

EXPLANATIONS (ANUBHAV CSAT : 4-2-24)

1. (c)

Option A is not correct because it says understanding comes 'mainly' from.

Option B is not correct because it states that working knowledge of history comes solely from personal experiences from school and society, which is not accurate according to the passage. The passage explicitly states that our knowledge of history comes from a range of sources beyond just textbooks and formal education.

Option C is the correct answer because it accurately reflects the main point of the passage. The passage argues that our understanding of history comes from a range of sources, including personal experiences, media, and material objects. The passage suggests that our historical worldview is informed by all these sources, not just textbooks or formal education.

Option D is not correct because it only focuses on one specific source of knowledge (our families and communities) and does not capture the broader range of sources that the passage describes as contributing to our understanding of history.

2. (d)

Option (d) is the correct choice.

Statement (1) is valid as the passage discusses change in lender practices: Lenders will need to change their practices to comply with the new guidelines on fair lending practices issued by the central bank. They will no longer be able to charge a penal interest over and above the contracted rate of interest when borrowers delay repayment or default.

Statement (2) is valid as the passage discusses reduced financial burden on borrowers: With the removal of penal interest charges, borrowers will face reduced financial burden and will not have to pay an excessive rate of interest or an increased principal amount that they would have to repay.

Statement (3) is valid as the passage discusses dispute resolution: The RBI noted that excessive penal interest charges were leading to hardship to the borrowers and disputes. The new guidelines will help in dispute resolution between lenders and borrowers by providing clarity on the charges that can be levied by lenders and the way they can be recovered.

Statement (4) is valid as the passage discusses Improved credit discipline: The aim of the penal interest was to improve credit discipline among borrowers by providing a negative incentive for timely repayment. The removal of the penal interest charges will put the onus on borrowers to maintain their credit discipline without a punitive measure.

3. (a)

Option (a) accurately captures the main points of the passage by highlighting the key mechanisms for translating demographic opportunity into economic gains in India.

Option (b) is invalid because it mentions India becoming developed which is not discussed in the passage.

Option (c) is invalid because it states that job creation is the only factor required for realizing the demographic dividend, which is not true.

Option (d) is invalid because it suggests that education, skills, and health conditions are not important for realizing the demographic dividend, which is the opposite of what the passage says.

4. (c)

Option A is incorrect because while the rule of law does promote the importance of evidence, experimentation is not a key aspect of this legal principle. Rather, the rule of law emphasizes that legal decisions should be based on established legal procedures and evidence.

Option B is incorrect because it suggests that empiricism places an emphasis on speculation or intuition, which is the opposite of what empiricism stands for. Empiricism is based on the idea that knowledge should be grounded in observable facts and evidence, not on speculation or intuition.

Option C is the correct answer because it accurately summarizes the overlap between empiricism and the rule of law. Both concepts place a strong emphasis on the importance of evidence, impartiality, and objectivity in decision-making. While empiricism is a philosophical approach to knowledge, and the rule of law is a legal principle, they share a common foundation in valuing evidence-based decision-making.

Option D is incorrect because it suggests that empiricism is concerned with legal decisions specifically, which is not accurate. Empiricism is a philosophical approach to knowledge that applies to a broad range of fields, not just law.

5. (a)

$$B \geq 0 = M < A = P < U < G = J$$

Clearly, $A < J$

So, conclusion-I follows.

Also, relation between B and G cannot be established from the given statements.

So, conclusion-2 does not follow.

Hence, option (a) is the correct answer.

6. (d)

$$E < Z \leq B \leq N > P$$

Relation between P and E cannot be established from the given statement.

So, conclusion-1 does not follow.

Also, $E < Z$

and $Z \leq N$

So, $E < N$

Hence, conclusion-2 also does not follow.

Hence, option (d) is the correct answer.

7. (b)

The colour of clear sky is 'blue' and as given, 'blue' is called 'sky'.

8. (a)

Following codes have been used here:

Trader = vet

CA = hut

Banking = rat

Manager = wet

Scientist = but

Astrologer = bat

Engineer = nut

Writer = hat

9. (d)

10. (c)

	Delhi		Outside	
	Diabetic	Not Diabetic	Diabetic	Not Diabetic
Vit-A	-	O	P	M
Vit-D	-	N, Q	R	S

So, option (c) is the correct answer.

11. (b)

Consider the letters L_1, L_2, \dots, L_8 and the covers C_1, C_2, \dots, C_8 .

Suppose letter L_1 is placed into the wrong envelope say E_2 , then L_2 letter has to be placed in the wrong envelope. At least two letters must be placed in wrong envelopes. It is not possible to place exactly 1 letter into a wrong envelope.

\therefore Number of ways = '0'

12. (b)

Option (a) is not correct because it states 'will exacerbate'. The passage does not state this.

Option (b) is correct because it states that sustainable consumption patterns like 'shifting towards use of renewable resources' can address challenges like economic inequalities.

Option (c) is not correct because it extends beyond the scope of the passage by stating 'carrying capacity'.

Option (d) is not correct because it extends beyond the scope of the passage for stating 'irreversible causes'.

13. (a)

Option (a) is correct because it is supported by the passage's emphasis on the bottom-up approach to independence, where power is given to the people at the village level.

Option (b) is not correct because it contradicts the passage's assertion that independence must mean the freedom of the people of India, not those in power.

Option (c) is not correct because it goes against the idea of decentralized power in which each village or Panchayat has full powers.

Option (d) is not correct because it extends beyond the scope of the passage for stating 'external support'.

14. (d)

Option (a) is not correct because it goes against the main point of the passage.

Option (b) is not correct because it the passage states exactly the opposite: the impact of on greenhouse gas emissions on mining and transportation is undeniable.

Option (c) is not correct because it goes beyond the scope of the passage. We cannot state if it is replaceable.

Option (d) is correct because decarbonizing steel and cement industries is important due to their significant contribution to greenhouse gas emissions.

15. (c)

Option (a) is incorrect because the passage does not suggest that the use of bracelets will completely eliminate the need for traditional conservation methods such as patrol teams and tracking dogs.

Option (b) is incorrect because while the bracelets can send alerts to wildlife operations centers and anti-poaching teams when an animal is exhibiting abnormal movement patterns, it does not explicitly state that they significantly reduce the impact of poachers.

Option (c) is correct because the passage clearly states that the AI-enabled bracelets will help conservation teams locate the animals and monitor their behavior in real-time, allowing for a better understanding of their movement patterns.

Option (d) is incorrect because the passage does not provide any information about the accuracy of the bracelets in determining the exact cause of an animal's abnormal movement patterns.

16. (b)

Directions:

$P + Q \Rightarrow P \geq Q$

$P \$ Q \Rightarrow P > Q$

$P ! Q \Rightarrow P < Q$

$P @ Q \Rightarrow P \leq Q$

$P \# Q \Rightarrow P = Q$

Now,

Statements: $A < B = C > D \geq E$

Conclusion-I: $D > B$

It is incorrect as $B > D$.

Conclusion-II: $A < C$

It is correct.

Conclusion-III: $C \geq E$

It is incorrect as $C > E$.

So, option (b) is correct.

17. (a)

Statements: $J > N \leq A = C < F$

Conclusion-I: $F \geq A$

It is incorrect as $F > A$

Conclusion-II: $A > J$

Relation cannot be established.

So, it is incorrect.

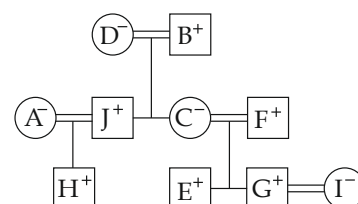
Conclusion-III: $N < C$

It is incorrect as $N \leq C$

So, option (a) is correct.

18. (b)

The family tree is as follows:



(Since there are only four females, so H must be male)

Hence, option (b) is correct.

19. (c)

G's grandmother is D.

G's sister is no one.

G's father is F.

G's maternal uncle's son is H.

20. (c)

Assume Ela's salary as a

Assume Daniel's salary as b

Assume Chitra's salary as c

$$a = (1 + x)b$$

$$b = c(1 - y)$$

$$c = \frac{b}{1 - y}$$

$$a \text{ is greater than } c \text{ or } b(1 + x) > \frac{b}{1 - y}$$

$$\Rightarrow 1 + x > \frac{1}{1 - y}$$

$$\Rightarrow (1 + x)(1 - y) > 1$$

$$\Rightarrow 1 + x - y - xy > 1$$

$$\Rightarrow x > y(1 + x)$$

Writing in percentage form

$$\Rightarrow \frac{x}{100} > \frac{y}{100} \left(\frac{100}{100} + \frac{x}{100} \right)$$

$$\text{Therefore, } y(100 + x) < 100x$$

$$\text{Hence, the answer is } y(100 + x) < 100x$$

21. (c)

Case-I

Let the cost price of the Car = Rs. 100

Let the selling price of the Car = Rs. 250

Let the no. of sales of the Car = 100 units

Profit = Rs. 15000

Case-II

Changed selling price of the Car = Rs. 125

Increase in sales of the Car = 100 + 500

$$= 600$$

Profit = Revenue - Expenditure

$$= (600 \times 125) - (600 \times 100) = 15000$$

The profit is same in both cases.

22. (d)

Let us assume the total amount of work

$$= 96 \text{ units}$$

$$B's \text{ rate of work} = \frac{96}{96} = 1 \text{ unit/day}$$

$$A, B \text{ and } C \text{ rate of work} = \frac{96}{6.4}$$

$$= 15 \text{ units/day}$$

$$A \text{ and } C \text{ rate of work} = 14 \text{ units/day}$$

$$\text{Ratio of efficiencies of } A \text{ and } C = 3 : 4$$

$$= \text{Ratio of work of } A \text{ \& } C$$

$$\Rightarrow A's \text{ rate of work} = \frac{3}{7} \times 14 = 6 \text{ units/day}$$

$$\Rightarrow C's \text{ rate of work} = 14 - 6 = 8 \text{ units/day}$$

Time taken by A to finish the work

$$= \frac{96}{6} = 16$$

Time taken by C to finish the work

$$= \frac{96}{8} = 12$$

$$\Rightarrow \text{Difference in times} = 4 \text{ days}$$

23. (c)

Percentage of UK8 shoes produced in 2015

$$= 1.2 \times 0.25 = 0.30$$

Percentage of UK8 shoes produced in 2016

$$= 1.15 \times 0.40 = 0.46$$

Percentage of UK8 shoes produced in 2017

$$= 1.4 \times 0.15 = 0.21$$

Percentage of UK8 shoes produced in 2018

$$= 1.45 \times 0.20 = 0.29$$

Year	Total number of UK9 shoes produced	Total number of shoes produced	Total number of UK7 shoes produced	Total number of UK8 shoes produced
2015	360	$\frac{360}{(1 - 0.25 - 0.3)} = 800$	$0.25 \times 800 = 200$	$0.3 \times 800 = 240$
2016	168	$\frac{168}{(1 - 0.40 - 0.46)} = 1200$	$0.40 \times 1200 = 480$	$0.46 \times 1200 = 550$
2017	384	$\frac{384}{(1 - 0.15 - 0.21)} = 600$	$0.15 \times 600 = 90$	$0.21 \times 600 = 126$
2018	765	$\frac{765}{(1 - 0.20 - 0.29)} = 1500$	$0.20 \times 1500 = 300$	$0.29 \times 1500 = 435$

Total shoes of 2016 = 1200

Total shoes of 2017 = 600

Total shoes of 2018 = 1500

Average = $3300/3 = 1100$

24. (b)

No. of UK 8 shoes produced in 2015 and 2017 = $240 + 126 = 366$

No. of UK 7 shoes produced in 2018 = 300

Difference = $366 - 300 = 66$

25. (d)

2015 - UK 7 = 200, UK 8 = 240, UK 9 = 360

2017 - UK 7 = 90, UK 8 = 126, UK 9 = 384

2018 - UK 7 = 300, UK 8 = 435, UK 9 = 765

26. (c)

Option (c) is correct

Statements (1) is correct because the passage states that raising the risk weights for such exposures is a correction made by RBI to ensure a more informed regulatory framework. This implies that improving the quality of assessment of credit risk is the reason behind this change.

Statement (2) is correct as the passage clearly states that the RBI has done this to 'encouraging banks to have rated exposures'.

Statement (3) is incorrect due to 'large, domestic systemically important banks'. This extends beyond scope of the passage.

Statement (4) is correct as the passage has clearly stated 'unrated exposures can create information barriers for banks as well as the supervisor'.

27. (a)

Based on the passage we can state that the twin balance sheet problem in India is caused by the high levels of non-performing assets (NPAs) in the banking sector, which are a result of excessive lending to large, inefficient firms that are unable to repay their loans. This has created a vicious cycle of reduced investment, impaired profitability, and limited ability to repay loans, which has further worsened the situation.

Option (a) is correct because it states correctly that first excessive lending to large, inefficient firms are unable to pay their loans which leads to NPAs which then leads to the twin balance sheet problem. Thus excessive lending is the root cause.

Option (b) is not correct because it is mentioned as a compounding cause and not the root cause.

Option (c) is not correct because the passage does not discuss this as root cause.

Option (d) is not correct because the passage has discussed this as a compounding cause and not a root cause.

28. (d)

Option (a) is not correct because it states that there is no impact.

Option (b) is not correct because it extends beyond the scope of the passage by stating 'is unwilling'. The passage discussed political will but only with regards to 'bold structural reforms'.

Option (c) is not correct because the passage mentions that 'excessive lending' and to 'inefficient' companies.

Option (d) is correct because the twin balance sheet creates a vicious cycle which negatively impacts both banks and corporations.

29. (c)

Statement (1) is valid as the passage states that '...translocations can disrupt natural genetic diversity and create hybridization with other species. Careful planning, monitoring, and evaluation are essential to ensure that translocations are successful'.

Statement (2) is valid as the passage states '...their introduction can result in...the spread of disease'.

Statement (3) is valid as the passage discusses the multiple risks associated. So the careful planning, monitoring, and evaluation suggested indicate that translocation can be done only when the risks are lower than benefits.

Statement (4) is not valid as the passage does not compare with other strategies to suggest that translocating is best or most extreme.

30. (c)

Option (a) is too extreme and generalizes the author's position.

Option (b) is incorrect as it extends beyond the scope by discussing other rights.

Option (c) is correct because the passage argues that literacy is not necessarily a reliable indicator of intelligence or knowledge, and that assuming so is a mistake.

Option (d) is incorrect because the author argues that literacy does not necessarily indicate higher intelligence or knowledge.

31. (c)

Let MRP of article be = $100x$

$$\Rightarrow \text{Cost price of article} = \frac{8}{10} \times 100x = 80x$$

\Rightarrow The selling price of the article

$$= (100 + 20\%)100x = 120x$$

\Rightarrow The profit = $40x + 100$ (he cheated by giving 100 less)

The customer brought it at $(400 - 160) = 240$

$$\Rightarrow \text{So, } 120x = 240$$

$$\text{Total profit} = 40 \times 2 + 100 = 180$$

$$\text{Cost price} = 80 \times x = 80 \times 2 = 160$$

$$\text{Total profit\%} = \frac{180}{160} \times 100 = 112.5\%$$

32. (c) & 33. (d)

Let Shivangi have x chocolates at beginning

Let Chanchal have y chocolates at beginning

Let Amrita have x chocolates at beginning

(i) When Shivangi distributes to Chanchal and Amrita. The final composition is as below:

Initial	x	y	z
	Shivangi	Chanchal	Amrita

Final	$x - y - z$	$2y$	$2z$
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(ii) When Amrita distributes to other two

The final composition is as below:

Initial	$x - y - z$	$2y$	$2z$
	Shivangi	Chanchal	Amrita

Final $2(x - y - z)$ $4y$ $2z - 2y - x + y + z$
Since all have same amount of chocolates at last

$$\text{Each has } \frac{84}{3} = 28$$

No. of chocolates will Chanchal = $28 = 4y$
and $y = 7$

Since $x + y + z = 84$ and $y = 7$

$$x + z = 77 \quad \dots(i)$$

Since $2(x - y - z) = 28$

$$x - y - z = 14$$

$$= x - z = 21 \quad \dots(ii)$$

Adding (i) and (ii)

$$\Rightarrow 2x = 98; x = 49$$

$$z = 84 - (49 + 7) = 84 - 56 = 28$$

34. (b)

Since the reduction in speed is proportional to square root of passengers.

$$45 \text{ kmph is } \propto \sqrt{25}$$

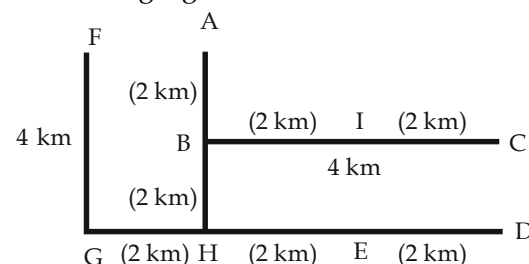
For maximum passengers, speed needs to be minimum and reduction needs to be maximum i.e. 54 kmph.

$$\text{So, } \frac{45}{54} = \frac{\sqrt{25}}{\sqrt{N}} = \frac{5}{6} \quad (N = 36)$$

Since the bus stops with 36 passengers the maximum passengers it can carry = $36 - 1 = 35$.

35. (a) and 36. (d)

According to the information given following figure can be formed:



37. (d)

The shop keepers starts with the following ratio of concentrate and water

180 : 20 which is 9 : 1

He sold 30 litres of mixture. Now the remaining amount of concentrate and water in the mixture

$$= 180 - 27 : 20 - 3$$

$$= 153 : 17$$

A solution of 275 litres with 60% concentrate contains $\frac{3}{5}(275) = 165$ litres of concentrate

In the second step he add $2x$ (2 : 3 mixture) amount of concentrate

$$= 153 + 2x = 165$$

$$\Rightarrow x = 6 \text{ litres}$$

$$\Rightarrow \text{Amount of water added} = 3 \times 6$$

$$= 18 \text{ litres}$$

38. (d)

The idea of the passage is to convince the reader that the metaphor is a wonderful poetic device. None of the other choices are approached in the passage.

39. (a)

Option (a) is correct: The first paragraph clearly states that poets use metaphors more than any other type of figurative language, thereby inferring that a metaphor is a type of figurative language.

Option (b) is incorrect since the phrase *other type of figurative language* is clearly stated.

Choice (c) is not supporting in the passage.

Option (d) is incorrect; review the definition of a metaphor in the first and second lines of the passage.

40. (d)

Option (d) is correct: The explanation of the line depicts how love can be wonderful and yet, with the introduction of the thorn imagery, it also presents the danger of love.

Option (b) and (c) are not mentioned in the passage.

Option (a) only deals with the idea of joy, disregarding the thorn/danger aspect.

41. (c)

Option (c) is correct: This specific detail can be found in paragraph 1: "... poets compose their best poetry to express what they are experiencing emotionally at that moment."

Option (a) and (b) are incorrect because they each deal with only one reason for a poet to write.

Option (d) is incorrect since the only discussion of the senses dealt with the

specific metaphor that was used as an example.

42. (c)

Prabhaas can select the questions in the following combinations:

(i) 3, 1, 1 (ii) 1, 3, 1 (iii) 1, 1, 3 (iv) 2, 2, 1 (v) 2, 1, 2 (vi) 1, 2, 2

The number of selections in each of the cases (i), (ii) and (iii) is ${}^5C_3 \times {}^5C_1 \times {}^5C_1$ while the number of selections in each of the cases (iv), (v), (vi) is

$${}^5C_2 \times {}^5C_2 \times {}^5C_1$$

Hence total selections are

$$3 \times {}^5C_3 \times {}^5C_1 \times {}^5C_1 + 3 \times {}^5C_2 \times {}^5C_2 \times {}^5C_1$$

$$= 3 \times [(10 \times 5 \times 5) + (10 \times 10 \times 5)]$$

$$= 3 [250 + 500] = 2250$$

43. (c)

Let the initial amount with Nile, Barney and Sam in rupees be x , y and z respectively.

Nile gives $\frac{x}{2}$ to Barney

They now have $\frac{x}{2}$, $\frac{x}{2} + y$ and z .

Barney gives half of his amount to Sam.

They now have

$$\frac{x}{2}; \frac{x}{4} + \frac{y}{2}; \frac{x}{4} + \frac{y}{2} + z$$

Sam gives half his amount to Nile.

Nile now has $\left(\frac{x}{2} + \frac{x}{8} + \frac{y}{4} + \frac{z}{2}\right)$ and this is equal to x .

$$\Rightarrow x = \frac{x}{2} + \frac{x}{8} + \frac{y}{4} + \frac{z}{2}$$

$$\Rightarrow \frac{3x}{8} = \frac{y}{4} + \frac{z}{2}$$

$\Rightarrow 3x = 2y + 4z \Rightarrow 2 \times 51 = 102$, as $(y + 2z)$ is given equal to 51.

$$\Rightarrow 3x = 102 \Rightarrow x = 34$$

44. (c)

Let Z be ab , where a and b are the tens and the unit digit respectively.

Given, $a, b \neq 0$ & $b < 4$.

$Z < 2(ba)$ (given)

$ab < 2(ba) \Rightarrow 10a + b < 2(10b + a)$

$8a < 19b \Rightarrow a < \frac{19b}{8}$

Case-I :

The least value of b is 1.

If $b = 1$, $a < \frac{19}{8} = 2.xx$

so, a can take any value from 2 or 1 (2 values).

Case-II :

If $b = 2$, $a < \frac{19}{4} = 4.xx$

so, a can take any value from 4, 3, 2, 1 (4 values).

Case-III :

If $b = 3$, $a < \frac{57}{8} = 7.xx$

so, a can take 7, 6, 5, 4, 3, 2, 1 (7 values)

Given that $b < 4$

Number of values of $Z = 2 + 4 + 7 = 13$

45. (c)

First calculate the last unit digit then use divisibility rule of 5.

$\Rightarrow 1$ to 9 = total digits 9

$\Rightarrow 10$ to 30 = total digits 42

$\Rightarrow 31$ to 38 = total digits 16

So, the last unit digit = 8

Remainder = 3

46. (c)

Stops of truck = $4 \times 30 = 120$ min or 2 hrs

Speed of truck = $\frac{640}{18-2} = \frac{640}{16} = 40$ km/h

Speed of car = $\frac{40 \times 120}{100} = 48$ km/h

Speed of train = $\frac{48 \times 125}{100} = 60$ km/h

Required time = $\frac{600}{60} = 10$ hrs

47. (d)

Option (d) is the correct choice.

Option (a) is not correct because the passage does mention that handing out loans is a

solution, especially as the EV segment is new asset class for the financial institutions.

Option (b) is not correct because the passage states that for scalability finance is the challenge.

Option (c) is not correct because the passage does not discuss the role of the government.

Option (d) is correct because it addresses the lacuna is availing finance.

48. (c)

Statement (1) is valid as the passage states that 'this would undermine millions of years of evolution ...'.

Statement (2) is not valid as it extends beyond the scope of the passage.

Statement (3) is not valid as it states 'owned only by a few corporations'. The passage discusses that 'corporations can now...' implying that any corporation can now employ 'seed sovereignty'.

49. (c)

(a) This statement does not specify the effects of Aswan Dam.

(b) While it is reasonable to suppose that some farmers feel this way, the passage does not provide any information about the farmers' approval or disapproval of the dam.

(c) The passage states that the dam prevents silt, essential for renewing the minerals and nutrients that make land fertile, from flowing to downstream lands and goes on to say that farmers now have to use artificial fertilizers. This implies that the land is not as naturally fertile as it was before the dam was built.

(d) The author doesn't explicitly say that Egypt is definitely better off with the dam. Rather, the author says "it is difficult to draw definite conclusions" about the issue.

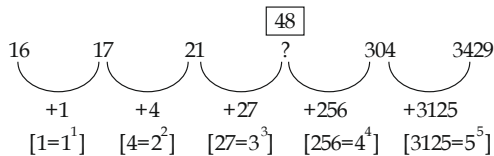
50. (b)

(a) The passage does not comment on Egypt's other electricity needs (and, in fact, the passage tells us that the dam

provided only half of the country's output, so Egypt did have other sources of electricity).

- (b) The author quantified the output in order to demonstrate the magnitude of this particular benefit.
- (c) The author does not argue that any one effect of the dam is more "important" than any other effect.
- (d) The passage did not provide or imply any expectations for the magnitude of the electricity output.

51. (c)



52. (c)

53. (a)

Person	Age	Year
M	78	1945
Q	72	1951
P	66	1957
R	64	1959
O	55	1968
N	44	1979

54. (c)

Person	Age	Year
M	78	1945
Q	72	1951
P	66	1957
R	64	1959
O	55	1968
N	44	1979

55. (a)

83 → Image
Mirror
83

$$\Rightarrow 83 - 38 = 45$$

56. (a)

Let the letters N, Ad, A, D, I represent the ages of Nandni, Anand, Ankita, Dhruv and Ishaan respectively.

$$\text{Total age of N + Ad} = 40 \times 2 = 80 \text{ years ... (i)}$$

$$\text{Ad + A} = 37 \times 2 = 74 \text{ years ... (ii)}$$

$$\text{N + A} = 43 \times 2 = 86 \text{ years ... (iii)}$$

Adding eq. (i), (ii) and (iii)

$$\text{N + Ad + A} = \frac{80 + 74 + 86}{2} = \frac{240}{2} = 120 \text{ years}$$

$$\text{Average age of N + Ad + A} = \frac{120}{3} = 40 \text{ years}$$

$$\text{Average age of D + I} = \frac{40}{2}$$

$$\Rightarrow \text{Sum of ages of D + I} = 40 \text{ years}$$

$$\text{Average age of N, Ad, A, D, I} = \frac{120 + 40}{5}$$

$$= 32 \text{ years}$$

57. (b)

Speed of train Rajdhani Express and Vande Bharat Express are 7x and 3x respectively.

$$\text{Length of tunnel} = 135 + 145 = 280 \text{ m.}$$

$$\text{Speed of trains per second} = \frac{280}{14} = 20$$

$$7x + 3x = 20$$

$$x = 2$$

$$\text{Speed of Rajdhani Express} = 14 \text{ m/s}$$

$$\text{Speed of Vande Bharat Express} = 6 \text{ m/s}$$

Distance covered by Rajdhani Express in tunnel

$$= 14 \times 14 = 196 \text{ m.}$$

Gap between Rajdhani Express and its tunnel entrance

$$= 196 - 135 = 61 \text{ m}$$

$$\text{Percentage} = \frac{61}{135} \times 100 = 45.185\%$$

58. (c)

Assumption (1) is valid because the passage states that 'On the preventive health front, a traditional kitchen revival... the more difficult challenge is the attitudinal shift'. These two sentences help us conclude that physical movement is also a preventive measure. 'Functional movements' mentioned in the passage justify the use of 'physical work'.

Assumption (2) is valid because the passage does mention that 'All medical professionals agree that we need to concentrate on reducing...'

59. (a)

Option (a) is valid as the passage states that '... onus of individuals and groups ...to conduct audits and third-party assessments of such data to further mainstream...'.
Option (b) is not valid as the passage does not make this observation.
Option (c) and (d) are not valid as they extend beyond the scope of the passage

60. (d)

The paragraph specifically states that age makes a person less able to respond to long exposure to very hot or very cold temperatures. This would mean that older people are more susceptible to hypothermia. Choices (a), (b) & (c) are not supported by the information given in the paragraph.

61. (c)

Assumption (1) is valid because the passage clearly mentions that the basic premise is having a large pool of workers at all times.
Assumption (2) is valid because the passage mentions that the platforms can then provide services at low prices... and create its own monopoly in the market.

62. (d)

The pattern followed is as:

$$H \rightarrow 8$$

$$E \rightarrow 5 \rightarrow 5^2 = 25$$

$$A \rightarrow 1 \rightarrow 1^2 = 1$$

$$R \rightarrow 18$$

Also,

$$R \rightarrow 18$$

$$I \rightarrow 9 \rightarrow 9^2 = 81$$

$$D \rightarrow 4 \rightarrow 4^2 = 16$$

$$E \rightarrow 5$$

Hence, code for RACE will be:

$$R \rightarrow 18$$

$$A \rightarrow 1 \rightarrow 1^2 = 1$$

$$C \rightarrow 3 \rightarrow 3^2 = 9$$

$$E \rightarrow 5$$

i.e., 18195

Hence, option (d) is correct.

63. (b)

Let the four parts be $a - 3d$, $a - d$, $a + d$ and $a + 3d$

$$\text{Given, } a - 3d + a - d + a + d + a + 3d = 200$$

$$4a = 200$$

$$a = 50$$

$$\text{Given } (a - d)(a + d) = (a - 3d)(a + 3d) + 72$$

$$a^2 - d^2 = a^2 - 9d^2 + 72$$

$$d = \pm 3$$

If $d = 3$, the numbers are 41, 47, 53 and 59.

64. (c)

The general form of the numbers leaving remainders of 5 and 7 when divided by 7 and 11 respectively are $7K_1 + 6$ and $11K_2 + 8$ where K_1 and K_2 are natural numbers.

$$7K_1 + 5 = 11K_2 + 7; K_1 = \frac{11K_2 + 2}{7}$$

The least value of K_2 satisfying the condition that K_1 is a natural number is 3.

$$\therefore \text{The least natural number} = 11(3) + 7 = 40$$

65. (d) and 66. (d)

From question,

$$B = 3A$$

$$D = \frac{1}{2}A$$

$$\Rightarrow B = 6D$$

$$D = 2C$$

$$\Rightarrow B = 12C$$

$$B = \frac{1}{3}E$$

\therefore E is eldest

$$E > B > A > D > C$$

67. (d)

The pattern is as follows:

$$4^3 - 2^2 = 60$$

$$5^3 - 3^2 = 116$$

$$6^3 - 4^2 = 200$$

68. (a)

Assume investment as 12 units and time as 30 units. The following will be the allocations.

Person	Investment	Time	Profit Ratio
A	$4\left(\frac{12}{3}\right)$	$\left(\frac{30}{5}\right)$	24
B	$3\left(\frac{12}{4}\right)$	$\left(\frac{30}{6}\right)$	15
C	$5(12-7)$	$19(30-6-5)$	95

$$B's \text{ profit} = \frac{15}{134} \times 8710 = 975$$

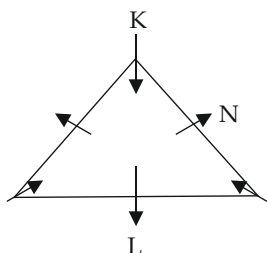
69. (d) and 70. (c)

Six persons - J, K, L, M, N and Q sit around a triangular table.

Three persons sit at the corner of the table facing inside the centre, while the rest sit in the middle of the edge facing outside the centre.

N sits second to the left of L and faces outside the centre.

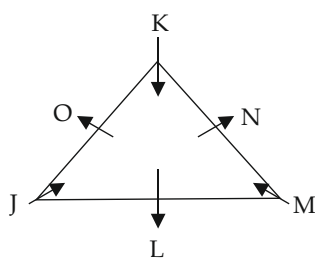
Two persons sit between K and L.



N sits second to the right of O.

J sits second to the left of M.

O sits either third to the left or third to the right of M.



Only in option (d), first person is sitting left of the second person. But rest of the options first person is sitting right of the second person.

71. (c)

Let the capacity of tank = 12 litres

The capacity of one old inlet

$$= \frac{120}{24} = 5 \text{ litres/hr}$$

$$\text{The capacity of another old inlet} = \frac{120}{120/7}$$

$$= 7 \text{ litres/hr}$$

Time taken normally to fill the tank

$$= \frac{120}{7+5} = 10 \text{ hrs}$$

Let the capacity of new outlet = a

Net water inlet to the tank when both the old inlets and new outlets are on = $[12 - a] \times 10$

Water emptied by new outlet in 2.5 hrs = $2.5a$

From the question,

$$\Rightarrow [12 - a] \times 10 - 2.5a = 0$$

$$\Rightarrow 120 - 10a - 2.5a = 0$$

$$a = \frac{120}{12.5} = 9.6 \text{ lit/hr}$$

72. (a)

Since the tank is not full because of the opening of new outlet

$$\Rightarrow \text{Amount needed to be filled} = 9.6 \times 10 = 96 \text{ litres}$$

\Rightarrow Time required to fill the remaining tank

$$= \frac{96}{12} = 8 \text{ hrs}$$

73. (c)

To solve such kind of problems, the following steps help.

- Focus on large numbers first.
- See if their factors are present with in their vicinity.
- Ensure that result of operations are in the vicinity of the Answer given.
- Focus on elimination of options add Product & Division keeping the above in mind steps; the question can be solved following way.

$$1. 156 \div 13 \text{ is a group}$$

$$2. 21 \times 4 \text{ is a group}$$

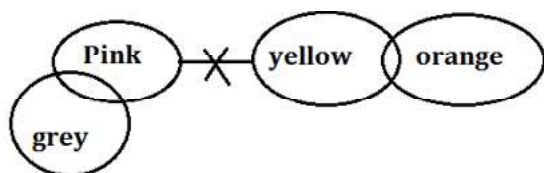
$$3. 21 \times 4 \text{ --- } 156 \div 13 \text{ --- } 11$$

$$4. 84 \text{ --- } 12 \text{ --- } 11$$

$$5. 84 - 12 + 11 = 83$$

So, the series of operations are $\times, -, \div, +$

74. (a)



75. (d)

According to the statement, Government has spoiled financial institutions by appointing bureaucrats as Directors. This means that only those persons should be appointed as Directors who are experts in finance and are acquainted with the financial work of the institute. So, both I and II follow.

76. (a)

From I, we have: number of employees who opted for VRS = 18% of 950 + 6% of 1100 = 171 + 66 = 237.

From II, we cannot get the required answer until and unless the number of employees in age-group 51 to 56 and other age-groups is known.

77. (a)

$$786 + 6M1 = 13N7$$

$$(8 + M) = N \quad \dots(i)$$

Since, 13N7 is divisible by 11

$$1+N = 3 + 7 \Rightarrow N = 9$$

From (i), we get $M = 1$

$$\text{Sum of } M + N = (1 + 9) = 10$$

78. (c)

Since, HCF = 30

The two numbers could be 30a and 30b, where a and b are coprimes.

As per the question,

$$30a \times 30b = 5400$$

$$ab = \frac{5400}{900} = 6$$

The possibilities are (1, 5) and (5, 1) and (3, 3) (2, 4) (4, 2)

Since, (3, 3) & (4, 2) are not coprimes.

So, the number of possibilities is 2.

Hence, option (c) is correct.

79. (a)

Applying prime factorization,

$$132 = 4 \times 33 = 4 \times 11 \times 3$$

Divisibility rule for 4 = Last 2 digits of the number should be divisible by 4.

Divisibility rule for 11 = Difference of sum of digits at odd and even positions should be 0 or multiple of 11.

Divisibility rule for 3 = Sum of all the digits should be divisible by 3.

Applying the above rules results in the following table:

	Divisible by		
	4	3	11
598	No	No	No
462	No	Yes	Yes
792	Yes	Yes	Yes
972	Yes	Yes	No
5184	Yes	Yes	No

Hence, option (a) is correct.

80. (c)

Weight of each piece (in kg)

$$= \text{HCF} \left(6\frac{1}{8}, 10\frac{1}{2}, 8\frac{3}{4}, 3\frac{15}{16} \right)$$

$$= \text{HCF} \left(\frac{49}{8}, \frac{21}{2}, \frac{35}{4}, \frac{63}{16} \right)$$

$$= \frac{\text{HCF}(49, 21, 35, 63)}{\text{LCM}(8, 2, 4, 16)} = \frac{7}{16}$$

Number of pieces obtained

$$= \frac{\frac{49}{8} + \frac{21}{2} + \frac{35}{4} + \frac{63}{16}}{\frac{7}{16}} = 67$$

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