

ALL INDIA OPEN MOCK TEST

CSAT PAPER - II

Answer Key

1. (d)	11. (d)	21. (c)	31. (c)	41. (a)	51. (c)	61. (b)	71. (c)
2. (c)	12. (d)	22. (a)	32. (c)	42. (d)	52. (a)	62. (b)	72. (d)
3. (c)	13. (c)	23. (a)	33. (b)	43. (d)	53. (a)	63. (d)	73. (d)
4. (c)	14. (d)	24. (a)	34. (d)	44. (a)	54. (b)	64. (a)	74. (c)
5. (c)	15. (a)	25. (a)	35. (b)	45. (d)	55. (b)	65. (b)	75. (a)
6. (c)	16. (d)	26. (d)	36. (c)	46. (d)	56. (b)	66. (c)	76. (a)
7. (c)	17. (c)	27. (c)	37. (b)	47. (c)	57. (c)	67. (a)	77. (c)
8. (d)	18. (b)	28. (a)	38. (a)	48. (d)	58. (a)	68. (d)	78. (d)
9. (d)	19. (d)	29. (a)	39. (b)	49. (b)	59. (a)	69. (c)	79. (d)
10. (a)	20. (b)	30. (c)	40. (c)	50. (d)	60. (a)	70. (d)	80. (c)

Detailed explanation

1. Ans: (d) The difference in the interest rates paid to depositors by different banks is not a significant factor in bank failures.
It is a fairly straightforward question and the wrong answers are easy to eliminate.
2. Ans: (c) Outdated Indian labor laws need to be simplified to provide basic protection to workers and curb privileges.
We can see that this option touches upon the main points of the paragraph- outdated labor laws, need for reform to simplify, basic protection for workers and curbing privileges.
3. Ans: (c) Overpopulation and famine are not causally related in the Horn of Africa.
Option C clearly is what the paragraph is trying to convey. Overpopulation is not the cause of famine in the Horn of Africa. The absence of the other factors described in Oklahoma, another overpopulated location facing drought, explains the famine in the Horn of Africa.
4. Ans: (c) Often there is a correlation between mental illness and genius.
Option C can be clearly inferred from the passage. The other options can be easily eliminated.

5. Ans: (c) All three statements are correct

Attempt	Correct	Incorrect	Total score
95	93	2	461
97	94	3	464
91	89	2	441

6. Ans: (c) Both statements are required to answer the question.

$$\text{Rate of interest} = 15\% = \frac{3}{20}$$

Let $P = 20$

Since, it is given for 2nd year

$$\text{So, } P = 20^2 = 400$$

	SI	CI
1 st year →	60	60
2 nd year →	60	60 + 9 = 69

CI for 2nd year only = 69 units

According to the question,

Since, $69 = 1380$

Or, $400 = 8000$, so principal is Rs. 8000

Hence, both statements are required to answer the question.

7. Ans: (c) Both statements are required to answer the question.

Let the distance between Kanpur and Prayagraj be x km and let the trains meet y hours after 7 am.

Clearly, A covers x km in 4 hrs and B covers x km in $\frac{7}{2}$ hrs.

$$\text{Speed of A} = \frac{x}{4} \text{ km/h}$$

$$\text{Speed of B} = \frac{2x}{7} \text{ km/h}$$

Distance covered by A in $(y + 2)$ hrs + Distance covered in y hrs = x .

$$\frac{x}{4}(y+2) + \frac{2x}{7}y = x$$

$$\frac{y+2}{4} + \frac{2y}{7} = 1$$

$$y = \frac{14}{15} \text{ hours} = \frac{14}{15} \times 60 = 56 \text{ minutes}$$

Hence, the trains will meet at $7:00 + 0:56 = 7:56$ am.

8. Ans: (d) 2 and 3 only

Possible angles of triangle are given below :

- i. $2^\circ, 89^\circ, 89^\circ$ (isosceles triangle)
- ii. $2^\circ, 29^\circ, 149^\circ$ (scalene triangle)

9. Ans: (d) 10

For all natural numbers, except ending in 9, the sum of digits increases by 1 for the following number. But for the number ending in exactly one 9, the sum of digits of the following number decreases by 8.

For example, sum of digits of 19 is $1 + 9 = 10$ and that of 20 is $2 + 0 = 2$.

Thus the required numbers, N are: 169, 259, 349, 439, 529, 619, 709, 789, 879, 969.

10. Ans: (a) 6

$$77 \times AB = AABB = 11 \times A0B$$

$$7 \times AB = A0B$$

B has to be 5 as $7 \times B$ ends in B and accordingly A is 1.

So, the number is 15 such that $1155 = 77 \times 15$ and $A + B = 1 + 5 = 6$.

11. Ans: (d) The cleanliness of public parks is equally important to the residents of differing neighborhoods.

In order to reach the conclusion that the system will work in all parks based on the fact that it worked in four parks so far, the author must assume that the people everywhere will use the doggy bags with the same care and dedication as the examples so far: if, for example, we install the doggy bags in a neighborhood where the people don't care about cleanliness, the system will not work there, and the conclusion that all the parks would enjoy lower amounts of dog excrement will be weakened. Thus, option D is indeed a necessary assumption to reach the conclusion.

12. Ans: (d) The only risky projects undertaken are those for which a single individual has decision-making power.

If no risky projects are decided upon in bureaucracies, and the bureaucratic decision making involves "many people," then the author is likely assuming that decisions to undertake risky projects are only made by a single individual.

13. Ans: (c) A nation that has the terms of its dealings with another action set by that nation cannot be a world leader.

"World leader" is an idea that only appears in the conclusion; we need an assumption that connects that idea with the terms or ideas in the evidence of the first sentence. (C) makes that connection: If a nation can't be a world leader when it has the terms of its dealings with another nation set by that other nation, then it's true that a borrower nation (because it has terms set by the lender nation) can't be a world leader. Add (C) and the argument flows smoothly; that is, the conclusion follows perfectly from the evidence if (C) is added to the mix. Negate (C) and the argument falls apart.

14. Ans: (d) When the events a theory postulates are detected, the theory is accepted even without an explanation of how those events are brought about.

Wegener's continental drift theory is widely accepted, we're told, despite the fact that we don't know why the continents move. We do however know that they move—the motion has been confirmed—and that is evidently good enough for the scientific community. Each element of (D) matches up to the passage: The "theory" is Wegener's; the events postulated are continental movements; and the explanation for same is what the author has told us is missing.

15. Ans: (a) 15

2-digit number CS should be 18 as other values will make the sum more than required value or too short.

$$\text{Now, } 18A + 18A + 18 = 1998 + 11A + T = 2024.$$

$11A + T = 26$. Clearly $A = 2$ and $T = 4$ as both must be single digit numbers.

$$\text{Thus } C + S + A + T = 1 + 8 + 2 + 4 = 15.$$

16. Ans: (d) Neither 1 nor 2

Let the equal amount with each of them, after expenditure, is Rs. x .

Now, the initial amount with Prithu must be $5x$ and that with Archi must be $4x$.

$$\text{So, } 9x = 144 \text{ and } x = 16.$$

Hence, the initial difference in their amounts was rupees 16 and Prithu had Rs. 80 initially.

17. Ans: (c) 23

A six digit number 111111 is completely divisible by 7 as well as 11 and hence divisible by 77 also. As N contains 77 digits, we are to check only the number formed by last 5 digits i.e. 11111 because remaining number (formed by first 72 digits) is divisible by 77.

Now 11111 leaves a remainder of $111 - 11 = 100$ or $100 - 77 = 23$.

18. Ans: (b) Statement 2 alone is sufficient to answer the question, but statement 1 alone is not.

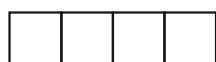
Statement 1, for $a = b = 0$ and $a = b = 1$; gives different answers.

Statement 2, either a or b or both are fractions between 0 and 1. Adding a fraction increases a result while multiplying a fraction reduces it.

So, statement 2 holds goods.

19. Ans: (d) 20

Here we have 3 distinct digits i.e., 2, 3, 4 and we need to form a 4-digit number which less than 3000. So, for first place we have 1 choice i.e., 2 and for rest places we have 3 choices.



$$1 \times 3 \times 3 \times 3 = 27$$

Here, we will have to take care of availability of digits. The following 7 numbers cannot be formed.

2222, 2223, 2232, 2322, 2224, 2242, 2422 (since 2 is available twice only)

Now we need to subtract these 7 numbers from 27 numbers.

So, final answer will be $27 - 7 = 20$.

20. Ans: (b) 3780

The letters can be arranged as, VVC, VCV, CVV, CVC

(2 consonants are not together so CCC, CCV and VCC are not considered).

Ways of arranging VVC = $5 \times 5 \times 21 = 525$

Ways of arranging VCV = $5 \times 21 \times 5 = 525$

Ways of arranging CVV = $21 \times 5 \times 5 = 525$

Ways of arranging CVC = $21 \times 5 \times 21 = 2205$

So, total words = $525 + 525 + 525 + 2205 = 3780$.

21. Ans: (c) Rhizobium bacteria living in the roots of wheat would produce fixed nitrogen.

Fixed nitrogen is an essential nutrient that normally has to be supplied to non-legumes like wheat by means of fertilizers. However, Rhizobium bacteria living on legume roots produces fixed nitrogen. The author concludes that if we can develop wheat strains that also allow Rhizobium bacteria to live on their roots, the need for artificial fertilizers will decline. Why? The author must also believe (C), that Rhizobium growing on wheat will also produce fixed nitrogen (just as it does when it grows on legumes), and the wheat's need for artificially-supplied fixed nitrogen will be reduced. But this is an assumption, since the evidence only says that Rhizobium growing on legumes produces nitrogen. If we negate or deny (C), and assert that Rhizobium would NOT produce fixed-nitrogen on wheat, we'd then have absolutely no reason to believe, as the conclusion proposes, that the need for fertilizers would be reduced.

(A) introduces the concept of what biotechnology ought to do, which is irrelevant; the conclusion only speaks of what will happen if Rhizobium-friendly wheat is produced.

(B) The conclusion merely says that the need for artificial fertilizers will be reduced, not eliminated entirely; it's entirely possible that fertilizers will still be needed to provide other nutrients.

(D) needn't be assumed; even if some strain of grass already has Rhizobium bacteria living in its roots, and even if that Rhizobium produces fixed nitrogen (which (C) neglects to say), the conclusion that the overall need for chemical fertilizers would be reduced by the production of further new strains of Rhizobium-friendly wheat wouldn't thereby be invalidated.

22. Ans: (a) If leachate does not escape from a landfill into the environment, then the landfill's capacity to hold liquids has not been exceeded.

We're introduced to a foul-sounding substance called "leachate," which develops when water permeates a landfill site. The most explicit thing we're told about leachate is that it escapes into the environment whenever the landfill's capacity to hold water is exceeded, and it only escapes into the environment when the landfill's capacity to hold water is exceeded (that's the meaning of the "if and only if" statement in the second sentence). We're also told that a method to dispose of leachate must be found; currently, most leachate is sent to sewage treatment plants, but some sewage treatment plants can't handle leachate.

We need a good inference based on this information, and it comes out of the “if and only if” statement. We know that if the landfill’s capacity to hold liquid is exceeded, leachate is certain to escape into the environment, which means that answer choice (A) is inferable: if leachate doesn’t escape into the environment, the landfill’s capacity hasn’t been exceeded.

23. Ans: (a) We now have the evidence in support of the existence of an egalitarian urban life in some ancient cities, where political and civic organisation was far less hierarchical. Option C contradicts the arguments of the passage. Option D finds no reference in the passage.

Option B: It takes on an extreme stance as the given passage does not imply that all the ancient cities were organized along egalitarian lines. Thus, it is incorrect.

Option A correctly implies the essence of the passage.

24. Ans: (a) visitors to a natural science museum
The passage contains a mixture of information about the aye-aye, both from a scientific and cultural background. It gives an overview of the animal without giving a lot of detail in any one area. Choice (B) is incorrect because the passage mentions evolution only briefly, at the end. This choice is too narrow. Choice (C) is incorrect because the style of the passage is too advanced for young students. Choice (D) is incorrect because the passage mentions religion only as it relates to the fate of the aye-aye.

25. Ans: (a) Only statement 1 is sufficient to answer the question.
From 1, we conclude that Z is the mother of X and Y , while W is the daughter-in-law of Z and sister-in-law of Y . Thus, W is X 's wife and hence, X is Y 's brother.
From 2, we conclude that X and Y are the children of B . Also, A is the daughter-in-law of B and sister-in-law of X . So, A is Y 's wife and thus, Y is X 's brother.
Hence, X is either brother or sister of Y .

26. Ans: (d) Both the statements together are not sufficient to answer.
From 1, we conclude that B is the only daughter of A . But this does not indicate that A has no Son. The information given in 2 is immaterial.

27. Ans: (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.

Individually any statement just provides partial information.

Using the information of both statements and making a table of players as per their matches, we get

Vasudev-Sankarshan, Anirudh, Pradyumn

Sankarshan-Vasudev, Pradyumn

Anirudh-Vasudev

Pradyumn-Vasudev, Sankarshan

That means there has been a total of 4 matches; (Vasudev-Sankarshan), (Vasudev—Anirudh), (Vasudev-Pradyumn) and (Sankarshan-Pradyumn).

28. Ans: (a) The Question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.
First statement alone is insufficient to answer the question.
From second statement we get that, Charu lifted more than Ashvath. That means Balaram lifted more than Charu as Charu is the average weight lifter. Thus Balaram is the winner.
29. Ans: (a) Statement 1 alone is sufficient to answer the question.
From the question, the unit digit of the 3-digit number is 3 and it is divisible by 7.
From the statement 1, the number is divisible by 9.
 $LCM = (9, 7) = 63$.
The only number which is multiple of 63 and unit digit of which is 3, is $63 \times 11 = 693$.
From statement 2, number is divisible by 21,
 $LCM = (21, 7) = 21$
There are many numbers like 273, 483 ... which is divisible by 21 and 7, having unit digit 3.
Hence, we cannot get a unique answer by this. So, only 1 is sufficient.
30. Ans: (c) 236
1 candle is made from 9 stubs.
Hence, 210 candles will be made from 1890 stubs.
From 210 candles, 23 candles can be made with 3 stubs left.
From 23 candles, 2 candles can be made with 5 stubs left.
Now, total stubs left = $3 + 5 + 2 = 10$ out of which 1 candle can be made with 1 stub left.
So, maximum number of candles that can be made = $210 + 23 + 2 + 1 = 236$.
31. Ans: (c) The stock exchange and the black market are examples of how, even within the same domain, different kinds of institutions can co-exist.
Refer to these lines of the passage: 'here are some institutions that come in both informal and formal variants, as well as in mixed ones. Consider the fact that the stock exchange and the black market are both market institutions, one formal one not.' Clearly, through these lines, the author wants to imply exactly what option C states.
32. Ans: (c) Institutions are structures that serve to coordinate the actions of individuals.
Option A is too narrow in its scope.
Option B incorporates culture in the main idea which is unfounded in the passage.
Option C captures solely the language aspect of institutions. Thus, it is narrow in its scope.
Option D correctly states the main idea of the passage.
33. Ans: (b) "natural language" refers to that stage of language development where no conscious human intent is evident in the formation of language.
Natural languages are typical examples of what Ferguson called 'the result of human action, but not the execution of any human design'. In other words, there is no conscious human intent in this stage of language development. So, option 2 can be inferred to be true based on the passage. Therefore, option B is the correct answer.

34. Ans: (d) “academic disciplines” and “institutions”.

Refer to these lines: “We begin with the emergence of the philosophy of the social sciences as an arena of thought and as a set of social institutions. The two characterisations overlap but are not congruent.” The two characterisations seen here as overlapping but not congruent are social sciences as an arena of thought and social sciences as a set of social institutions. Therefore, option D is the correct answer.

35. Ans: (b) Both A and R are true and R is not the correct explanation of A.

Since, $a^0 = a^{k-k} = \frac{a^k}{a^k} = 1$ (here, k is arbitrary constant)

So, A cannot be solved with the help of the given Reason (R).

36. Ans: (c) 27

Leaving the outer layer on the three sides of larger block, remaining cubes do not touch any of the wall.

So the required number is $= 3 \times 3 \times 3 = 27$.

37. Ans: (b) 67

Sticker with number “6” is going to create bottleneck as it is being used faster in comparison to others.

With 20 of these stickers, we can number the doors: 6, 9, 16, 19, 26, 29, 36, 39, 46, 49, 56, 59, 60, 61, 62, 63, 64, 65 and 66.

Thus 67 is the first number that cannot be formed.

38. Ans: (a) Only one statement is correct.

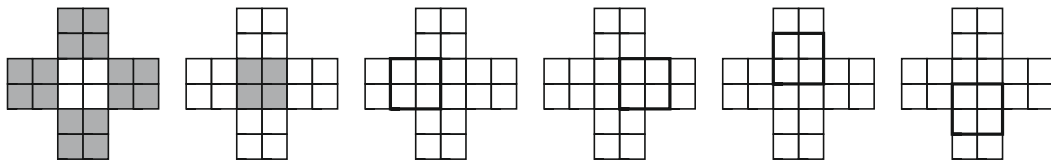
C is a digit which when multiplied by 6 ends in C only. So it can be 0, 2, 4, 6 or 8.

Now only 8 satisfies as one sixth of 000, 222 and 444 is not a 3-digit number, while that of 666 is having same digits.

Thus $ABC = \frac{888}{6} = 148$.

Now $A + B + C = 1 + 4 + 8 = 13$ is a prime number but $A \times B + C = 1 \times 4 + 8 = 12$ is not a perfect square and $C - A \times B = 8 - 1 \times 4 = 4$ is not a perfect cube.

39. Ans: (b) 29



Total number of squares $= 4 \times 5 + 5 + 1 + 1 + 1 + 1 = 20 + 5 + 4 = 29$.

40. Ans: (c) 90

We can easily check the pattern:

$$9 \times 9 = 81 \rightarrow 9$$

$$99 \times 99 = 9801 \rightarrow 18$$

$$999 \times 999 = 998001 \rightarrow 27 \text{ and so on.}$$

41. Ans: (a) It describes why people continue to use typewriters even in the digital age.

Throughout the passage, the author is explaining why the typewriter continues to be used even in today's digital age. Some of the reasons he has given are that they are personal and private. The information typed on a typewriter cannot be leaked out. He also talks about its nostalgic value. It does not need electricity and can, therefore, be used even in remote locations.

42. Ans: (d) They can control who reads the document.

The fourth sentence of the passage "Type a document and lock it away and more or less the only way anyone else can get it is if you give it to them" clearly shows that it is possible to control who reads the document.

43. Ans: (d) Typewriters are messier to use than computers.

Options A, B and C are positive in connotation. Even "noisier than computers" seems to be a welcome thing; look at "encouraging clack" of keys. Clearly, the only thing that is not welcome about the typewriter is that it is messier than that the computer.

44. Ans: (a) Wives earn more than their husbands today.

Let's analyze each option:

(a) "Wives earn more than their husbands today." - This cannot be inferred from the statement. The statement mentions that both husbands and wives are working, but it doesn't provide any information about the relative incomes of husbands and wives.

(b) "It was less prevalent for the spouse to work earlier than today." - This can be inferred from the statement. The statement suggests that in most families these days, both husbands and wives are working, indicating that it is more prevalent for both spouses to work today compared to earlier.

(c) "The family income level was lower a few years ago." - This can be inferred from the statement. The statement mentions that the average family income in the metros has increased today compared to earlier, implying that the family income level was lower in the past.

(d) "More husbands and wives are working today as compared to the last few years." - This can be inferred from the statement. The statement indicates that in most families these days, husbands and wives both are working, suggesting an increase in the number of working spouses today compared to the past.

So, the inference that cannot be drawn from the statement is option (a) - "Wives earn more than their husbands today."

45. Ans: (d) 480

Total number of arrangements = $6! = 720$.

Number of arrangements in which two footballers are together = $2 \times 5! = 240$.

So, number of arrangements in which two footballers are never together = $720 - 240 = 480$.

46. Ans: (d) 19

For one pair of brown shoes, we require one left brown and one right brown. Consider the worst case situation:

5 black (left leg) + 5 black (right leg) + 8 brown (left leg) + 1 brown (right leg) = 19 shoes.

47. Ans: (c) Both 1 and 2

Starting from $91 + 9 = 100$, we get all outputs up to $99 + 9 = 108$.

After this the next closest output is $100 + 10 = 110$. So, 109 cannot be obtained.

Similarly, going backward from $909 + 90 = 999$, we get all outputs up to $900 + 90 = 990$.

After this next closest output is $899 + 89 = 988$. So, 989 cannot be obtained.

48. Ans: (d) 1 and 2 or 2 and 3

From 2, we conclude that in a class of 40, Sunil ranks 23rd from the bottom i.e. 18th from the top.

From 1 and 2, we find that Megha is 3 ranks below 18th rank from the top i.e. she ranks 21st from the top.

From 2 and 3, we find that Megha is 3 ranks above 23rd rank from the bottom i.e. she ranks 20th from the bottom or 21st from the top.

49. Ans: (b) The Question can be answered by using either Statement alone.

From the question stem, it can be deduced that one day works of Jalaj, Neeraj and Pankaj are in the ratio 3 : 4 : 5.

Using statement 1, total work = $(3 + 4 + 5) \times 5 = 60$ units.

So, Pankaj alone can finish it in $60/5 = 12$ days.

Using statement 2, we get to know that Jalaj and Neeraj individually work for 20 and 15 days respectively to finish the task.

Thus total work = $3 \times 20 = 4 \times 15 = 60$ units.

Thus Pankaj alone will finish it in $60/5 = 12$ days.

50. Ans: (d) Neither 1 nor 2

Considering 1st statement: Worst case would be to pick all but one coin of each denomination so that all the coins of any denominations haven't been picked.

That is $72 + 53 + 37 + 12 + 8 = 182$.

So, statement 1 is incorrect as at least 183 coins must be picked to ensure the desired.

Considering 2nd statement: Worst case would be to pick all coins of each denominations except the denomination with least coins.

That is $73 + 54 + 38 + 13 = 178$.

So, statement 2 is incorrect as at least 179 coins must be picked to ensure the desired.

51. Ans: (c) Greater transparency in the functioning of the government and promoting the financial inclusion are needed at present

The passage discusses how crony capitalism harms free enterprise, opportunity, and economic growth, particularly in developing economies like India. It mentions that crony capitalism leads to a middle income trap and creates oligarchies that slow down growth. Therefore, the passage suggests that greater transparency in government functioning and promoting financial inclusion are needed to address this issue and promote economic growth. Option (c) aligns with this idea.

52. Ans: (a) With more options for food come more risks.

The passage discusses how many foodborne pathogens are unknown, food contamination can occur at any stage, and the true extent of global foodborne illnesses is unknown due to underreporting. It also mentions that the rapid globalization of food production increases vulnerability by making food harder to regulate and trace. This implies that as there are more options for food due to globalization, there are also more risks associated with food safety. Option (a) aligns with this idea.

53. Ans: (a) 13

Using first option, the code comes out to be 2134 which satisfies all the guesses. But other options do not.

54. Ans: (b) 30 days

Let B does 100% of the work in 4 hours, so A does 50% the work in 3 hours.

Hence, A will do 100% of the work in 6 hours, so time taken by them will be the ratio 3 : 2.

So, their efficiency will be in the ratio 2 : 3.

$$A : B$$

Efficiency 2 : 3

Let the total work = 2 + 3 = 5 units

Both the workers worked together for 18 days and finished it, where A worked 2 units and B worked 3 units.

Hence, A worked $\frac{2}{5}$ th of the total work in 18 days and B worked $\frac{3}{5}$ th of the total work in 18 days.

So, time taken by $A = \frac{2}{5} = 18$ days

$$1 = 18 \times \frac{5}{2} = 45 \text{ days}$$

And time taken by $B = \frac{3}{5} = 18$ days

$$1 = 18 \times \frac{5}{3} = 30 \text{ days}$$

A can complete the work in 45 days and B can complete the work in 30 days.

55. Ans: (b) 35

Let the rate of the steamboat be u and the rate of the current be v .Since, the trip from A to B takes less time than from B to A , the steamboat must be going with the current.
$$A \xrightarrow{\hspace{2cm}} B \quad 5 \text{ days}$$

$$\xleftarrow{\hspace{2cm}} D \xrightarrow{\hspace{2cm}}$$

$$A \xleftarrow{\hspace{2cm}} B \quad 7 \text{ days}$$

$$\xleftarrow{\hspace{2cm}} D \xrightarrow{\hspace{2cm}}$$
Speed downstream = $u + v$ and speed upstream = $u - v$.

$$u - v = \frac{D}{7} \quad \text{and} \quad u + v = \frac{D}{5}$$

Subtracting these equations and we have,

$$2v = D \left(\frac{1}{5} - \frac{1}{7} \right) = \frac{2D}{35}$$

$$\text{So, } v = \frac{D}{35}$$

$$\text{Time for raft to go upstream} = \frac{D}{v} = \frac{D}{\frac{D}{35}} = 35 \text{ days.}$$

56. Ans: (b) 1000

Ram's statement : My friend Raju has more than 1000 books.

Shyam's statement : Oh no, he has less than 1000 books.

Geeta's statement : Well, Raju certainly has at least one book.

If we cross examine the statements of three persons like Ram, Shyam, and Geeta then Raju will have 1000 books and only Geeta's statement is correct.

57. Ans: (c) 9

Total students = (Anshika's place from starting + Anshika's place from end) - 1

$$\text{Total students} = (13 + 17) - 1 = 29$$

Number of passed students = (Anshika's place from starting + Anshika's place from end) - 1.

$$\text{Number of passed students} = (8 + 13) - 1 = 20$$

$$\text{Number of failed students} = 29 - 20 = 9.$$

58. Ans: (a) 108

Let the number of boys be B . Then ${}^B C_3 = 36 \rightarrow B = 9$.Let the number of girls be G . Then ${}^G C_2 = 66 \rightarrow G = 12$.Therefore, total number of students in the class = $12 + 9 = 21$.Hence, total number of matches = ${}^{21} C_2 = 210$.Hence, number of matches between one boy and one girl = $210 - (36 + 66) = 108$.

Hence, option (a) is the answer.

59. Ans: (a) 4960

PINs with at least 1 digit repeated = total possible PINs – PINs where no digit is repeated
= 10000 – 5040 = 4960.

60. Ans: (a) $\frac{9}{15}$

Sample space = 4 successes in 6 attempts = ${}^6C_4 = {}^6C_2 = 15$.

Required outcome $\overset{3S \text{ together}}{\boxed{SSS}} S F F$

$\Rightarrow \frac{\angle 4}{\angle 2} = 12$; where, S = success and F = failure.

$\boxed{SSSS} F F \Rightarrow \frac{\angle 3}{\angle 2} = 3$

Outcomes with only 3S together = total outcomes with 3S together – outcomes with 4S together = 12 – 3 = 9.

The probability that he had three consecutive successes = $\frac{9}{15}$.

61. Ans: (b) Melting of summer ice in the Arctic leads to changes in the geopolitics.

The passage discusses how the melting ice in the Arctic is making its vast reserves of fossil fuel, fish, and minerals accessible for longer periods in a year. It also mentions that unlike Antarctica, there is no legal regime protecting the Arctic from industrialization, and countries with Arctic coastlines are scrambling for access to its resources. This indicates that the melting of the Arctic ice is leading to changes in the geopolitical dynamics of the region. Option (b) reflects this implication.

62. Ans: (b) 2, 3, 4 and 5

Statement 1 is not correct as mere monitoring the PDS system will not result in better child nutrition.

Statement 2 is correct as it is related to mother's health and child's health both. Consider a girl getting married in the age of 18 and giving birth to her first child at the age of 19 and in second case a girl getting married in the age of 22/23 and giving birth to first child at the age of 23/24. In second case the child will have better chances to have better nourishment in prenatal and neo natal period.

Statement 3 is correct as mother contains immunoglobulins which are a certain kind of proteins that allows a mother to pass immunity to her baby. It helps in providing much needed nutrition to the child and also improves the survival rate.

Statement 4 is correct. According to UNICEF, less than 50 per cent of the population in India has access to safely managed drinking water. Also, inadequate water, sanitation and hygiene (WASH) services in India's health facilities, contributes to the high neonatal mortality rate. So, supply of safe drinking water and proper sanitation facilities to all should be ensured to check the spread of diseases and check malnutrition in children.

Statement 5 is correct. Passage also implies children poor health due to lack of proper nutrition and associated diseases so vaccination drives should be ensured by authorities for better survival rate of the children.

63. Ans: (d) Neither statement 1 nor statement 2 is sufficient to answer the question.
No values of radius and side can be found out from given statements.

64. Ans: (a) Statement 1 alone is sufficient to answer the question, but statement 2 alone is not.
Let the four number be a, b, c and d with $a > b > c > d$.
We have to answer the statement, whether

$$\frac{(a+d)}{2} > \frac{(a+b+c+d)}{4}$$

$$\text{i.e. } 2a + 2d > a + b + c + d, \text{ or, } a + d > b + c$$

$$\text{Or, } a - b > c - d$$

From statement 1, $a - b > c - d$ which answers the question.

65. Ans: (b) 2 only

Statement is certainly incorrect as if 3 persons have put on their correct overcoats, then the fourth one will also have correct coat.

If three persons are to wear wrong coats, then these 3 persons can be chosen in 4 ways by leaving out the other person. Also now these selected 3 persons can wear wrong coats in exactly 2 ways each.

Thus, required number of ways is $= 4 \times 2 = 8$ as mentioned correctly in statement 2.

66. Ans: (c) 13

$$\text{LHS} = (A + B + C) \times 111 \text{ and } \text{RHS} = 1001 + 110 \times D = 11 \times (91 + 10 \times D).$$

As LHS must be multiple of 11, so certainly $A + B + C = 11$ and $D = 2$ so that $91 + 10 \times 2 = 111$.

67. Ans: (a) $\frac{7}{33}$

Ratio of marbles to Raju and Lalitha = 4 : 9

New ratio after Lalitha gave some of her marbles to Raju = 5 : 6

Now, make both the ratios equal, we get

$$4 : 9 = 13 \quad \dots(1)$$

$$5 : 6 = 11 \quad \dots(2)$$

$$4 : 9 = 13 \times 11$$

$$5 : 6 = 11 \times 13$$

$$44 : 99 = 143$$

$$65 : 78 = 143$$

When, Lalitha gave marbles to Raju

Initially Lalitha have marbles = 99

Finally Lalitha have marbles = 78

Lalitha gave marbles = 21

Hence, required fraction = $\frac{21}{99} = \frac{7}{33}$.

68. Ans: (d) 376

Here we need to form a 4-digit number using the given digits which is less than or equal to 4000.

The digit at thousands place can be selected in 3 ways. (0 and 4 cannot be taken)

The digit at hundreds place can be selected in 5 ways.

The digit at tens place can be selected in 5 ways.

The digit at unit place can be selected in 5 ways.

Total required number of ways = $3 \times 5 \times 5 \times 5 = 375$

Since, 4000 is also one of the required number.

Therefore, total number of ways = $375 + 1 = 376$.

69. Ans: (c) 11

We can easily write all the possible numbers: 12, 13, 14, 23, 24, 34, 123, 124, 134, 234, 1234 i.e. 11 numbers.

Alternately, it is simply $2^4 - 4 - 1 = 11$.

70. Ans: (d) 144

There can be 4 boys/girls arrangement: BGBGBG, BGBGGB, BGGGBG, GBGBGB. In each of these arrangements, boys can be arranged amongst themselves in 3! i.e., 6 ways and girls amongst themselves in 3! i.e., 6 ways.

Thus, required number of ways are = $4 \times 3! \times 3! = 4 \times 6 \times 6 = 144$.

71. Ans: (c) Both (1) and (2)

P $\frac{7350}{2 \text{ years}}$ $\frac{8575}{1 \text{ year}}$

Compound interest for 3rd year only = $8575 - 7350 = 1225$.

Here, 1225 is $\frac{1}{6}$ of 7350.

So, rate of interest = $\frac{1}{6} \times 100 = 16\frac{2}{3}\%$

Now assume $P = 6^2$ and $A = 7^2$

Here, $7^2 = 7350$

49 units = 7350

So, 36 unit = $\frac{7350}{49} \times 36 = 5400$

P = Rs. 3600

72. Ans: (d) 30

$N = 31a + a = 32a$ where a is less than 31.

So, exactly 30 positive integers values are possible.

73. Ans: (d) Only one of them is correct

i. $13^{31} > 31^{13}$

$$\frac{13^{31}}{13^{13}} > \frac{31^{13}}{13^{13}}$$

$$13^{18} > (2.4)^{13}$$

Hence, it is correct.

ii. $10^{100} < 100^{10}$

$$10^{100} < (10^2)^{10}$$

$$10^{100} < 10^{20} \quad \text{which is wrong.}$$

iii. $2^{32} < 32^2$

$$2^{32} < (2^5)^2$$

$$2^{32} < 2^{10} \quad \text{which is also wrong.}$$

Hence, option (d) is correct answer.

74. Ans: (c) $p = r < q$

$$\text{Here, } p = (2)^{\frac{1}{2}} \text{ and } r = (4)^{\frac{1}{4}} = (2^2)^{\frac{1}{4}} = 2^{\frac{1}{2}}$$

$$\text{So, } p = r = (2)^{\frac{1}{2}} \text{ and } q = (3)^{\frac{1}{3}}$$

$$\text{So, } p = r = (2)^{\frac{1}{2} \times \frac{3}{3}} = (2^3)^{\frac{1}{6}} = (8)^{\frac{1}{6}}$$

$$q = (3)^{\frac{1}{3} \times \frac{2}{2}} = (3^2)^{\frac{1}{6}} = (9)^{\frac{1}{6}}$$

Hence, $q > p = r$ or, $p = r < q$.

75. Ans: (a) 1 only

13, 24, 35, 46, 57, 68, 79 are the 7 numbers which are 18 less than their reversed number.

So, statement 1 is correct.

102, 112, 122, 132, 142, 152, 162, 172, 182, 192 are just a few numbers which are 99 less than their reversed number and there are many more.

So, statement 2 is incorrect.

76. Ans: (a) Physical examinations and the uncovered laboratory tests together provide a more accurate diagnosis of many diseases than do physical examinations alone.

The assumption in question will be the choice that makes the necessary connection between the uncovered lab tests and the decreased quality of medical care discussed in the stimulus.

- (A) hits the nail on the head: The combination of physical exams and lab tests makes for a better diagnosis than do physical exams alone. Therefore, anything that interferes with patients getting lab tests (like insurance companies' refusal to cover them) will decrease the accuracy of the diagnosis, and hence the quality of the care available to those people.
- (B) is outside the scope. The argument never deals with physicians' opinions, so it needn't assume anything about those opinions.
- (C) is totally irrelevant; we're not interested in patients who don't have any medical coverage. The argument concerns the value of lab tests, and whether those whose insurance does not cover lab tests are worse off than those whose insurance does cover such tests.
- (D) works against the author's argument by minimizing the importance of lab tests for medical diagnosis, at least in certain cases.

77. Ans: (c) $\pi < 4$

Let the side of the square = $2a$

So, diameter of circle = $2a$

Radius of the circle = a

Area of the circle = πa^2

Area of the square = $(2a)^2 = 4a^2$

Here, the circle lies inside the square.

So, area of the square > area of circle

$4a^2 > \pi a^2$

So, $4 > \pi$, or, $\pi < 4$.

78. Ans: (d) held drawing contests or other assessments to judge drawings' accuracy

The key words and phrases needed to kind and check each statement against the passage are sometimes clear, such as "old masters", "human" and "mechanical"; sometimes you have to infer them, such as "contest" suggested by "prize".

79. Ans: (d) 2 and 3 only

Be careful not to get confused by the format of the question. Statement 1 is supported by the parenthetical statement in the second sentence, while the other two conflict with the author's views. Hence, option A is not the answer.

80. Ans: (c) develop both mechanically accurate and artistically accurate drawing skills

The point of the paragraph is that the author did not understand from his schooling that drawing "really meant" artistic, rather than mechanical, accuracy. He would be likely to advise a student to realize this while also developing valuable mechanical skills.