that Team 5 was not part of the same group as Teams 2,3 and 4. Hence option B.

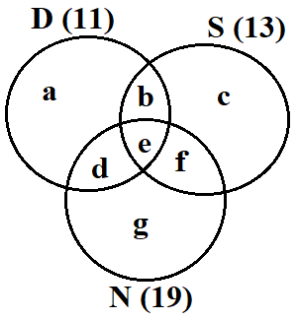
28. As shown, Team 3 played Team 1 in Round 7.

29. As shown, Team 5 played Team 6 in Round 3.

30 - 33. As per the bar graph given in the question, we can make a table of number of countries visited by the 3 people::

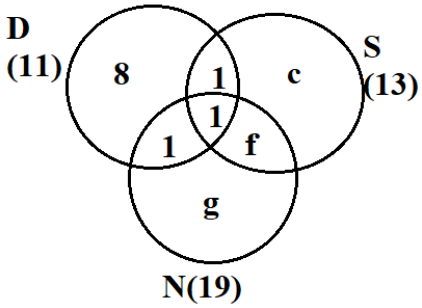
	Dheeraj	Samantha	Nitesh
Asia	3	0	1
Europe	7	9	6
Row	1	4	12
Total	**11**	**13**	**19**

Now we can make Venn Diagram of all the information given and solving the equations to get the values of various variables.

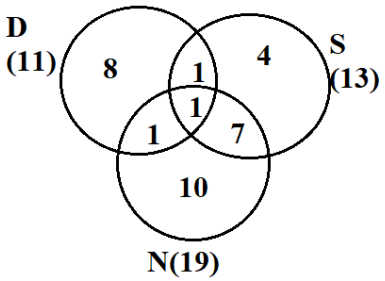


As it is given that 32 countries were visited by at least one of them, we get the equations as
$a + b + c + d + e + f + g = 32$…….(1)
$a + c + g + 2(b + d + f) + 3e = 43$….(2)
$a + b + d + e = 11$
$b + c + e + f = 13$
$d + e + f + g = 19$

As per point 2, USA is the only country that was visited by all three of them, so values of e = 1
As per point 3, China is the only country that was visited by both Dheeraj and Nitesh, but not by Samantha, so d = 1.
As per point 4, France is the only country outside Asia, which was visited by both Dheeraj and Samantha, but not by Nitesh, so b = 1.
As $a + b + d + e = 11$, so $a + 1 + 1 + 1 = 11$, so a = 8
Also number of people visiting exactly 3 countries = 1
(2) – (1) gives us $b + d + f + 2e = 11$. Putting e = 1 gives $b + d + f = 9$
Hence number of people visiting exactly 2 countries = 9
Since total given is 32, so Exactly 1 + Exactly 2 + Exactly 3 = 32
So number of people visiting exactly 1 countries= 32 – 1 – 9 = 22



As exactly 2 = 9, so 1 + 1 + f = 9
$\Rightarrow$ f = 7
Also b + c + e + f = 13
$\Rightarrow$ 1 + c + 1 + 7 = 13
$\Rightarrow$ c = 4
As number of people visiting exactly 1 countries is 22, so 8 + c + g = 22
$\Rightarrow$ 8 + 4 + g = 22
$\Rightarrow$ g = 10
So we can make the final Venn Diagram as follows



Now we need to make a final table of countries visited by these 3 people in various domains given::

	Only D	Only S	Only N	Only D & S	Only S & N	Only D & N	D & S & N	Total
Asia	2	0	0	0	0	1 (China)	0	**3**
Europe	6	4	2	1(France)	4	0	0	**17**
ROW	0	0	8	0	3	0	1(USA)	**12**
Total	**8**	**4**	**10**	**1**	**7**	**1**	**1**	**32**

As per point 5, half of the countries visited by both Samantha and Nitesh are in Europe, so number of countries visited by Samantha and Nitesh alone would be $\frac{(7+1)}{2} = 4$.

Now we can answer all the questions:

30. As shown in the table above, 3 countries in Asia were visited by at least one of Dheeraj, Samantha and Nitesh.

31. As shown in the table above, Nitesh visited 2 countries in Europe alone.

32. As shown in the table above, 3 + 1 = 4 countries in ROW were visited by both Nitesh and Samantha.

33. As shown in the table above, 6 + 4 + 2 = 12 countries in Europe were visited by exactly one of Dheeraj, Samantha and Nitesh. Hence option C.

34. Daily Share Price Variability (SPV) for A = $\frac{2400-1200}{2000} = \frac{1200}{2000} = \frac{3}{5}$

Daily Share Price Variability (SPV) for C = $\frac{1400-800}{1000} = \frac{600}{1000} = \frac{3}{5}$

Daily Share Price Variability (SPV) for F = $\frac{2000-1200}{1700} = \frac{800}{1700} = \frac{8}{17}$

Daily Share Price Variability (SPV) for D = $\frac{1200-300}{750} = \frac{900}{750} = \frac{6}{5}$

We can see that value of Daily Share Price Variability (SPV) for D is max as it is the only value which is greater than 1. All other values are less than 1. Hence option D.

35.

Daily Share Price Variability (SPV) for A = $\frac{2400-1200}{2000}=\frac{1200}{2000}=\frac{3}{5}=0.6$

Daily Share Price Variability (SPV) for C = $\frac{1400-800}{1000}=\frac{600}{1000}=\frac{3}{5}=0.6$

Daily Share Price Variability (SPV) for F = $\frac{2000-1200}{1700}=\frac{800}{1700}=\frac{8}{17}=0.47$

Daily Share Price Variability (SPV) for D = $\frac{1200-300}{750}=\frac{900}{750}=\frac{6}{5}=1.2$

Daily Share Price Variability (SPV) for B = $\frac{2000-1400}{1850}=\frac{600}{1850}=\frac{12}{37}=0.32$

Daily Share Price Variability (SPV) for E = $\frac{1400-1100}{1200}=\frac{300}{1200}=\frac{1}{4}=0.25$

Daily Share Price Variability (SPV) for G = $\frac{1900-1000}{1450}=\frac{900}{1450}=\frac{18}{29}=0.62$

From the above table, we can see that value of SPV of 4 shares i.e A, C, D and G is greater than 0.5. Hence D is the answer.

36.

Daily Loss for A = $\frac{2200-1800}{2200}=\frac{400}{2200}=\frac{4}{22}=\frac{2}{11}=0.18$

Daily Loss for B = $\frac{2000-1700}{2000}=\frac{300}{2000}=\frac{3}{20}=0.15$

Daily Loss for F = $\frac{1800-1600}{1800}=\frac{200}{1800}=\frac{2}{18}=\frac{1}{9}=0.11$

Daily Loss for G = $\frac{1200-1700}{1200}=-\frac{500}{1200}=-\frac{5}{12}=-0.42$

From the above table, we can see that value of Daily Loss for A is maximum. Hence option C.

37.

As seen from the graph, the bullish shares are C, D and G.
Let us assume he purchases one share each of C, D and G.
CP of one share of C = 800 and SP of one share of C = 1400
CP of one share of D = 500 and SP of one share of D = 1200
CP of one share of G = 1200 and SP of one share of G = 1900
So Total Cost of purchasing one share of each of C, D and G = 800 + 500 + 1200 = 2500
Total Selling Price of one share of each of C, D and G = 1400 + 1200 + 1900 = 4500.
Hence Percentage Gain = $\frac{4500-2500}{2500}\times 100=\frac{2000}{2500}\times 100=80\%$. Hence option D.

38-41.

It is given that all the six web surfers each had 30 stars. Hence total number of stars = 30 × 6 = 180.
As per the given information and analysing the graph, we can make the initial table::

	M	**N**	**O**	**P**	**X**	**Y**	**Total**
A	10	25	0	5	0	5	**45**
B	0	0	0	25	0	20	**45**
C				0			**45**
D				0			**45**
Total	**30**	**30**	**30**	**30**	**30**	**30**	**180**

As it is given that the numbers of stars received by the bloggers from the surfers were all multiples of 5 (including 0), so possible values of stars given to the all the bloggers were any of the values 0 or5 or10 or 15 or 25 or 30.

From the 4th point, we can say that the two surfers who gave all their stars to a single blogger must be O and X. Also that blogger is C and D in any order.
As per point 5, D received more stars than C from Y. This tells us that D got 5 stars from Y and C got 0 stars from Y.

As per point 3, C and D could receive 5 and 15 stars from M in any order.

Now let us assume that C received 5 stars from M. So D received 15 stars from M. Hence either O or X gave 30 stars to C. Then N has to give 10 stars to C which is not possible as total stars of N will exceed 30 and total stars of D would exceed 45.

This case is shown below in the table::

	M	N	O	P	X	Y	Total
A	10	25	0	5	0	5	**45**
B	0	0	0	25	0	20	**45**
C	5	10	30/0	0	0/30	0	**45**
D	15		0/30	0	30/0	5	**45**
Total	**30**	**30**	**30**	**30**	**30**	**30**	**180**

So we will the other case which would be valid in which C received 15 stars from M. So D received 5 stars from M. Hence either O or X gave 30 stars to C and D in any order.
So we get the final table as follows

	M	N	O	P	X	Y	Total
A	10	25	0	5	0	5	**45**
B	0	0	0	25	0	20	**45**
C	15	0	30/0	0	0/30	0	**45**
D	5	5	0/30	0	30/0	5	**45**
Total	**30**	**30**	**30**	**30**	**30**	**30**	**180**

As this table is satisfying all the conditions, so now all the questions can be answered.

38. As it is given in the information that total number of stars received by the bloggers is the same, so each would receive 180/4 = 45 stars. Hence answer is 45.

39. As shown in the table, D would receive 5 stars from Y. Hence option C.

40. From the table, we can infer that 2 surfers N and P distributed their stars among exactly 2 bloggers. (N distributed his stars to A and D only and P distributed his stars to A and B only.

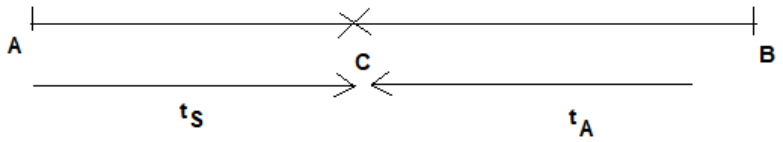
41. As shown in the table, the number of stars received by C from M can be uniquely determined as 15. But we cannot determine the number of stars received by D from O. They could be either 0 or 30. Hence option C.

42. If both of them run staid campaigns focussing on issues, then the percentage of students voting in the election will be 20 times the sum of the levels of campaigning of the two students. So the percentage would be 20(1 + 1) % = 40%.
But as both of them run staid campaigns attacking the other, then 10% of 40% will not vote at all. Hence answer would be 90% of 40% which is equal to 36%. Hence option D.

43. Minimum percentage of students who will vote will be obtained when they run staid campaign as it of level 1.
Also if they run staid campaigns attacking the other, then percentage voting would be further reduced. So minimum percentage will be obtained as 90% of 20(1 + 1)% = 90% of 40% = 36%. Hence option C.

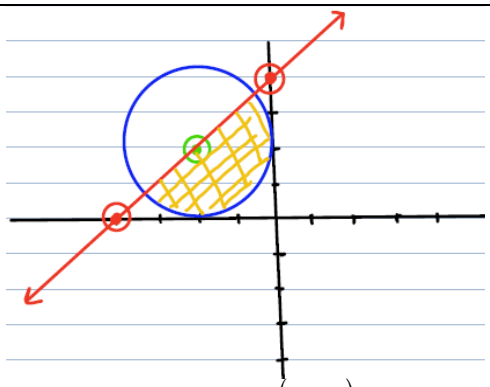
44. If both of them run vigorous campaigns focussing on issues, then the percentage of students voting in the election will be 20 times the sum of the levels of campaigning of the two students. So the percentage would be 20(2+2) % = 80%. Hence each of them would get 40% votes.
It is given that Amiya runs a campaign focusing on issues. To maximise percentage of votes she gets, will be obtained when Ramya run a campaign attacking their opponent.
So the reduction in the percentage of votes obtained by Ramya would be 20% of 40% = 8% which would be added to percentage of votes of Amiya. So Amiya would get 40% + 8% = 48% votes. Also 5% who would have otherwise voted for Ramya, will not vote at all. Hence total reduction in the percentage of votes for Ramya would be 8% + 5% of 40% = 10%. So answer of this question is 48%. Hence option C.

45. Minimum percentage of students who will vote will be obtained when they run staid campaign as it of level 1.
If both of them run staid campaigns focussing on issues, then the percentage of students voting in the election will be 20 times the sum of the levels of campaigning of the two students. So the percentage would be 20(1 + 1) % = 40%. Hence each of them would get 20% votes.
It is given that Ramya runs a campaign attacking their opponent. So the reduction in the percentage of votes obtained by Ramya would be 20% of 20% = 4% which would be added to percentage of votes of Amiya.

	Also 5% who would have otherwise voted for Ramya, will not vote at all. Hence total reduction in the percentage of votes for Ramya would be 4% + 5% of 20% = 4% + 1% = 5%. So minimum percentage of votes that she is guaranteed to get will be 20% – 5% = 15%. Hence option B.
46.	Maximum possible voting margin with which one of the candidates can win will be obtained when one of them runs vigorous campaign and the other runs staid campaign. If Amiya runs vigorous campaign focussing on issues and Ramya runs staid campaigns focussing on issues, then the percentage of students voting in the election will be 20 times the sum of the levels of campaigning of the two students. So the percentage would be 20(2+1) % = 60%. Hence Amiya would get 40% votes and Ramya would get 40% votes. Now if Ramya runs a campaign attacking their opponent. So the reduction in the percentage of votes obtained by Ramya would be 20% of 20% = 4% which would be added to percentage of votes of Amiya. So Amiya would get 40% + 4% = 44% votes. Also 5% who would have otherwise voted for Ramya, will not vote at all. Hence total reduction in the percentage of votes for Ramya would be 4% + 5% of 20% = 4% + 1% = 5%. So minimum percentage of votes that she is guaranteed to get will be 20% – 5% = 15%. Hence maximum voting margin will be 44% – 15% = 29%. Hence option B.
47.	By Euler theorem, $\frac{10^{100}}{7} = \frac{(10^6)^{16} \times 10^4}{7} = \frac{1 \times 10^4}{7} \Rightarrow$10000/7 remainder is 4.
48.	 Let's assume after meeting at point C Anil takes time t_A and Sunil takes t_s. As we know, t = $\sqrt{t_A \times t_S}$ As given t = $\frac{3}{2}$, then t_s = x , let t_A = x + $\frac{5}{4}$ hours as Anil reaches B exactly 1 hour 15 minutes after Sunil reaches A, $\frac{3}{2} = \sqrt{\left(x + \frac{5}{4}\right) \times x}$ Taking square on both sides and simplify it we have $4x^2 + 5x - 9 = 0$ $\Rightarrow$ (4x + 9) (x – 1) = 0, so, x = $-\frac{9}{4}$ and x = 1 As we cannot take the negative value, so x=1 Now, $t_A = x + \frac{5}{4} = 1 + \frac{5}{4} = \frac{9}{4}$ Anil's total time was $\frac{3}{2} + \frac{9}{4} = \frac{15}{4}$h Speed of Anil = $\frac{45}{15/4} = 12$km / h
49.	Let the four numbers be p, q, r, and s. By first condition, $\frac{p+q}{2} = p + 1$ $\Rightarrow$ q = p + 2 By second condition, $\frac{p+q+r}{3} = \frac{p+q}{2} + 2$ $\Rightarrow$ r = p + 7 By third condition, $\frac{p+q+r+s}{4} = \frac{p+q+r}{3} + 3$ $\Rightarrow$ s = p + 15 Thus the numbers are p, p + 2, p + 7 and p + 15. So, the difference between the largest and the smallest number = p + 15 – p = 15.
50.	Here to form all 4-digit numbers using the distinct non-zero digits a, b, c, d and each digit appears exactly

	once in each position across all permutations. The total number of 4 – digit numbers is 4! = 24 Each digit appears $\frac{24}{4}$ = 6 times in each place (thousands, hundreds, tens, and units) For a given digit x, its total contributions are, x × (1000 + 100 + 10 + 1) × 6 = x × 1111 × 6 = 6666x. The sum of all numbers is: 6 × 1111 × (a + b + c + d) = 6666 (a + b + c + d). 6666 (a + b + c + d) = 153310 + n, where n is a single-digit natural number. Divide 153310 by 6666 $\Rightarrow$ a + b + c + d = $\frac{153310}{6666}$ = 23 (aprox.) $\Rightarrow$ 6666 × 23 = 153318 $\Rightarrow$ 153310 + n = 153318 $\Rightarrow$ n = 153318 – 153310 = 8 The value of a + b + c + d + n = 23 + 8 = 31
51.	Let the incomes of Kamal, Amal and Vimal in September be proportional to 8k, 6k, 5k respectively. The house rent paid by Kamal is 15% of 8k = 1.2k The house rent paid by Amal is 12% of 6k = 0.72k The house rent paid by Vimal is 18% of 5k = 0.9k Their total house rent = 1.2k + 0.72k + 0.9k = 2.82k In October their house rent remains same while their incomes increase by 10%, 12% and 15% respectively. Kamal's increased income = 8k × 1.1 = 8.8k Amal's increased income = 6k × 1.12 = 6.72k Vimal's increased income = 5k × 1.15 = 5.75k Total income in October = 8.8k + 6.72k + 5.75k = 21.27k The house rent remains the same at 2.82k. The percentage of their total income paid as rent in October = $\frac{2.82k}{21.27k}\times 100$ = 13.26% (aprox.)
52.	Since in bank A, P = 10000 rate of interest = 5% and let time be T. $\Rightarrow$ SI = $\frac{PRT}{100}$ = $\frac{10000\times 5\times T}{100}$ = 500 T. Maturity amount = 10000 + 500 T Now for bank B, Sum = 10000 + 500 T, rate of interest = 6% and time = 6 years $\Rightarrow$ SI= $\frac{(10000+500T)\times 6\times 5}{100}$ = 3000 + 150 T Also, the interests received from bank A and bank B are in the ratio 10 : 13 $\frac{\text{Interest of bank A}}{\text{Interest of bank B}}=\frac{10}{13}\Rightarrow \frac{500\,T}{3000+150\,T}=\frac{10}{13}$ $\Rightarrow$ 13 × 500 T = 10 × (3000 + 150 T) $\Rightarrow$ T = 6 years
53.	If the equations $x^2 + mx + 9 = 0$, $x^2 + nx + 17 = 0$ and $x^2 + (m + n)x + 35 = 0$ have a commom negative root, then the value of (2m + 3n) is Let α be the common negative root, then substitute it into each equation we have $\alpha^2 + m\alpha + 9 = 0$…. (i), $\alpha^2 + n\alpha + 17 = 0$…..(ii) and $\alpha^2 + (m + n)\alpha + 35 = 0$….. (iii) Subtracting eq. (i) and (ii) we get $\alpha^2 + n\alpha + 17 - \alpha^2 - m\alpha - 9 = 0$ $\Rightarrow (n - m)\alpha + 8 = 0$ $\alpha = -\frac{8}{n-m}$ $\alpha^2 + m\alpha + 9 + \alpha^2 + n\alpha + 17 = 0$ $\Rightarrow 2\alpha^2 + (m + n)\alpha + 26 = 0$ Subtract the third equation from the sum of the first and second equations, we get $2\alpha^2 + (m + n)\alpha + 26 - \alpha^2 - (m + n)\alpha - 35 = 0$ $\alpha^2 - 9 = 0 \Rightarrow \alpha^2 = 9$ $\Rightarrow \alpha = \pm 3$, Since α is negative, $\alpha = -3$ As $\alpha = -\frac{8}{n-m}$

	$\Rightarrow -3 = -\frac{8}{n-m} \Rightarrow n - m = \frac{8}{3}$ Substitute, $\alpha = -3$ into the first equation, we get $\alpha^2 + m\alpha + 9 = 0$ $\Rightarrow 9 - 3m + 9 = 0 \Rightarrow m = 6$ Substitute $m = 6$ in $n - m = \frac{8}{3} \Rightarrow n - 6 = \frac{8}{3} \Rightarrow n = \frac{26}{3}$ Now $2m + 3n = 2 \times 6 + 3 \times \frac{26}{3} = 12 + 26 = 38$
54.	$4\log_{10} x + 4\log_{100} x + 8\log_{1000} x = 13$ $\Rightarrow 4\log_{10}x + \frac{4}{2}\log_{10}x + \frac{8}{3}\log_{10}x = 13$ $\Rightarrow 4\log_{10}x + 2\log_{10}x + \frac{8}{3}\log_{10}x = 13$ Let $\log_{10}x = k \Rightarrow 4k + 2k + \frac{8}{3}k = 13$ or $12k + 6k + 8k = 39 \Rightarrow k = \frac{3}{2}$ or $\log_{10}x = \frac{3}{2} \Rightarrow x = 10^{\frac{3}{2}} = \sqrt{1000} = 31.62$ So, the greatest integer not exceeding 31.62 = 31
55.	Since, $4(x^2 + y^2 + z^2) = a$ and $4(x - y - z) = 3 + a$ On subtracring both equations we have, $4x^2 - 4x + 4y^2 + 4y + 4z^2 + 4z = -3$ Adding 1 to make it perfect square, we get, $(4x^2 - 4x + 1) + (4y^2 + 4y + 1) + (4z^2 + 4z + 1) = 0$ $(2x - 1)^2 + (2y + 1)^2 + (2z + 1)^2 = 0$ $\Rightarrow x = \frac{1}{2}, y = -\frac{1}{2}, z = -\frac{1}{2}$ Now, $4(x^2 + y^2 + z^2) = a$ $\Rightarrow 4\left(\frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right) = a$ $\Rightarrow a = 3$
56.	Clearly we have equation of circle $x^2 + y^2 + 2gx + 2fy + c = 0$ $x^2 + y^2 + 4x - 4y + 4 \geq 0$ $x^2 + y^2 + 2 \times 2x + 2 \times (-2)y + 4 \geq 0$ Centre = $(-g, -f) = (-2, 2)$ Radius = $\sqrt{g^2 + f^2 - c}$ $\sqrt{(-2)^2 + 2^2 - 4} = \sqrt{4} = 2$ units Now, we have equation of line $y \geq x + 4$ $x - y \leq -4$ x: 0, −4 y: 4, 0



Area of shaded region $= \frac{(\pi \times r^2)}{2} = 2\pi$

57. By dilution method, Milk left after nth operation / Total mixture = $\left(1-\frac{y}{x}\right)^n$

The process repeatedly replaces $\frac{2}{3}$ of the glass's contents with water.

$\Rightarrow$ Milk left after nth operation / Total mixture = $\left(1-\frac{2}{3}\right)^4 = \left[\frac{1}{3}\right]^4 = \frac{1}{81}$

Initially, the milk fraction is 1 (all milk). After four repetitions, the milk fraction becomes $\frac{1}{81}$

$\Rightarrow$ the fraction of water = $1-\frac{1}{81} = \frac{80}{81}$

The final ratio of milk to water is $\frac{1}{81} : \frac{80}{81} = 1 : 80$

58. Basically we are looking for onto function from A to B.
Let n(A) = m, n(B) = n
So, number of onto functions
$= n^m - {}^nC_1(n-1)^m + {}^nC_2(n-2)^m - {}^nC_3(n-3)^m$
$= 3^6 - {}^3C_1(2)^6 + {}^3C_2(1)^6 - {}^3C_3(0)$
$= 540$

59. Total surface area of cuboid = 2(lb + bh + hl)
$\Rightarrow 2(lb + bh + hl) = 846\ cm^2$
The sum of lengths of all the edges = 4(l + b + h) =144
$\Rightarrow l + b + h = 36cm$
Now, $(l + b + h)^2 = l^2 + b^2 + h^2 + 2(lb + bh + hl)$
$\Rightarrow l^2 + b^2 + h^2 = (l + b + h)^2 - 2(lb + bh + hl)$
$\Rightarrow l^2 + b^2 + h^2 = 36^2 - 846 = 1296 - 846 = 450$

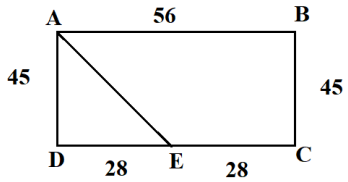
Diametre of the sphere = body diagonal of the cuboid= $\sqrt{l^2 + b^2 + h^2} = \sqrt{450}$ cm

And the radius is $\sqrt{\frac{450}{2}}$ cm

Volume of sphere = $\frac{4}{3}\pi R^3 = \frac{4}{3}\pi\left(\frac{\sqrt{450}}{2}\right)^3 = 1125\pi\sqrt{2}\ cm^3$

60. Let the Initial CP = 100, Initial SP = Initial CP × 140% = 140.
New CP = 60% of 100 = 60, New SP = 150% of 60 = 90.
Difference between the Initial and New selling price is 140 – 90 = 50
Now we need to compare it with actual information as per the question, our 50 is representing 5 Rs as per question. 10 is representing 1Rs, 140 will represent 14 Rs.

61. The best way to solve such questions is to move backwards. In the end he is left with nothing. Just see that to the last person he has given $\frac{1}{2}$ of the grains and then 0 grains.

	In general person sells $\frac{1}{2}$ of the grains and 3 kg more, so the person left with $\frac{1}{2}$ of the grains and 3 kg less. $\frac{x}{2} - 3 = 0$ x = 6 (before giving to third person) $\frac{x}{2} - 3 = 6$ X = 18 (before giving to second person) $\frac{x}{2} - 3 = 18$ x = 42 (before giving to first person) So the person initially have 42 kg of grains
62.	$(29 - 12\sqrt{5}) = (a + b\sqrt{n})^2$ $(29 - 12\sqrt{5})$ must be a square of $(x - y)^2$ $(x - y)^2 = x^2 + y^2 + 2xy$ $2xy = 12\sqrt{5}$ $xy = 6\sqrt{5}$ If we take $x = 6$ and $y = \sqrt{5}$ $(6 - \sqrt{5})^2 = 36 + 5 - 12\sqrt{5} = 41 - 12\sqrt{5}$ (not possible) If we take $x = 3$ and $y = 2\sqrt{5}$ $(3 - 2\sqrt{5})^2 = 9 + 20 - 12\sqrt{5} = 29 - 12\sqrt{5}$ (possible) If we take $x = 2\sqrt{5}$ and $y = 3$ $(2\sqrt{5} - 3)^2 = 20 + 9 - 12\sqrt{5} = 29 - 12\sqrt{5}$ (possible) If we take $x = \sqrt{20}$ and $y = 3$ $(\sqrt{20} - 3)^2 = 20 + 9 - 12\sqrt{5} = 29 - 12\sqrt{5}$ (possible) If we take $x = \sqrt{20}$ and $y = 3$ $(3 - \sqrt{20})^2 = 20 + 9 - 12\sqrt{5} = 29 - 12\sqrt{5}$ (possible) Positive root: $(a + b\sqrt{n})^2 = (3 - 2\sqrt{5})^2 = a + b + n = 3 - 2 + 5 = 6$ Negative root: $(a + b\sqrt{n})^2 = (2\sqrt{5} - 3)^2 = a + b + n = 2 + 5 - 3 = 4$ Positive root: $(a + b\sqrt{n})^2 = (-3 + \sqrt{20})^2 = a + b + n = -3 + 1 + 20 = 18$ (Answer) Negative root: $(a + b\sqrt{n})^2 = (3 - \sqrt{20})^2 = a + b + n = 3 - 1 + 20 = 22$ As the question asked maximum possible value of positive root so answer is 18.
63.	 ABCD is a rectangle, E is a mid-point of D and C. ΔADE is a right angle triangle by applying Pythagorean theorem, AE = 53. Using the formula to calculate area of triangle = radius of incircle × Semi perimeter. $\frac{1}{2} \times 28 \times 45 = r \times \left(\frac{45 + 28 + 53}{2}\right)$ r = 10
64.	<table><tr><td></td><td>Apple</td><td>Mangos</td><td>Oranges</td></tr><tr><td>Number of fruits</td><td>5x</td><td>2x</td><td>187 – 7x</td></tr><tr><td>Sells</td><td>75</td><td>26</td><td>$\left(\frac{187 - 7x}{2}\right)$</td></tr></table> Ratio unsold fruits to unsold oranges = 3 : 2 $\frac{5x - 75}{\frac{187 - 7x}{2}} = \frac{3}{2}$ $20x - 300 = 561 - 21x$ $41x = 861$ $x = 21$ Apple Mangos Oranges

	Number of fruits 105 42 40 Sells 75 26 20 Left 30 + 16 + 20 = 66
65.	$\left(\frac{1}{8}\right)^k \times \left(\frac{1}{32768}\right)^{1/3} = \left(\frac{1}{8}\right) \times \left(\frac{1}{32768}\right)^{1/k}$ $\left(\frac{1}{8}\right)^k \times \left(\frac{1}{8^5}\right)^{1/3} = \left(\frac{1}{8}\right) \times \left(\frac{1}{8^5}\right)^{1/k}$ $\left(\frac{1}{8}\right)^{k-1} = \left(\frac{1}{8^5}\right)^{5/k-5/3}$ $k - 1 = \frac{5}{k} - \frac{5}{3}$ $3k^2 + 2k - 15 = 0$ Sum of roots = $-\frac{2}{3}$.
66.	$x_5 = -4$ $a + 4d = -4$….(i) $2x_6 + 2x_9 = x_{11} + x_{13}$ $2(x_6 + x_9) = x_{11} + x_{13}$ $x_6 + x_9 = \frac{(x_{11} + x_{13})}{2}$ $x_6 + x_9 = x_{12}$ $a + 5d + a + 8d = a + 11d$ $a + 2d = 0$……. (ii) Solving equation (i) and (ii), $a = 4$ and $d = -2$ $x_{100} = a + 99d = 4 + 99 \times (-2) = 4 - 198 = -194$
67.	Total number of hours for which Renu worked is $15 \times 4 = 60$ hrs Total number of hours for which Seema worked is $8 \times 5 = 40$ hrs Total work is taken as LCM of (60, 40) = 120 units Efficiency of Renu is $\frac{120}{60}$ = 2 units/hours Efficiency of Seema is $\frac{120}{40}$ = 3 units/hours As per the question Renu works 2 hours per day, So Seema works for 4 hours per day. Total work completed by Renu is $2 \times 2 = 4$ units/day Total work completed by Seema is $3 \times 4 = 12$ units/day As per the question number of day taken by Renu is double of Seema. Let number of day taken by Seema is 'x' so number of days taken by Renu is '2x'. Total work will be completed by $4 \times 2x + 12x = 120$ x = 6 days.
68.	Question is based on GINT, largest integer not exceeding √n. Find the value of $a_1 + a_2 + \ldots + a_{50}$. When n = 1, √1= 1 n = 2, √2= 1 n = 3, √3= 1 n = 4, √4= 2 So, we need to count it like this, from 1 to 3 we have 1 three times so total will be $1 \times 3 = 3$ from 4 to 8 we have 2 five times so total will be $2 \times 5 = 10$ from 9 to 15 we have 3 seven times so total will be $3 \times 7 = 21$ from 16 to 24 we have 4 nine times so total will be $4 \times 9 = 36$ from 25 to 35 we have 5 eleven times so total will be $5 \times 11 = 55$ from 36 to 48 we have 6 thirteen times so total will be $6 \times 13 = 78$ from 49 to 50 we have 7 two times so total will be $7 \times 2 = 14$ Hence, answer will be 3 + 10 + 21 + 36 + 55 + 78 + 14 = 217