

MOCK CAT**ANSWERS**

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

EXPLANATIONS**SECTION – I**

- The passage is concerned with the fact that friendship does not mean that the interests would be common, but ideologies do match. The idea has been expressed only in option (3). Options (2), (4) and (5) are contradicted in the passage as the only motive for friendship is values. **Answer: (3)**
- The theme is clear in the opening lines of a passage. This passage talks about the philosophy of Vedanta with respect to matter. (5) is contradicted in the opening line, hence, eliminated. Similarly matter is an appearance of eternal, hence (3) is also eliminated (1) and (2) are not related to the passage, hence, eliminated. **Answer: (4)**
- In this passage none of the options relate directly to the theme of the passage. The passage tries to justify the concern of both parties. Option (2), (3) and (4) can be eliminated directly as they do not relate to the concept. (1) would look good if the passage had stated that 'toothpastes' seem to vegetarian, but are 'not'; as nothing has been stated, hence, it is eliminated as well. **Answer: (5)**
- The passage is describing various reasons for the collapse in South East Asian markets. Options (1) and (5) are not related to the passage, hence, eliminated option (2) and (3) talk about a single aspect of the passage and not the theme, hence they are eliminated as well. **Answer: (4)**
- Options (1), (2) and (3) are not related to the passage as the passage is not concerned with the kind of citizen (or) government, we are (or) we have. Option (5) states that energy 'also' needs vent, what else does? This option is also not clear, hence, eliminate. **Answer: (4)**
- The usage of neither is incorrect in this sentence. Neither can be followed by 'or' or 'nor', but as per as per the rules of parallelism nor cannot be substituted the next time by 'or'. **Answer: (3)**

7. All the sentences are incorrect. 'Everybody' should be followed by singular verb and not 'their', which is plural. Similarly, 'One' should be followed by the pronoun 'ones' and not 'he', (C) is awkward due to the incorrect usage of modifier 'not'. **Answer: (5)**
8. 'Imply' in (1) should be replaced by 'infer'. 'None of' should be followed by singular verb 'has' and not plural verb 'have'. Therefore, (A) and (C) are incorrect. **Answer: (5)**
9. 'Lesser' is used with uncountable nouns. Students are countable; 'fewer' should be used for the comparison. (3) is incorrect as the article 'the' should be added before 'greater' to have a correct and a complete comparison. **Answer: (4)**
10. 'Had' is missing before failed. Therefore, the sentence is not complete. (A) is incorrect. Similarly (C) is a dangling sentence as 'has not' is not complete. The correct sentence should be 'has not filed and....'. **Answer: (4)**
11. Statement 1 is an inference, based on the statement of the Finance Minister. Statements 2, 3, and 4 are all containing some conclusion from the basis of certain facts, hence all are inferences. **Answer: (5)**
12. Statement 1 is an inference as the author arrives at a conclusion from a stated premise. Statement 2 is a judgment since it is not based on a premise. Statement 3 is based on facts as the data given cannot be denied. Statement 4 is a judgment. **Answer: (4)**
13. Statement 1 is a judgment as the author refers to a conclusion not based on a premise. Statement 2 is based on facts. Statements 3 and 4, though indicate the judgment of FICCI and the Supreme Court, respectively, they are nevertheless facts for our purpose. **Answer: (3)**
14. Statement 1 refers to the scrapping of the previous SEZ policy of the Central government and shows inference based on a premise. Statement 2 is a fact based on the directive as mentioned in statement 1. Statement 3 refers to Nandigram catastrophe that occurred due to a premise and is, therefore, an inference. Statement 4 provides undeniable data, and thus is factual. **Answer: (1)**
15. Statement 1 refers to DEPB scheme of the Commerce Ministry, which could not be replaced for want of a suitable alternative. This has to be a fact. Statement 2 refers to the basic purpose of the scheme, which is again a fact. Statement 3 refers to an inference, based on a premise. Statement 4 is a judgment. **Answer: (2)**
16. (1) There is no talk of the stated link.
(2) Paranoia is not necessarily a state of prejudice.
(3) The statement can be directly concluded from lines 3 and 4.
(4) Paranoia is obsessive fear, not obsessive sense of insecurity.
(5) Ambiguous. **Answer: (3)**

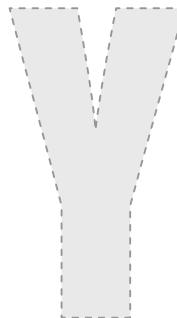
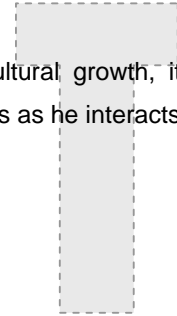
17. (1) The passage is not about the author's study or research.
(2) There are no varying opinions and hence no convergence.
(3) The statement is repetitive and unrepresentative of the passage.
(4) 'Findings of his research' and 'not reach a concrete conclusion' render the statement incorrect.
(5) This statement aptly summarizes the organization of the passage. **Answer: (5)**
18. (1) It is not weakness per se that leads to paranoia.
(2) Nowhere stated or implied.
(3) It is incorrect as the symptoms of paranoia are observable.
(4) Nowhere stated or implied.
(5) Para 2, lines 6 and 7. **Answer: (5)**
19. (1) Lacks focus
(2) There is no experimental evidence.
(3) No defects shown.
(4) Correct as the statement describes the theme of the passage and its concluding lines
(5) Against the flow of the theme of the passage. **Answer: (4)**
20. (1) is the best answer as per the theme and the last couple of sentences of the passage. **Answer: (1)**
21. (1) Semiotics is a general theory of language construction that incorporates both semantics and syntactics, apart from experiences. So the semiotic system of language formation is all-encompassing, based on experiences, their symbolization and mechanics. The right answer is (1) that is not restrictive (like other options) and generally in line with the main focus of the passage.
(2) 'Psychological' renders it irrelevant.
(3) It is not 'signification of the lexical words but of the cultural entity.'
(4) Restrictive, though not entirely incorrect.
(5) Lacks focus. **Answer: (1)**
22. (1) The statement is correct as per the concluding statement of the passage.
(2) Can be vaguely inferred from the passage.
(3) Can be derived from para 2, line 7.
(4) Part of the statement is correct, but the latter part is not. Biosemiotics is not a study of 'impact of perceptions', but the link between the producer and the receiver of perceptions expressed symbolically.
(5) Can be derived from the last sentence of the opening para. **Answer: (4)**

23. (1) can be found in para 2 (2nd and third last lines), (2) can be inferred from lines 11 to 17 (para 2), (3) can be derived from the last para and (4) from the second last para.

We cannot infer (5) from the passage. **Answer: (5)**

24. This is a main idea question and only (4) expresses the main focus of the passage. **Answer: (4)**

25. Language is the outcome of a cultural growth, it is cognitive as man's sense perceptions go on accumulating based on significations as he interacts with other people. **Answer: (1)**



SECTION – II

26. **Answer: (2)**

27. **Answer: (1)**

28. $P = 7^{3n} - 3^{5n} = 343^n - 243^n$

We have, $a^n - b^n$ is divisible by $(a - b)$ for all positive integral values of n .

So, P divisible by $343 - 243 = 100$.

Therefore, option (1) correct.

29. $\log_{30}30 = \log_{30} = 3 \times 3 \times h = 1$.

$\Rightarrow \log_{30}3 + \log_{30}5 + \log_{30}2 = 1$

$b + a + \log_{30}2 = 1$

$\log_{30}2 = 1 - a - b$

$\log_8 30 = \frac{1}{\log_{30} 8} = \frac{1}{3 \log_{30} 2} = \frac{1}{3(1-a-b)}$ **Answer: (2)**

30. $N = 1000^8 - 8 = 10^{24} - 8$

$N =$ Number with twenty three 9s, followed by 2.

That is, $N = 9999 \dots\dots\dots 92$

The sum of digits $= (23 \times 9) + 2 = 207 + 2 = 209$. **Answer: (4)**

31. $\sum_{n=1}^{3000} n^5 = 1^5 + 2^5 + 2^5 + 3^5 + \dots\dots\dots + 3000^5$
 $= (1^5 + 3^5 + 5^5 + 7^5 + 7^5 + \dots\dots\dots 2999^5) + (2^5 + 4^5 + \dots\dots\dots + 3000^5)$
A B

B is perfectly divisible by 4.

When A divided by 4, the remainders will be

$= 1 - 1 + 1 - 1 + \dots\dots\dots 1500^{\text{th}} \text{ term} = 0$.

So, when $\sum_{n=1}^{3000} n^5$ is divided by 4, zero is the remainder. **Answer: (1)**

32. $ABCD$ is a square of area 64 cm^2 . Therefore, $a^2 = 64 \Rightarrow a = 8 \text{ cm}$

$\Delta PDC \cong \Delta QBC$ (ASA)

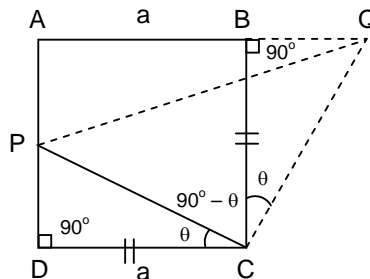
$\Rightarrow PC = CQ$ and $PD = BQ$

Now, $\text{ar}(\Delta PCQ) = \frac{1}{2} \times PC \times CQ = 50 \text{ cm}$

$(PC)^2 = 100 \Rightarrow PC = 10 \text{ cm}$

In ΔBCQ ,

$BQ = \sqrt{CQ^2 - BC^2} = \sqrt{(10)^2 - (8)^2} = \sqrt{36} = 6 \text{ cm}$



Answer: (2)

33. We know $AM \geq GM$

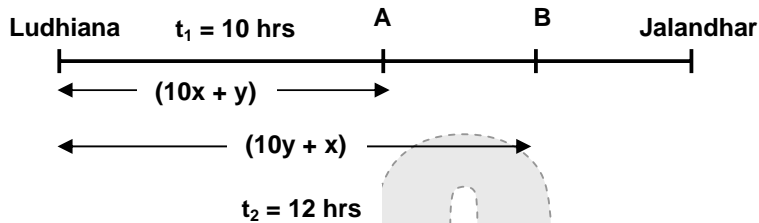
$$\text{So, } \frac{\frac{p}{q} + \frac{q}{r} + \frac{r}{s} + \frac{s}{p}}{4} \geq \left(\frac{p}{q} \times \frac{q}{r} \times \frac{r}{s} \times \frac{s}{p} \right)^{1/4} \Rightarrow \frac{p}{q} + \frac{q}{r} + \frac{r}{s} + \frac{s}{p} \geq 4 \quad \text{Answer: (4)}$$

34. $P = m^4 - 20m^2 + 4 = m^4 - 4m^2 + 4 - 16m^2$
 $= (m^2 - 4)^2 - (4m)^2 \Rightarrow (m^2 - 4 - 4m)(m^2 - 4 + 4m)$

So, P has at least two factors for any integral value of m, and also, for any value of m, any factor will not be equal to 1.

Hence, there is no value of m for which $m^4 - 20m^2 + 4$ is a prime number. **Answer: (1)**

Sol. 35 – 36



From the above figure, we get

$$V = \frac{(10x + y)}{10} = \frac{10y + x}{12}$$

Solving, $5x = 4y$

So, $x = 4, y = 5$

He covered $10 \times 5 + 4 = 54$ km up to the second milestone and his speed was $\frac{45}{10} = 4.5$ km/hr.

35. **Answer: (2)**

36. **Answer: (1)**

37. Relative speed = $(58 - 40)$ km/hr = 18 km/hr

$$= 18 \times \frac{5}{18} \text{ m/sec} = 5 \text{ m/sec.}$$

So, 15 seconds before the collision, they will be $15 \times 5 = 75$ m apart. **Answer: (2)**

38. We have, $\frac{(P-1)! - 1}{P}$ = remainder will give 0

That is, $(P-1)! + 1 = PK$ (Here, K is a natural number.)

$$(P-1)! = PK - 1 = P(K-1) + P - 1$$

$$\Rightarrow (P-1)(P-2)! = P(K-1) + P - 1$$

$$\Rightarrow (P-2)! = \frac{P(K-1)}{P-1} + 1 \quad (\text{Since } (P-2)! \text{ is an integer.})$$

But P is a prime number.

$\therefore (K-1)$ must be divisible by $P-1$.

\therefore We have $(P-2)! = PK + 1$.

So, the remainder when $(P-2)!$ is divided by P is 1.

Therefore, option (1) is correct.

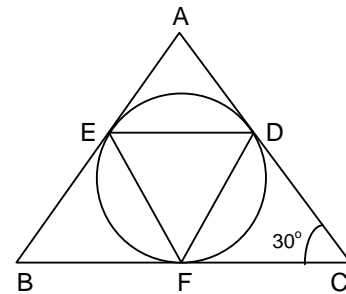
39. CF and CD are the tangents drawn to the circle from C.

So, $CF = CD$

If $\angle C = 30^\circ$, $\angle DFC = 75^\circ$

So, $\angle DFC = \angle DEF = 75^\circ$ (Angles in alternative segments.)

Answer: (3)



40. $\log_k x = 6, \Rightarrow x = k^6$

$$\log_{25k} 8x = \log_{25k} 8k^6 = 3 \Rightarrow 8k^6 = (25-k)^3$$

$$k^3 = \left(\frac{25}{2}\right)^3 \Rightarrow k = 12.5 \quad \text{Answer: (1)}$$

41. Initial volume of the container = $3x + 2x = 5x$

New volume of the container = $5x + 10$.

If final concentration of milk = 50%,

$$\frac{3x}{5x+10} = \frac{1}{2} \Rightarrow x = 10$$

And if final concentration of milk = $40\% = \frac{2}{5}$,

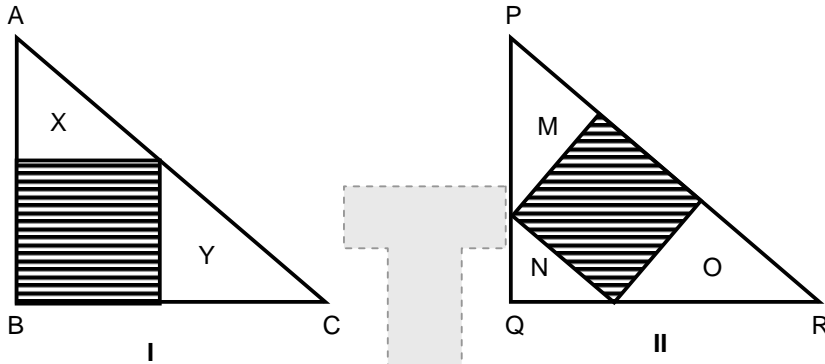
$$\frac{3x}{5x+10} = \frac{2}{5} \Rightarrow 15x = 10x + 20$$

$$x = 4$$

Volume $V = 5 \times 4 = 20$ litres

$$\Rightarrow 20 \leq V \leq 50 \quad \text{Answer: (2)}$$

42.



Triangles X, Y, M, N and O are similar as they are part of the same triangle. Hence, the ratio of their areas is

$$\frac{X}{M} = \frac{U}{V} = \frac{441}{440}$$

Also, $P + U + 441 = Q + V + A + 440$

So, $ar(\Delta ABC) = 441(N)$

Thus, sides of triangle N are $\frac{1}{21} \times$ side of ΔPQR .

Hence, hypotenuse of the whole triangle = $(440)^{1/2} \times 21$.

If its height from the side is h, $h - \frac{h}{21} = (440)^{1/2}$.

So, if two shorter sides have lengths a, b, we have

$$ab = \frac{[(440)^{1/2} \times 21]^2}{20} = 22 \times 21^2 \text{ and } a^2 + b^2 = 440 \times 21^2$$

$$(a + b)^2 = (21)^2 (440 + 2 \times 22) = 21^2 \times 22^2$$

$$a + b = 21 \times 22 = 462 \quad \text{Answer: (3)}$$

43. Let, boys are x% and girls (100 – x) % of the total number of previous year students.

The increase in the number of students = 20%.

$$10\% \text{ of } x\% + 35\% \text{ of } (100 - x)\% = 200\% \text{ of } 100\% \Rightarrow x = 60$$

$$\text{Hence, the percentage of girls} = \frac{(100 - 60) \times 1.35}{100 \times 1.20} \times 100 = 45\%. \quad \text{Answer: (2)}$$

44. 97 is the prime number nearest to 100.

So, we check the highest power of 97 is 10000!

$$\frac{10000}{97} = 103 + \left[\frac{103}{97} \right] = 104.$$

But the highest power of 2 in $100! = 97$ and if we raise 2^{97} to the power 104, we get the power of 2 greater than 10,000, which is not possible.

\Rightarrow Therefore, 103 is the correct answer. **Answer: (3)**

45. Let the second cube has x faces painted red and y faces painted blue.

$$\Rightarrow \text{The probability of both the cubes coming up with the same colour} = \frac{5x+1y}{6 \times 6} = \frac{1}{2} \dots\dots(1)$$

Also, $x + y = 6 \dots\dots\dots (2)$

Solving $x = y = 3$

So, 3 faces of the second cube painted red. **Answer: (3)**

46. $5a - 2b = 60\%$ of $150 = 90$.

$$b = \frac{a}{2} + 2a - 45.$$

Since (a, b) are integers and $a + b \leq 30$, we get the only possible pairs as $(18, 0)$ and $(20, 5)$.

Answer: (1)

47. **Case I:** All 300 correct. Score = 150

The next highest = $143 (150 - 7)$ {29 correct and 1 wrong answer}

So, all the number of the form $7N + 3$, from 1 to 150 can be derived in this case.

Similarly, all numbers of the form below can be

	Numbers left in each case
(a) $7N$ from 1 to 140 (28 attempt)	1
(b) $7N + 1$ from 1 to 120 (24 attempt)	4
(c) $7N + 2$ from 1 to 135 (27 attempts)	2
(d) $7N + 3$ from 1 to 150 (all 30 attempt)	0
(e) $7N + 4$ from 1 to 130 (26 attempt)	2
(f) $7N + 5$ from 1 to 145 (29 attempt)	0
(g) $7N + 6$ from 1 to 125 (25 attempt)	3

Hence, the total number of values that can never be obtained is $1 + 4 + 2 + 0 + 2 + 0 + 3 = 12$.

Answer: (5)

48. Discriminant $= [2a(b+c)]^2 - 4(a^2+b^2)(a^2+c^2)$
 $= -4(a^2-bc)^2 < 0$

As x is real, this must be 0.

$\therefore a^2 = bc$ **Answer: (5)**

49. We have to find $\max(a.b^2.c^3) = \max(a.b.b.c.c.c)$

So, we can write the equation again as

$$a + b + c = 6$$

$$\Rightarrow a + \frac{b}{2} + \frac{b}{2} + \frac{c}{3} + \frac{c}{3} + \frac{c}{3} = 6$$

$$\text{Max} \left(a \cdot \frac{b}{2} \cdot \frac{b}{2} \cdot \frac{c}{3} \cdot \frac{c}{3} \cdot \frac{c}{3} \right) = (1)^6 \quad \text{[As the maximum product when digits are equal]}$$

$$\Rightarrow \text{Max} \frac{(a.b^2 \times c^3)}{2^2 \times 3^3} = 1$$

$$\text{Max} (a.b^2.c^3) = 2^2 \times 3^3 = 4 \times 27 = 108 \quad \text{Answer: (1)}$$

50. The dart can be hit only in the shaded area.

So, favorable changes = shaded area

$$= 4 \times \text{Area of 1 quarter circle}$$

$$= 4 \times \frac{1}{4} \pi r^2 = \pi \times (1)^2 = \pi$$

Total chances = the area of rectangle

$$= 10 \times 8 = 88$$

$$\text{Probability} = \frac{\pi}{80} = \frac{22}{7 \times 80} = \frac{11}{280} \quad \text{Answer: (3)}$$

SECTION – III**Solutions 51 – 55:**

Since 8 teams reached quarterfinals, every team played 6 matches in the quarterfinals.

Since India lost to Australia and still managed to get 12 points after the quarter finals, so it won all the other quarter-finals along with the match played against Sri Lanka in the league round.

Similarly, Australia lost to both England and New Zealand and still got 10 points. So, it won the league match played against South Africa and all other quarter-finals.

South Africa lost to Australia in league match and to India in quarter-finals.

So, it won all other quarter-finals to get 10 points.

So, we can conclude:

India lost to Australia only.

Australia lost to England and New Zealand only.

South Africa lost to India in Q.F. and to Australia in League.

Sri Lanka lost to India in league to Australia and, South Africa in Q.F.

Pakistan defeated West Indies in league and both New Zealand and England in Q.F.

New Zealand defeated Australia in Q.F. and had a match drawn with West Indies.

England defeated West Indies and Australia in Q.F.

West Indies had a match drawn with New Zealand.

So, the following table can be formed.

	India	Sri Lanka	Pakistan	West Indies	Australia	South Africa	New Zealand	England
India	–	India(L)	India	India	Australia	India	India	India
Sri Lanka		–	Sri Lanka	Sri Lanka	Australia	South Africa	Sri Lanka	Sri Lanka
Pakistan			–	Pakistan(L)	Australia	South Africa	Pakistan	Pakistan
West Indies				–	Australia	South Africa	Draw	England
Australia					–	Australia(L)	New Zealand	England
South Africa						–	South Africa	South Africa
New Zealand							–	New Zealand(L)
England								–

*(L) – League match

51. **Answer: (3)**

52. **Answer: (3)**

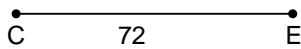
53. **Answer: (4)**

54. The first match will be played between India and Australia/South Africa, the second between South Africa/Australia and Sri Lanka, the third between Pakistan and New Zealand and the fourth match will be played between England and West Indies. From the result of the first three matches, we cannot conclude which team would reach the semifinals. But even if West Indies wins the fourth match, it will secure $1 + 2 = 3$ points, whereas England already has 4 points. Hence, England would definitely reach semifinals. **Answer: (2)**

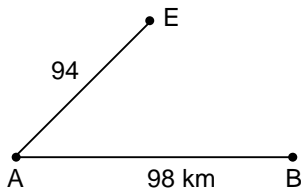
55. Since no two matches were drawn in the league round, the top two teams should earn 6 and 4 points respectively. So, the total points from league round will be $4(6 + 4) = 40$ and in quarter finals, total matches were 24 and so total points of all the teams in quarter finals will be $24 \times 2 = 48$. So, after quarter finals, the sum of total points is $40 + 48 = 88$. **Answer: (2)**

Solutions 56 – 60:

From the diagram given below, it is clear that 72 is the least distance, that is, from C to E. So, C and E are connected directly.



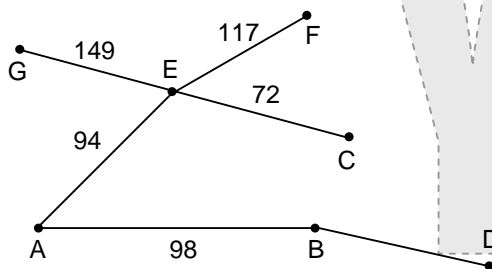
The nearest city from A is E, since A to E is 94 and A to B is 98. So, A – E and A – B are also connected directly.



Now, D is nearest to B, that is, 120. So, B and D are connected directly.

Similarly, F and G are nearest to E.

Therefore, EF and EG are also connected directly. So, we can draw the following map.



Now, check each distance.

$AB = 98 =$ directly connected – OK

$AC = 166 = AE + EC = 94 + 72 = 166$ – Satisfied

$AD = 218 = 98 + 120 = AB + BD$ – OK

$AE = 94$ – direct route

$AF = 211 = AE + EF = 94 + 117$

$AG = 243 = AE + EG = 94 + 149$

$BC = 264 = BA + AE + EC = 98 + 94 + 72$

$BD = 120$ – direct

$BE = 192 = BA + AE = 98 + 94$

$BF = 249$, the only possible route is $BA + AE + EF = 98 + 94 + 117 \neq 249$.

So, there might be some other route from B to F. We will find the route BF later.

Come to BG.

$BG = 341 = BA + AE + EG = 98 + 94 + 149 = 341$.

$CD = 270 \neq CE + EA + AD$

So, there is other route for CD.

$CE = 72$ – direct

$CF = 141 \neq CE + EF$, there is other route for C and F.

Similarly, DE, DF and DG have some others routes.

In all these D is common. So, there should be some other route from D.

But observe F is next nearest to D after E. So, DF should be directly connected.

Then $DE = 246 = DF = EF = 129 + 117$.

Now come to BF.

$BF = 249 = BD + DF = 120 + 129$.

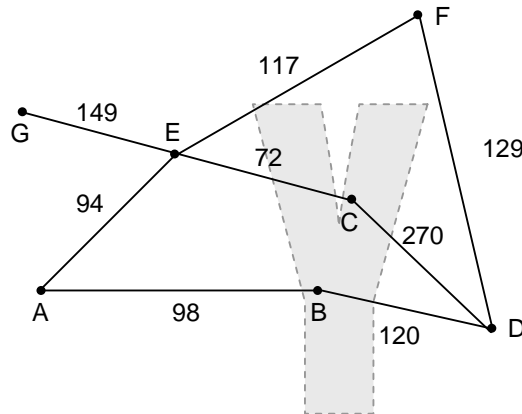
Now take CD.

$CD = 270 \neq CE + EF + FD$

Therefore, CD has some other route and no combination is satisfying.

Therefore, CD should be directly connected.

Now, the map will be



56. **Answer: (1)**

57. **Answer: (3)**

58. **Answer: (3)**

59. G to D is shortest path is G – E – F – D. **Answer: (2)**

60. A to E direct,
 A B C D E
 A B D E F
 Total – 3 ways. **Answer: (3)**

Solutions 61 – 65:

61. PV had 60 more candies than GV, means, GV lost 30 of his candies to PV.
 That means, in 1 hour, the red light flashed 30 times more than the green light and it is given that red light flashed 3 times per min. i.e. 180 times an hour. So, green light flashed 150 times per hour, i.e., 5 times in 2 min.
 So, both the lights flashed together for every two minutes, i.e., 30 times in one hour. **Answer: (5)**
62. GV was left with half of his candies, and PV had the same number as he had in the beginning, means, GV lost one-fourth of his candies to PV (assume x) and the same number of candies i.e. x candies, they ate but if we take 140.
 Initially – PV had 70 and GV had 70.
 $\frac{1}{4}$ th of 70 is not an integer, so he could not lose, $\frac{70}{4} = 17.5$ candies to PV.
 Similarly, all the answers except 240 can be eliminated. **Answer: (2)**
63. Red light flashes 3 times a min. and green 2 times a min.
 So, in every min. PV loose 2 candies and get 3 from GV and eat 2.
 So he will loose 1 candy, each min.
 Where as GV loose 3, get 2 and eat 2, so total 3.
 If they want to finish their candies at the same time, GV should have 3 times the candies of PV.
 i.e., 200% more candies than PV. **Answer: (4)**
64. Red light flashed twice as fast as the green light.
 So, one time only red flashed and then both red and green lights flashed together, but only green light never flashed. So, PV never lost his candies to GV. If they ate 1 candy, each time both lights flashed, PV would eat the candy, which he got from GV, so he would have all of his candies, by the time, GV completed all his candies.
 Similarly, if they ate 2 candies each, PV would get 1 from GV and eat 2, means, he would lose 1 of his own candies. At the same time, GV would lose 1 and eat 2, means, he would lose 3.
 So, if GV completed all his candies, PV would lose only one-third of the candies. If they ate 3 candies, PV would eat 2 of his own candies and GV would lose 1 to PV and eat 3. So, it makes total 4.
 By the time, GV completed his candies; PV would be left with exactly half of his candies.
 But he had to left with half of his candies, so they would eat atleast 4 candies, when both lights flashed together. **Answer: (4)**

65. Red light flashed 2 times per min. and PV ate 30 of GV's candies, without losing any of his candies, If green light flashed 3 times in 2 Minutes, then only, for every 2 min, PV would get 1 candy from GV. So in 1 hour, he would get 30 and eat those 30 candies, because both lights also flashed together 30 times in 1 hour.

So in 30 min, when Deepak noticed PV's cheating, GV would already lose 15 candies to PV.

So, he had to earn back his 15 candies.

If Deepak stopped the red light for 'x' min, only green would flash, i.e., 3 times in 2 min.

So, GV would get 3 candies in 2 minutes from PV.

So in x min he would get $\frac{3x}{2}$ candies.

But again, after the red light was on, he would lose 1 candy in 2 min. i.e. for (30 - x) min.

So, he would lose $\frac{30-x}{2}$ candies.

$$\therefore \frac{3x}{2} - \frac{(30-x)}{2} = 15.$$

$$\Rightarrow x = 15.$$

So, for 15 min, the red light was so that GV did not his candies to the cheater PV. **Answer: (3)**

Solutions 66 – 70:

66. By observation, the bus, which goes from Jeedimetla to CBS can have minimum possible number, if it goes via Bala Nagar, Kukatpalli, S.R Nagar, Ameerpet, Nampally, and Koti. **Answer: (3)**

67. It is better to go with the options.

Choice (1) → BHEL to Kachiguda cannot be 24, because Nampally to Kachiguda itself is 28.

Choice (2) → Jublee hills – it is not possible.

Choice (3) → Koti

BHEL – Kukatpalli – SR Nagar – Ameerpet – Nampally – Koti is $8 + 5 + 1 + 6 + 2 = 22$.

Answer: (3)

68. Secunderabad to Kukatpalli.

Via Balanagar, Sanath Nagar, SR Nagar

= $17 + 4 + 1 + 5 = 19$. **Answer: (5)**

69. Balanagar to Mehdipatnam, bus number 50.

Different possibilities are:

Balanagar – Kukatpalli – BHEL – Hitechcity – Mehdipatnam

Balanagar – Kukatpalli – SR Nagar – Ameerpet – NIMS – Mehdipatnam

Balanagar – Kukatpalli – SR Nagar – Ameerpet – Nampally – Koti – Jublee hills – Mehdipatnam

So, total 3 ways. **Answer: (2)**

70. Secunderabad to hitechcity with less than or equal to 4 stops can be via

1. Ameerpet and N.I.M.S.
2. Nampally, Ameerpet and N.I.M.S.
3. Nampally, Koti, Jubleehills and Mehdiapatnam
4. Ameerpet, N.I.M.S and Mehdiapatnam
5. Nampally, Ameerpet, N.I.M.S and Mehdiapatnam
6. Ameerpet, SR Nagar, Kuktapalli and B.H.E.L.
7. Balanagar, Kukatpalli and B.H.E.L.

So, total 7 routes. **Answer: (3)**

Solutions 71 – 75:

Let the total number of candies that Deepak sir brought be 'x'.

So, Pooja took $\frac{x}{4} + 3$

The remaining candies = $\frac{3x}{4} - 3$

Ramneet took $\frac{3x}{16} - \frac{3}{4}$

The remaining candies = $\frac{9x}{16} - \frac{9}{4}$

Now, Upasana took $\frac{1}{3}$ rd, i.e. $\frac{3x}{16} - \frac{3}{4}$

The remaining candies = $\frac{6x}{16} - \frac{6}{4}$

So, Tanisha took $\frac{6x}{64} - \frac{6}{16}$.

The following table can be formed.

Name of student	Number of candies
Pooja	$\frac{x}{4} + 3 = \frac{x+12}{4}$
Ramneet	$\frac{3x}{16} - \frac{3}{4} = \frac{3x-12}{16}$
Upasana	$\frac{3x}{16} - \frac{3}{4} = \frac{3x-12}{16}$
Tanisha	$\frac{6x}{64} - \frac{6}{16} = \frac{3x-12}{32}$

71. **Answer: (3)**

72. If we take $x = 32$, Ramneet's share = $\frac{3 \times 32 - 12}{16}$, which is not an integer.

The 'x' value should be such that all $\frac{x+2}{4}$, $\frac{3x-12}{16}$ and $\frac{3x-12}{32}$ should be integers.

So, the minimum value of 'x' is 36. **Answer: (3)**

73.
$$\frac{x+2}{4} = \frac{3x-12}{16} + \frac{3x-12}{32}$$

$$\therefore 8x + 96 = 6x - 24 + 3x - 12$$

$$\Rightarrow x = 132. \text{ Answer: (2)}$$

74.
$$\frac{3x-12}{16} = 18, \Rightarrow x = 100$$

Answer: (2)

75. Number of candies left = 3 times of Tanisha's share

$$\frac{9x-36}{32} = \frac{x+12}{4}$$

$$\Rightarrow x = 132$$

So, Ramneet got $\frac{3x-12}{16} = \frac{384}{16} = 24.$ **Answer: (5)**

