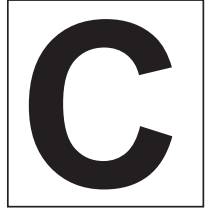


Test Code  
03040425



अनुभव-2025

# ALL INDIA OPEN MOCK TEST

GENERAL STUDIES PAPER-II

(04 May, 2025)

*Answer Key*

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

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## ALL INDIA OPEN MOCK TEST

### General Studies | Paper-II

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1. (a)

- **Statement 1 – Correct:** The passage explicitly highlights poor enforcement in developing countries.
- **Statement 2 – Incorrect:** The passage says **Japan still faces risks**, especially around nuclear plants.
- **Statement 3 – Correct:** Climatic factors like glacial melting and stress redistribution are discussed.
- **Statement 4 – Incorrect:** It's a **trap**—the passage emphasizes **governance and coordination** as major issues, not just infrastructure.

2. (d)

- **Statement 1 is correct:** The passage clearly states that India pursues *assertiveness at borders with pragmatism in global forums*, indicating coexistence of strategic assertiveness and economic ties.
- **Statement 2 is not directly stated** or assumed; while India enhances its Quad role, there's no assumption on how *China perceives* this specifically.
- **Statement 3 is incorrect:** The passage says *trust deficit remains* and economic ties alone are not enough to resolve tensions.
- **Statement 4 is incorrect:** Although tensions exist, the passage highlights *strategic competition without open hostility* as a possibility, rejecting inevitable conflict as an assumption.

3. (a)

The passage emphasizes that **external development without inner growth leads to discontent and moral emptiness**. It implies that a **one-sided focus on material progress** can result in a **hollow civilization**, despite its outward success. Therefore, the best-supported implication is (a). Options (b), (c), and (d) contradict the core message of the passage.

4. (a)

The correct answer to the question is (a): Societies have historically favored elitist governance, but democratic ideals gradually promoted inclusion.

This option aligns with the passage, which emphasizes the history of hierarchical systems that excluded the majority from governance and how democratic ideals challenged these systems, advocating for broader inclusion over time.

5. (a)

Steps for Calculation:

- New Recovery Factor:  
Initial recovery factor = 30%  
Increase = 20% of 30% = 6%  
New recovery factor = 30% + 6% = 36%
- Recoverable Oil:  
= 60 million barrels × 36% = 21.6 million barrels
- New Extraction Cost:  
Initial cost = \$35 per barrel  
Increase = 10% of \$35 = \$3.50  
New cost = \$35 + \$3.50 = \$38.50 per barrel
- Profit per Barrel:  
= Market price – New extraction cost = \$90 – \$38.50 = \$51.50 per barrel
- Overall Expected Profit:  
= 21.6 million barrels × \$51.50 ≈ \$1,112.4 million

6. (d)

**Statement 1:** odd prime numbers: 3,5,7, 11, 13,.... Any odd number when multiplied by 5 results in unit digit as 5. Hence 1 is correct.

**Statement 2:** Let  $a=2m+1$ ,  $b=2n+1$

$a^2-b^2=(2m+1)^2-(2n+1)^2=[4m(m+1)+1]-[4n(n+1)+1]=4[m(m+1)-n(n+1)].m(m+1)-n(n+1)$  is even, so the full expression is divisible by 8.Hence 2 is correct.

**Statement 3:** Let the integers be  $n$  and  $n+1$ . Hence,  $n^2 + (n+1)^2 = 2n^2+2n+1$ . Twice their product =  $2n(n+1) = 2n^2+2n$ . Hence 3 is correct.

7. (a)

8. (d)

Sol: Q7- Q8:

Bag colour	School	Student Name
Brown	S4	Hemant
Green	S1	Love
Pink	S2	Rohan
Purple	S6	Shailendra

Yellow	S3	Nikesh
Red	S5	Devesh

9. (a)

Assuming Pratap to be the eldest in the group, he must have been born in 1990, that means Tony was born in the year 1992. Hence, we can conclude that Prakash was born in 1993. Now using statement (ii), Rahul was elder to both Tony and Vikram. Hence Rahul must have been born in 1991 and Vikram in either 1994 or 1995.

10. (d)

**Statement 1:** He is actually travelling towards East.

**Statement 2:** He is now facing West

11. (c)

The author argues that reducing defence strength in hopes of peace is misguided, implying that **peace is better preserved through strength** and readiness. This rests on the assumption that **a strong military discourages aggression**—which makes option (c) the correct one. The author also critiques the assumption that enemies will reciprocate goodwill automatically.

12. (b)

The correct answer is (b) 3 and 4 only.

Explanation:

Statement 1: Not supported. The passage does not assert that environmental harm outweighs the benefits of year-round availability.

Statement 2: Incorrect. The passage suggests that preservation and processing may reduce nutritional quality.

Statement 3: Supported. Exporting food from undernourished regions may worsen malnutrition and social inequities.

Statement 4: Supported. Globalized food markets harm the viability of local farming communities.

13. (c)

The correct answer is (c) 1, 2 and 3 only.

Statements 1, 2, and 3: Supported by the passage, which highlights the regulated processes in democracies, the rise of dictatorships during instability, and the ability of democracies to correct flawed leadership.

Statement 4: Incorrect, as elections do not always ensure morally upright leaders.

14. (a)

(a) Maximum points when two teams have the same win-count

1. How many matches does each team play?

Each team plays 7 matches (one against each of the other 7 teams).

2. If two teams are to have the same number of wins, what's the best they can do?

- Let Teams A and B tie their head-to-head match.

- They then win all of their remaining 6 matches.
3. Points calculation for, say, Team A:
- 6 wins  $\rightarrow 6 \times 3 = 18$  points
  - 1 draw  $\rightarrow 2$  points
  - Total =  $18 + 2 = 20$  points

No other arrangement can push one of them above 20 points while keeping their win-counts equal, because any decisive result between them would break the tie in wins.

Answer (a): 20 points

(b) Minimum points when three teams tie for last place

Label the three weakest teams X, Y, Z. To minimize their points while keeping them all equal, arrange:

1. Matches among X, Y, Z:
  - Each pair draws their head-to-head game.
  - That gives each team 2 draws  $\rightarrow 2 \times 2 = 4$  points.
2. Matches against the other five stronger teams:
  - X, Y, and Z each lose all 5 of these games.
  - A loss still gives 1 point  $\rightarrow 5 \times 1 = 5$  points.
3. Total for X (and similarly for Y, Z):

No lower equal total is possible, because even if they all lost every game (including mutual games), they'd still pick up  $7 \times 1 = 7$  points—but then they couldn't all be equal (one of them would have to "win" a mutual game). The all-draws approach in their mini-group is the way to keep them level at the lowest feasible score.

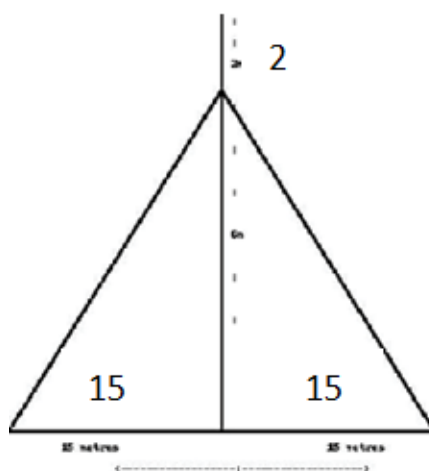
**Answer (b): 9 points**

15. (c)

Distance between bases = 30 metres, so half distance = 15 metres.

Height from base to touching point =  $8 \text{ m} - 2 \text{ m} = 6$  metres.

Using Pythagoras theorem:



$$\text{Length of one stick}^2 = 15^2 + 6^2$$

$$= 225 + 36 = 261$$

$$\text{Length of one stick} = \sqrt{261} \approx 16.16 \text{ metres}$$

$$\text{Thus, total length of two sticks} = 2 \times 16.16 \approx 32.32 \text{ metres.}$$

Hence, the total length is approximately 34 metres.

16. (c)

- Step 1: Compute the sum of all values.

$$46 + 47 + 48 + 48 + 48 + 48.5 + 48.8 + 49 + 50 + 50 + 50 + 50.5 + 52 = 635.8$$

- Step 2: Divide by the total number of observations (13).

$$\text{Mean} = \frac{635.8}{13} = \text{approx } 48.91$$

2. Median

- Step 1: Sort the data in ascending order.

$$46, 47, 48, 48, 48, 48.5, 48.8, 49, 50, 50, 50, 50.5, 52$$

- Step 2: Locate the middle value.

With 13 observations, the median is the 7th value:

$$\text{Median} = 48.8$$

3. Mode

- Step 1: Count the frequency of each value.

- 48 appears 3 times

- 50 appears 3 times

- All other values appear only once

- Step 2: Identify the most frequent value

Since 48 and 50 each occur 3 times (the highest frequency), this data set has two modes:

17. (c)

**Question can be answered combining both the statements together.**

**Statement 1:** After the changes, the surface area was 3,600 square feet. This statement is not sufficient because it does not allow you to determine the dimensions of the field either before or after the change.

**Statement 2:** The length and width of the field were equal after the changes. Statement 2 alone is not sufficient because just knowing that the dimensions are equal does not tell you what those dimensions are.

**Combining both:** The area after the changes is 3,600, which means that after the changes the length and width are each 60 since they must be equal. One of these—either the length or width—used to be 10 longer and one used to be 20 shorter. It is not possible to determine which was longer and which was shorter, but it does not matter. It is because the sides are equal after the changes that you can solve this problem. So the dimensions before the change are 70 • 40 or 2,800 square feet.

Hence question can be answered combining both the statements together.

18. (b)

$a+b = \text{Even} \rightarrow a, b$  same parity

$b+c = \text{Odd} \rightarrow b, c$  different parity

$a+c = \text{Odd} \rightarrow a, c$  different parity

If  $a = \text{Even}$  then:

- $b = \text{Even}$  (from 1)
- $c = \text{Odd}$  (from 2,  $b \neq c$ )
- then  $a + c = E + O = \text{Odd}$  (satisfies 3)

If  $a = \text{Odd}$ , then:

- $b = \text{Odd}$
- $c = \text{Even}$

In both cases, two values are same parity and exactly one is of different parity.

19. (b)

**Statement 1:**  $n(n+1)/2 = 12 \times 13/2 = 78$  times in 12 h. Hence in 3 days =  $78 \times 2 \times 3 = 468$  times.

**Statement 2:** Total time = 89 h (between 6 am on a Friday to 11 pm on Monday)

Clock loses 16 min in 24 h i.e. 23 h 44min of this clock is equal to 24h of correct clock i.e.  $356/15$  of this clock = 24h of correct clock. Hence, 89 h of this clock =  $[24 \times 15/356] \times 89 = 90$  h of correct clock. Hence when the clock shows 10:30 pm the correct time will be 11:30 pm.

20. (d)

**Statement 1:** There are 216 smaller identical cubes. So,  $n^3 = 216$ . Therefore  $n = 6$ . Each face is a  $6 \times 6$  square = 36 cubes

- Two adjacent red-painted faces =  $2 \times 36 = 72$  small cubes touched by red paint
- But some small cubes lie on the edge shared by the red faces — those cubes will be counted twice.
- That shared edge is 6 cubes long, so:
- Cubes touched by red paint =  $72 - 6$  (overlap counted twice) = 66 cubes

So, cubes with **red paint** = 66

$\rightarrow$  Cubes with **no red paint** =  $216 - 66 = 150$

**Statement 2:** The small cubes with at least 2 different colours on their faces = the small cubes with 2 coloured faces + small cubes with 3 coloured faces – small cubes which have exactly 2 coloured faces & both have same colour =  $12(n - 2) + 8 - 3(n - 2) = 12(6 - 2) + 8 - 3(6 - 2) = 44$ .

21. (c)

The correct answer is (c) 1, 2 and 4 only.

Reasoning:

1. The passage discusses how historically a segment of society used leisure for intellectual and creative pursuits, which has been a key driver of progress.

2. It emphasizes that one of technology's profound contributions is freeing up human time for leisure .
3. The passage does not support the idea that passive entertainment is essential for emotional well-being. Instead, it critiques passive consumption and uncreative use of leisure .
4. The passage states that modern society often squanders leisure, implying a failure to use time productively.

22. (a)

The correct answer is (a) 1, 2 and 3 only.

1. The passage highlights that modern leaders can learn from studying historical battles, particularly their leadership traits (1 aligns).
2. It emphasizes that while tools and circumstances evolve, core leadership principles remain consistent (2 aligns).
3. The author mentions that strategic failures in ancient wars share similarities with modern leadership challenges (4 aligns).
4. The passage does not claim that only historians and generals benefit from studying historical battles. It explicitly connects the lessons to broader domains like governance, business, and diplomacy (3 does not align).

23. (c)

- **Statement A** captures the **positive aspect**: global activism and communication.
- **Statement C** highlights the **risks**: misinformation, privacy issues, and mental health.
- **Statement B** is false—factual accuracy is not guaranteed.
- **Statement D** is directly contradicted by the author, who **advocates for regulation and literacy**.

24. (c)

25. (b)

Q24-Q25

(-) T ↔ S(+)

|

(-)Q – (+) U – (+) R ↔ P(-)

Person	Book	Gender
T	B2	F
P	B6	F
R	B1	M
S	B4	M
Q	B5	F
U	B3	M



26. (d)

- Total ways =  $C(12, 3) = 220$
- All different:  $5 \times 4 \times 3 = 60 \rightarrow P = 60/220$
- All same:  $C(5,3) + C(4,3) + C(3,3) = 10 + 4 + 1 = 15 \rightarrow P = 15/220$   
 $\rightarrow$  So, Statement 1 is correct
- Exactly 2 white =  $C(5,2) \times (4+3) = 10 \times 7 = 70$   
 $\rightarrow P = 70/220$
- Exactly 2 red =  $C(3,2) \times (5+4) = 3 \times 9 = 27 \rightarrow$   
 $P = 27/220$   
 $\rightarrow$  So, Statement 2 is correct
- No red:  $C(9,3) = 84 \rightarrow P(\text{at least one red}) = 1 - 84/220 = 136/220$   
 $\rightarrow$  More than 50%, So Statement 3 is also Correct

**Answer: 1,2 and 3**

27. (a)

**Statement 01:**

$$a^2 + b^2$$

- Squares are always non-negative!
- Sum of two non-negative numbers is always non-negative.

Thus,

$a^2 + b^2 \geq 0$  is always true.

**Statement 02:**

$$175 * 25 * 5 * 20 * 3 * 11$$

$$175 \div 25 \times 5 - 20 + 3 - 1$$

$$= 7 + 5 - 20 - 3 + 11 = 0$$

Hence statement 1 is correct.

28. (d)

**Statement 1:** Case 1: 1<sup>st</sup>, 8<sup>th</sup>, 15<sup>th</sup>, 22<sup>nd</sup>, 29<sup>th</sup> are Tuesdays then 15<sup>th</sup> is on Tuesday

Case 2: 3<sup>rd</sup>, 10<sup>th</sup>, 17<sup>th</sup>, 24<sup>th</sup>, 31<sup>st</sup> are Tuesdays, then 15<sup>th</sup> is on Sunday.

**Statement 2:** 1970 is an ordinary year. Calendar of an ordinary year repeats after 6 yr or 11 yr. 6 years after 1970 is 1976 and 11 years after 1970 is 1981. However, no of odd days between 1971 and 1976 = 4 normal years + 2 leap years (1972, 1976) = 8 odd days = 1 odd day, hence 6<sup>th</sup> September 1976 was Monday. Between 1971 and 1981, 8 normal years + 3 leap years = 14 odd days = 0 odd days, Hence Sunday.

29. (d)

**Statement 1:**

Differences double each time:

$$7-3= 4$$

$$15-7 = 8 \text{ (which is } 2 \times 4)$$

$$\text{So next difference} = 2 \times 8 = 16$$

$$\rightarrow 4\text{th term} = 15 + 16 = 31$$

$$\text{Next difference} = 32$$

$$\rightarrow 5\text{th term} = 31 + 32 = 63$$

So Statement 1 helps forms the pattern.

**Statement 2:**

5th term is 63 - matches Statement 1 result - confirms the progression.

Statement 3:

Try verifying:

$$7=2 \times 3 + 1 (\# \text{ odd prime subtraction})$$

$$15 = 2 \times 7 + 1 (\text{ pattern})$$

Doesn't match observed logic, so it's not useful.

Statements 1 and 2 together are sufficient to find 6th term:

$$6\text{th term} = 63 + 64 = 127$$

**Answer: Only Statement 1 and 2**

**30. (a)**

Let the number of students who attended all three workshops be  $x$ .

Then:

- Students who attended only X =  $15 - x$
- Students who attended only Y =  $18 - x$
- Students who attended only Z =  $17 - x$

Now, according to the question, the total number of students:

$$(15 - x) + (18 - x) + (17 - x) + x = 50$$

Simplifying:

$$50 - 2x = 50$$

$$2x = 0$$

$$x = 0$$

Thus, **0 students attended all three workshops.**

**31. (a)**

The passage argues that **surface-level reforms cannot touch the root of suffering**, which lies in **inner disconnection and moral decay**. It suggests that **internal transformation is a prerequisite** for any meaningful societal change.

- Option (a) captures this subtle implication.
- Option (b) **falsely assumes causation**—the passage says prosperity doesn't guarantee morality but doesn't claim it leads to decay.
- Option (c) is an **overgeneralization**—the passage does not dismiss reforms, only emphasizes their **limited power** without internal change.
- Option (d) **misattributes blame**—the text implies institutions are ineffective without moral individuals, not that they cause moral failure.

32. (c)

The author's main argument is that **values like equality and justice are not uniquely Western**, and that **multiple civilizations have contributed rich ethical traditions** that parallel or predate Western notions.

- Option (a) directly supports this by giving concrete examples.
- Option (b) reinforces the critique of the Western-only narrative.
- Option (d) aligns closely with the author's claim that **Eurocentrism delegitimizes diverse moral vocabularies**.
- However, Option (c), even if it were true, does **not relate directly** to the **core argument**, which is about **ethical and philosophical traditions**, not **formal legal codification**. Its omission would not undermine the passage's thrust, making it the **least essential**.

33. (c)

- **Statement 1 is correct** – The passage contrasts reactive schemes (crop insurance after disaster) with proactive ones like irrigation.
- **Statement 2 is correct** – The passage explicitly classifies crop insurance as direct and infrastructure/education as indirect.
- **Statement 3 is incorrect** – The passage does **not** imply a dependency of indirect on direct policies; both are complementary, not conditional.
- **Statement 4 is correct** – The passage highlights indirect policies as enabling adaptive behavior, hence broader and proactive.

34. (c)

35. (c)

Company	Employees	Male Employees	Female Employees
C1	108	90	18
C2	180	54	126
C3	72	72	0
C4	288	30	258
C5	36	30	6
C6	216	24	192

36. (d)

It can be seen clearly that  $b-a$  would be even, if we take both of them as odd, so the first option can be rejected. Similarly, if we take  $a$  as 2, we would get the product as even—thus, option (b) can also be rejected. Considering the (c) option we can see that  $(a+b)/a = 1 + b/a$  should be even. For this  $b/a$  should be odd. We can see this occurring at values like  $b=9$  and  $a=3$ . Hence, even this option can be rejected.

Hence, option D is correct.

37. (b)

Total wheat =  $x$  kg

Each customer (1st, 2nd, 3rd) takes: Half of the current quantity + 0.5 kg

After the **third customer**, no wheat is left.

Let's assume **before 3rd customer** there was  $R_3$  kg of wheat

He took:  $(R_3/2 + 0.5) = R_3$  Hence  $R_3 = 1$ . So **before 3rd customer**, 1 kg was left.

Before 2<sup>nd</sup> customer :  $R_2 + 0.5 =$  what he takes

$$\Rightarrow \text{Left after 2nd customer} = R_2 - (R_2/2 + 0.5) = R_2/2 - 0.5$$

But we already know that **after 2nd customer**, 1 kg was left:

$$R_2/2 - 0.5 = 1 \text{ hence } R_2 = 3 \text{ kg}$$

Before first customer : wheat =  $x$ , He takes,  $x/2 + 0.5 \Rightarrow$  Left =  $x - [x/2 + 0.5] = x/2 - 0.5$

We know that **after 1st customer**, 3 kg was left: Hence,  $x/2 - 0.5 = 3$ , i.e.  $x = 7$ .

38. (c)

We want the worst-case scenario, i.e., put as many fruits as possible without reaching any of the limits, and then add 1 more fruit to force one of the conditions to be true.

Hence, Maximum apples without reaching 8 = 7 apples, Maximum bananas without reaching 6 = 5 bananas, Maximum oranges without reaching 9 = 8 oranges. Now, if we add one more fruit, no matter which kind it is, it will exceed one of the thresholds, and one condition will be guaranteed true. Hence answer =  $7 + 8 + 5 + 1 = 21$

39. (c)

- **Statement 1:**  $\text{HCF} \times \text{LCM} = \text{Product of the two numbers}$ . So,  $(\text{HCF} \times \text{LCM})/A = C$ . Hence divisible by A. Correct
- **Statement 2:** Since  $\text{HCF}(B, C) = 6$ , 6 divides both B and C. Hence, 6 divides BC. Correct

**Correct Answer: All two correct**

40. (c)

1. How long does A take to run 9 km?

- Speeds are in ratio 5:3  $\Rightarrow$  think of A going 5 km/h and B 3 km/h.
- Time for A = distance  $\div$  speed =  $9 \text{ km} \div 5 \text{ km/h} = 1.8$  hours.

2. Same-direction overtakes (Statement I)

- When A and B run in the same direction, A pulls away at a rate of  $(5 - 3) = 2$  km/h.
- In 1.8 h, A gets  $2 \times 1.8 = 3.6$  km ahead of B.

- Each full lap is 600 m = 0.6 km, so the number of times A laps B =  $3.6 \div 0.6 = 6$ .

3. Opposite-direction meetings (Statement II)

- Running towards each other, they close the gap at  $(5 + 3) = 8$  km/h.
- In 1.8 h, they cover  $8 \times 1.8 = 14.4$  km relative to each other.
- Every time their relative motion covers one lap (0.6 km), they meet once  $\Rightarrow 14.4 \div 0.6 = 24$  meetings.

Hence, A overtakes B 6 times in the same-direction race, and they meet 24 times when running opposite directions. Both statements are correct.

41. (c)

The passage highlights that policymakers in emerging economies have to adjust their interest rates not just based on domestic factors but also in response to global financial conditions due to spillover effects. This limits their monetary autonomy and presents a dilemma of balancing domestic growth and financial stability with global pressures.

42. (c)

The passage critiques QE by listing several negative consequences such as asset bubbles, income inequality, and financial market distortions. Increased employment is not mentioned and is generally considered a potential benefit of QE, not a drawback.

43. (a)

- (a) is correct — the passage says natural endowments are still important even with interventions.  
 (b) is wrong — “fully eliminated” is too extreme.  
 (c) is trap option — “equally” is not mentioned anywhere; natural factors are still principal.  
 (d) is wrong — mechanization hasn’t replaced geography’s role.

44. (d)

Let number of employees in B = x

Then number in A = 1.2x

Total employees =  $x + 1.2x = 2.2x$

Total salary =  $60,000 \times 2.2x = 1,32,000x$

Salary of A =  $65,000 \times 1.2x = 78,000x$

Salary of B =  $54,000x = 54,000x$

Difference =  $78,000x - 54,000x = 24,200x = 4,80,000$

$\Rightarrow x = 20$

Thus, we need all three statements to determine exact number

Answer: All 1, 2 and 3

45. (c)

**Statement I:** 3 box empty: (8,0,0,0)  $\rightarrow$  1 way

2 box empty: (7,1,0,0), (6,2,0,0), (5,3,0,0), (4,4,0,0)  $\rightarrow$  4 ways

1 box empty: (6,1,1,0), (3,3,2,0), (5,2,1,0), (4,3,1,0), (4,2,2,0)  $\rightarrow$  5 ways

0 box empty: (1,2,3,2), (5,1,1,1), (2,2,2,2), (3,3,1,1), (4,2,1,1) -> 5 ways

Hence total 15 ways.

**Statement 2:** Alphabetical order of the letters: B, E, I, L, M, O

To find where "MOBILE" appears in the dictionary, we count:

Words starting with B, E, I and L =  $4 \times 5! = 480$

Fix M: **M** \_ \_ \_ \_ , Remaining letters: **O, B, I, L, E**, Sort these: **B, E, I, L, O**

Now compare to **MOBILE**, second letter is **O**. letters < O in {B, E, I, L, O}: B, E, I, L → 4 letters. Hence,  $4 \text{ options} \times 4! = 4 \times 24 = 96$ , Running total:  $480 + 96 = 576$

Further, MOBEIL, MOBELI, MOBIEI, MOBILE

Hence 580<sup>th</sup> position.

46. (d)

**Given Information:**

- Literacy rate is growing.
- Dropout rate is falling faster than school enrollment is increasing.
- Migration of rural students is happening, but this may not directly contribute to overall literacy growth immediately.

**Analysis of options:**

- **Option (a):** Migration supports education but it does not guarantee immediate literacy rate growth for the entire country. Not the best conclusion.
- **Option (b):** Only considering dropout rate ignores the role of enrollment growth as well, so not perfect.
- **Option (c):** Similarly, only increase in enrollment is not sufficient, especially when its increase is slower.
- **Option (d): Correct.** The faster decline in dropout rate compared to the slower increase in enrollment matches the idea that overall more students are completing education, hence literacy growth.

47. (c)

To find the probability that the ball is drawn from Box 2 given that the ball is white, we can use Bayes' Theorem. Bayes' Theorem states that  $P(A|B) = \frac{P(B|A) P(A)}{P(B)}$  where A is the event that the ball is drawn from Box 2 and B is the event that the ball drawn is white. First, calculate the probability of selecting each box. Since one of the three boxes is selected at random, the probability of selecting any one box is  $P(B1) = P(B2) = P(B3) = 1/3$ . Next, calculate the probability of drawing a white ball from each box. Hence,  $P(W|B1) = 6/10$ ,  $P(W|B2) = 4/10$ ,  $P(W|B3) = 5/10$ .

Probability that the ball is drawn from Box 2 given that it is white:

$$P(B2|W) = \frac{P(W|B2) P(B2)}{P(W)}$$

$$P(W) = P(W|B1)P(B1) + P(W|B2)P(B2) + P(W|B3)P(B3)$$

$$\text{Hence, } P(W) = 3/5 \times 1/3 + 2/5 \times 1/3 + 1/2 \times 1/3 = 1/2$$

$$\text{Hence, } P(B2|W) = \frac{P(W|B2) P(B2)}{P(W)} = \frac{2/5 \times 1/3}{1/2} = 4/15$$

48. (b)

We use the formula for median in grouped data:

$$\text{Median} = l + \left[ \frac{(N/2 - F)}{f} \right] \times h$$

Where:

\*  $l = 12$  (lower boundary of median class)

\*  $N =$  total number of mango-eating

legends

\*  $F = 8$  (cumulative frequency before median class)

\*  $f = 12$  (frequency of median class)

\*  $h = 6$  (class width)

\* Median = 14

Substitute the values:

$$14 = 12 + \frac{(N/2 - 18)}{12} \times 6$$

$$2 = \frac{(N/2 - 18) \times 6}{12}$$

$$2 = (N/2 - 18) \times 1/2$$

$$4 = N/2 - 18$$

$$N/2 = 22$$

$$\rightarrow N = 44$$

**Answer: (b) 44**

49. (d)

Let the number of softdrinks of Lemon-Soda, Lahori-Jeera and Khatta-Meetha flavour be  $x$ ,  $y$ ,  $z$  respectively and it is given that for each softdrink as many rupees were given as there were softdrinks of that kind. Then according to the question:

$$x^2 + y^2 + z^2 = 371 \text{ and } x + y + z = 33.$$

By inserting the values from the options, we can see that only option (b) satisfies equation (1) and equation (2). So option (b) is correct.

50. (b)

Revenues at different values would be:  $200 \times 2$ ,  $220 \times 1.9$ ,  $240 \times 1.8$ ,  $260 \times 1.7$ ,  $280 \times 1.6$ ,  $300 \times 1.5$  and  $320 \times 1.4$ . The value goes up till  $300 \times 1.5$  and then reduces.

51. (b)

- **Statement 1 is Incorrect:** the passage never claims pressure groups are **more effective** than elected institutions—it stresses **complementarity**, not superiority.
- **Statement 2 is correct :** the passage clearly mentions how informal groups like issue-based movements can **influence policy without formal authority**.

- **Statement 3 is correct:** it refers to **resource inequality** affecting **effectiveness**, which is directly discussed.
- **Statement 4 is tempting** but goes a bit beyond the passage; it suggests **essentiality**, while the passage emphasizes their **importance**, not **necessity**.

52. (a)

- **Statement 1 is correct** – The passage criticizes overemphasis on enrolment without addressing **learning outcomes**, implying structural inefficiency.
- **Statement 2 is correct** – It explicitly mentions **central schemes failing to adapt to local needs**, reflecting poor adaptability.
- **Statement 3 is incorrect** – The passage raises concerns about **affordability and equity**, disproving the automatic assumption of quality via private players.
- **Statement 4 is correct** – The concluding line calls for **culturally inclusive, localized** governance models, supporting this assumption.

53. (b)

- **Statement 1 is incorrect:** The passage explicitly states states have *limited* fiscal autonomy.
- **Statement 2 is correct:** The judiciary helps balance Union-State relations — mentioned clearly.
- **Statement 3 is correct:** During emergencies, federal character weakens — inferred from "greater control" by the Union.
- **Statement 4 is incorrect:** The passage mentions mechanisms (Inter-State Council, Zonal Councils) that *promote* cooperation, not prevent it.

54. (d)

55. (a)

U must be even. R must be odd (since  $R + U = 3P$  and P must be an odd prime number i.e.  $P = 13$  or  $17$  or  $19$ ).  $S + T$  is even as ( $R + S + T = 2U$ ), so S and T must both be even or both odd. Since, U is even, T must be odd (since  $T + U = 2R + 1$ ). Thus, S and T must both be odd. Thus, we have: P odd; U even, R odd; S, T odd; Q odd.

Assuming  $P = 17$ :  $R + U = 3P = 51$ .

Checking the option combinations for questions 2 and 3, the only way for  $R + U$  to be 51 would be  $R = 23$ ,  $U = 28$ . Then:  $S = 14$ ;  $R + S + T = 2U \rightarrow T = 19$ ;

$Q + R + S + T = 4P \rightarrow Q = 12$ . With these values, the last equation  $T + U = 2R + 1$  matches as we get  $19 + 28 = 2 \times 23 + 1$ . Hence, this option pair and this set of values work.

For other values of P, given conditions won't match.

Hence, the correct solution is based on  $P = 17$ ,  $R = 23$ ,  $U = 28$ ,  $S = 14$ ,  $T = 19$  and  $Q = 12$ .

56. (a)

If we take only statement 1, for all four numbers to be prime one of them must be even and hence equal to 2. Only in such an event do we get  $a + b$  and  $a - b$  as odd numbers and only if they are odd can all the four numbers be prime. A little bit of trial and error then gives us  $a = 5$  and  $b = 2$ ,  $a + b = 7$  and  $a - b = 3$ . There is no other case of  $a - b$ ,  $a$  and  $a + b$  being prime as if we take  $b$  as 2, these numbers become  $b - 2$ ,  $b$  and  $b + 2$  and hence represent three consecutive odd numbers. (After 3, 5,



7 there is no situation where three consecutive odd numbers are all prime.) Hence, statement 1 is sufficient.

Statement 2 can be easily rejected as all it is giving us is that the sum of all four numbers is greater than 20. As we can easily imagine there are infinite sets of four such numbers, which have a sum greater than 20.

**57. (b)**

Let:  $x$  = number of large bottles sold and  $y$  = number of small bottles sold and  $p$  = price of a large bottle in rupees. So, price of a small bottle =  $p-1$

From the problem, we have: Total number of kettles sold:  $x+y=64$

Revenue from large kettles:  $x \cdot p=100$  and Revenue from small kettles:  $y \cdot (p-1)=36$

Hence,  $x = 100/p$  and  $y = 36/(p-1)$

Substitute the value of  $x$  and  $y$  in the equation  $x+y=64$ , and solving for the value of  $p$ , we get  $p = 2.5, 0.625$  but only valid value is  $p = 2.5$ , since price in rupees should be more than 1 rupee for the small bottle.

Hence,  $x = 40, y = 24$ .

**58. (d)**

Let's follow Rohan's movement step by step:

1. A to B: 4 ft. (forward - assume north)

2. B to C: 4 ft. (left turn - west)

3. C to D: 3 ft. (right turn - north)

4. D to E: 1 ft. (right turn - east)

5. E to F: 1 ft. (left turn - north)

6. F to G: 3 ft. (right turn - east)

Now calculate final coordinates:

\* North-South movement:

$+4$  (A to B)  $+3$  (C to D)  $+1$  (E to F) =  $+8$  ft north

\* East-West movement:

$-4$  (B to C, west)  $+1$  (D to E, east)  $+3$  (F to G, east) =  $0$  ft

So net displacement from A to G = 8 ft north, 0 east/west

**Answer: (d) 8 ft.**

**59. (b)**

I. Number of numbers which don't have 2 as one of three digits:

Hundreds digit (H): Can be 1–7, but we must exclude 2. So valid options for  $H = \{1, 3, 4, 5, 6, 7\}$  → 6 options. Tens digit (T): Can be 0–9, excluding 2 → 9 options, Units digit (U): Same as above → 9 options, So total 3-digit numbers (from 100 to 799) without digit 2 =  $6(H) \times 9(T) \times 9(U) = 486$ , Hence, the required no. of numbers =  $700 - 486 = 214$ .

- II.  $a + b + c = 10$ . The product of  $a$ ,  $b$  and  $c$  will be maximum if  $a$ ,  $b$  and  $c$  are as symmetrical as possible. Therefore,  $(a, b, c)$  must be  $(4, 3, 3)$ . Hence, maximum value of  $ab + bc + ac + abc = 4 \times 3 + 4 \times 3 + 3 \times 3 + 4 \times 3 \times 3 = 69$ .

60. (d)

Suppose the four numbers are  $A, B, C, D$ .

First three numbers are in A.P.

Thus,  $A = x - d$ ,  $B = x$ ,  $C = x + d$ .

Last three numbers are in G.P., so:

$B = x$ ,  $C = xr$ ,  $D = xr^2$ .

According to the question:

$$(x - d) + (x + d) = 6$$

$$\Rightarrow 2x = 6$$

$$\Rightarrow x = 3$$

And,

$$x + xr^2 = 90$$

$$\Rightarrow x(1 + r^2) = 90$$

$$\Rightarrow (1 + r^2) = 90 / 3 = 30$$

$$\Rightarrow r^2 = 29$$

$$\Rightarrow r = \pm\sqrt{29}$$

If  $r = \sqrt{29}$ , then:

$$B = 3, C = 3\sqrt{29}, D = 3 \times 29 = 87$$

$$d = C - B = 3\sqrt{29} - 3$$

$$\text{Thus, } A = B - d = 3 - (3\sqrt{29} - 3) = 6 - 3\sqrt{29}$$

Now checking statements first and second

Both are incorrect.

Hence, correct option = (d) Neither 1 nor 2.

61. (a)

- **Statement 1 is incorrect:** The passage nowhere claims that corruption is eliminated — it's a trap exaggeration.
- **Statement 2 is correct:** Inference is clear from lines on *administrative will and implementation gaps*.
- **Statement 3 is correct:** Despite flaws, it says RTI remains a key *citizen tool* — a strong inference.
- **Statement 4 is incorrect:** The 2019 amendment is described **critically**, not as "welcomed".

62. (c)

Statement 1: Incorrect – The writer argues against a purely mechanical, demographic approach and supports sensitive execution.

Statement 2: Incorrect – While the writer wants to avoid penalizing progressive states, they don't explicitly argue for rewarding them.

Statement 3: Correct – This is the central opinion of the writer: a population-based model risks punishing states that implemented successful governance.

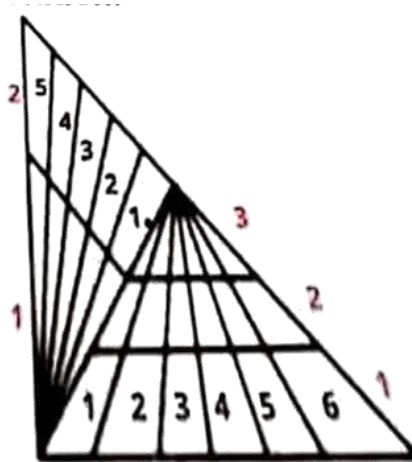
Statement 4: Incorrect – The writer emphasizes that constitutional duty must be tempered with

developmental equity and justice.

63. (a)

- (a) Correct: Population-only delimitation could discourage good governance by unfairly reducing political power.
- (b) Wrong: Passage fears delimitation might not guarantee fairness to well-governed states.
- (c) Wrong: Passage never says high population growth always equals bad governance.
- (d) Wrong: Passage argues for careful delimitation, not permanent suspension.

64. (b)



Lets consider base triangle

$$(1+2+3+4+5+6) \times 3 = 63$$

Let, consider the left triangle

$$(1+2+3+4+5) \times 2 = 30$$

whole join triangle =1

So,

Total triangle

$$= 63+30+1$$

$$= 94 \text{ Ans}$$

65. (d)

Total time taken by Ram to reach B from point A =  $(\frac{2}{4}) \times 60 + 30 + (\frac{20}{50}) \times 60 = 30 + 30 + 24 = 84$  minutes. Total time taken by Shyam to reach B from point A =  $(\frac{2}{5}) \times 60 + 30 + (\frac{20}{40}) \times 60 = 24 + 30 + 30 = 84$  minutes. Hence, they would be together at point B at 9.24 A.M

66. (d)

**Total parts in P and Q mixture = 5 + 4 = 9 parts**

So out of 864 units of Afza-Ruh: **P** =  $5/9 \times 864 = 480$  units, **Q** =  $4/9 \times 864 = 384$  units

P is made from **A: B = 1:3** → total 4 parts, B in P =  $3/4 \times 480 = 360$  units

Q is made from B: C = 2:1 → total 3 parts, B in Q =  $\frac{2}{3} \times 384 = 256$  units

**Total B in Afza-Ruh:** From P = 360 units, From Q = 256 units, **Total B = 360 + 256 = 616 units. Final mixture = Afza-Ruh + Water = 864+w**

**We are told B is 50% of final mixture:**

**$616 / (864 + w) = 0.5$ , hence  $w = 368$**

67. (d)

Let the total capacity of the tank be 60 liters. Efficiencies of pipes A, B, C and D are 60/4, 60/10, 60/12, 60/20 or 15, 6, 5, 3 per minute respectively. As tank would be half filled after 30 minutes. So, the combined efficiencies of all pipes must be 1 per minute. (30/30). 4<sup>th</sup> option satisfies the given condition as  $15 - (6 + 5 + 3) = 1$ . Hence, option (d) is correct.

68. (a)

After time period (hours)	Distance of Amitabh from Shahrukh's house	Distance of Shahrukh from his own house	Square of distance between Amitabh and Shahrukh
1	47	4	2225
2	44	8	2000
3	41	12	1825
4	38	16	1700
5	35	20	1625
<b>6</b>	<b>32</b>	<b>24</b>	<b>1600</b>
7	29	28	1625

We can clearly see that the distance between them would reduce as the hours pass to a minimum of square root of 1600 (= 40 kms) after 6 hours and then start increasing again. A similar analysis for scenario 2 would show that the minimum distance does not turn out to be 40 in this case. Scenario III is not worth considering since in that case they are moving towards each other and the minimum distance would be 0

69. (c)

I. Ratio of Anil and Sunil = 100 : 90 = 10 : 9, Ratio of speed of Sunil and Saif = 9 : 8 Ratio of speed of Anil : Sunil : Saif = 10 : 9 : 8. If speed of Anil is 20 m/s, then speed of Saif =  $20 / 10 = 16$  m/s.

II. Let the time taken by both be the same (since it's a race ending when Bobby finishes).

Let Akshay's speed be 4x, and Bobby's speed be 5x

Time taken by Bobby to finish the race:  $t = 1250 / 5x$

In the same time, Akshay runs:

Distance =  $4x \times t = 4x \times 1250 / 5x = 1000$  meters

So, Akshay runs **1000 meters**, and the race was **1250 meters**, so he loses by: 250 meters

70. (d)

The lower half of the transparent sheet is folded

along dotted line and place on the upper half of the sheet. the figure thus obtained reassemble the answer

figure (D)

71. (a)

1. Buddhism rejects karmic determinism in favor of volitional ethical conduct. → Correct. The passage clearly states that "early Buddhism highlighted intention and volition as central to moral agency," contrasting it with deterministic interpretations of karma.
2. The influence of Buddhism was confined to the Indian subcontinent and declined due to internal philosophical contradictions. → Incorrect. The passage mentions that Buddhism spread widely across cultures (e.g., Japan) and declined in India due to the resurgence of Hinduism and Islamic invasions—not internal contradictions.
3. Modern reinterpretations of Buddhism attempt to reconcile its teachings with contemporary societal issues. → Correct. The passage talks about Ambedkar's movement and Vipassana's global spread, addressing modern issues like social inequality and mental suffering.

72. (c)

- (a) A historical account of the decline of Buddhism in India → Partial focus, but not the central theme. Just a small part of the passage.
- (b) An exploration of Buddhist metaphysics and ritualism → The passage is more practical and socio-political in focus, not metaphysical or ritualistic.
- (c) An analytical overview of Buddhism's evolution and modern relevance → Correct. The passage covers Buddhism's origins, transformation across regions, modern adaptations, and critiques.
- (d) A critique of Buddhist philosophy in the face of modernity → Critique is mentioned, but the tone is mostly balanced and appreciative.

73. (a)

- **Statement 1 – Correct:** This is the writer's **central argument**—move from welfare to enterprise.
- **Statement 2 – Incorrect:** The writer **does not advocate suspending FTAs**—they support *strategic engagement*.
- **Statement 3 – Correct:** The passage clearly argues for empowering farmers as **stakeholders**, not dependents.
- **Statement 4 – Incorrect:** The writer advocates for **state-level visions**, not a centralized "one-size-fits-all" model.

74. (a)

- 1 is Wrong: Passage says subsidies alone are not enough for farmers.
- 2 is Correct: Passage urges shift from welfare to enterprise mindset.
- 3 is Wrong: Passage says centralized reforms won't work, needs state-specific visions.
- 4 is Correct: Farmers must learn international standards for survival and growth.
- 5 is Wrong: Passage says protectionism is not sustainable for future agriculture.
- 6 is Correct: State-specific plans are essential for global integration of farmers.

75. (c)

Given:

Let  $N = 1001k$  where  $k$  is a 3-digit number.

We are told:  $1001 = 7 \times 11 \times 13$  We are given 4 statements and must determine which are always true.

**Statement 1:**

"N is divisible by 7, 11, and 13."

Since:

$$N = 1001 \times k = (7 \times 11 \times 13) \times k$$

So N clearly has **7, 11, and 13** as factors.

$\Rightarrow$  Statement 1 is TRUE

**Statement 2:**

"N is formed by repeating the digits of k"

Let's take a 3-digit example:

Say  $k = 253$

Then:

$$N = 1001 \times 253 = (1000 + 1) \times 253 = 1000$$

So yes, the result is just  $k$  **repeated twice**.

This works for any 3-digit number:

Let  $k = xyz$

Then  $N = xyzxyz$

$\Rightarrow$  Statement 2 is TRUE

**Statement 3:**

"N is divisible by 143"

Find if 143 divides 1001:

Factor 143:

$$143 = 11 \times 13$$

We know:

$$1001 = 7 \times 11 \times 13$$

So 143 divides 1001

$\Rightarrow$  So 143 divides  $N = 100 \times k$

**Statement 3 is TRUE**

**Statement 4:**

"N will always have 6 digits."

Check the range:

Smallest  $k = 100$  then  $N = 1001 \times 100 = 100100$

Largest  $k = 999$  then  $N = 1001 \times 999 = 999999$

So N ranges from 100100 to 999999  $\rightarrow$  always

a **6-digit number**

$999 = 999999$

So N ranges from 100100 to 999999  $\rightarrow$  always a **6-digit number**

$\Rightarrow$  **Statement 4 is TRUE**

**Final Answer: (c) 1, 2, 3, and 4**

Let me know if you'd like another tough number theory problem or a challenge with a twist!

**76. (a)**

These dates follow a particular relationship represented by the formula:

$$(\text{Year})^2 = (\text{Day})^2 + (\text{Month})^2$$

Let's analyse the given dates:

1. 03/04/2005 (3rd April 2005)

$$(05)^2 = (03)^2 + (04)^2 \rightarrow 25 = 9 + 16$$

1. 06/08/2010 (6th August 2010)

$$(10)^2 = (06)^2 + (08)^2 \rightarrow 100 = 36 + 64$$

1. 05/12/2013 (5th December 2013)

$$(13)^2 = (05)^2 + (12)^2 \rightarrow 169 = 25 + 144$$

Now, let's test 15th August 2017

(15/08/2017) using the same logic:

$$(17)^2 = (15)^2 + (08)^2 \rightarrow 289 = 225 + 64$$

The equation holds true for the year 2017, but none of the other years satisfy this condition.

**Conclusion:** Among the given choices, only the Independence Day in 2017 follows the same mathematical identity as the other dates mentioned.

**The correct answer is 2017.**

**77. (d)**

We know the original mean of the series is:

$$x = (x_1 + x_2 + \dots + x_n) / n$$

This implies:

$$x_1 + x_2 + \dots + x_n = nx$$

Now, if  $x_n$  is replaced by  $k$ , the new sum of the values becomes:

$$(x_1 + x_2 + \dots + x_{n-1} + k) = nx - x_n + k$$

So the new mean becomes:

$$\text{New Mean} = (nx - x_n + k)/n$$

Correct Answer:  $(nx - x_n + k)/n$

78. (a)

$$(16 \times 9)/4 = 36$$

$$(48 \times 9)/8 = 54$$

$$(72 \times 8)/6 = 96$$

The correct Answer: 96

79. (c)

$$4^{30} = (2^2)^{30} = 2^{60}$$

so  $2^{60}$  and  $4^{30}$  are equal.

- To compare these with  $3^{40}$  and  $6^{20}$ , take the 20<sup>th</sup> root of each:

- $\sqrt[20]{2^{60}} = 8$

- $\sqrt[20]{4^{30}} = 8$

- $\sqrt[20]{3^{40}} = 9$

- $\sqrt[20]{6^{20}} = 6$

- Since  $9 > 8 > 6$ ,  $3^{40}$  is the greatest.

- Statement 1 is true.

2. How many zeros at the end of

$$1^2 \times 2^4 \times 3^6 \dots 50^{100}$$

- A trailing zero needs one factor of 2 and one of 5. There are plenty of 2's, so we only count 5's.

- Only multiples of 5 contribute any factor of 5. List them with their exponents:

- Add them:

$$10+20+30+40 = 100$$

$$100+60+70+80+90 = 400$$

$$400+200 = 600$$

$$100+600 = 700.$$

- There are 700 factors of 5  $\Rightarrow$  700 trailing zeros, not 400.

- Statement 2 is false.

3. How many digits does  $2^{100}$  have?

- Since  $2^{10} = 1024 = \text{approx. } (10)^3$ , then



$$2^{100} = (2^{10})^{10} = \text{approx}(10^3)^{10} = 10^{30}.$$

- But  $1024 > 1000$ , so  $2^{100}$  is a bit larger than  $10^{30}$  but still less than  $10^{31}$ .
- Any number between  $10^{30}$  and  $10^{31}$  has 31 digits.
- Statement 3 is true.

80. (d)

Let contribution of Devesh be Rs  $x$ , then contribution of Aakash =  $3x$ , Contribution of Eshwar =  $3x \times \frac{1}{2} = \frac{3x}{2}$ , contribution of Bhuvnesh =  $\frac{3x}{2} \times \frac{1}{3} = \frac{x}{2}$ , contribution of Chandan =  $3x \times \frac{2}{3} = 2x$ .

According to question,  $(3x + x + \frac{3x}{2}) - (\frac{x}{2} + 2x) = 13500$ , hence  $x = 4500$ . Hence total share of Aakash, Bhuvnesh and Chandan =  $3 \times 4500 + \frac{4500}{2} + 2 \times 4500 = 22500 + 2250 = 24750$ .

