CAT 2006 Answer Key

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

CAT 2006 Solutions

1. L cannot be there, because if L is selected then K has to be selected and one of M & Q and one among P, R, S. So atleast 4 will have to be selected.
So L cannot be in a group of 3. Option (1).

2. A team must include M because either
Option I.
If L or K is there S, U, W, N are rejected & also one of M or Q and also one of P & R. six are rejected so only 4 can be there in the team.
Option II. If P or R is there, the other cannot be there , S, U, W, cannot be there, L & K are already ruled out. So at least 6 are ruled out.
Option (3).

3. If we take either of K or L then the maximum possible team of 4 can be made because we cannot take S, U, W, N, one of P&R and one of M&Q.
If we do not take K & L then S, U, W, N & either of M & Q.
So the team of 5 can be made.

4. As in the above question the answer is only 4.
Option 5.

5. If N is there L & K cannot be there

U taken	U Not taken
$\frac{S\ U\ W\ N\ M}{S\ U\ W\ N\ Q}$	$\frac{N\ M\ P}{N\ M\ R}$
	$\frac{N\ Q\ P}{N\ Q\ R}$

so 6 ways.

6. Dipan's average is 96.
So total is 480.
His scores are

PCB	98 (Avg)
Maths	95
Sst.	95.5
Verbal Group	95
Total	**383.5**

So remaining 480 – 383.5 = 96.5, therefore total in Eng. group = 96.5 × 2 = 193
∴ Score in English Paper (II) = 193 – 96 = 97.
Hence option (3).

7. We have to take only boys.
Dipan satisfies the criteria.
Hence Option (1).

8. Final Scores of students:

Student	score increase	group increase	final increase	final score
Pritam	22	11	11/5=2.2	96.1
Joseph	9	4.5	4.5/5=0.9	95.9
Tirna	21	10.5	10.5/5=2.1	95.8
Agni	9	4.5	4.5/5 =0.9	95.2

So, the order is Pritam > Joseph > Trina > Agni.
So, the answer is 1.

9. Only Dipan satisfies the given criteria, Hence is worthy of prize.
Hence Option (4).

10. Final Scores of students:

Student	least score	contribution in net score	final score
Pritam	83 in group of 2	8.5	95.6
Ram	94 in group of 2	3	96.7
Ayesha	93 in group of 2	3.5	96.9
Agni	82 in group of 2	9	96.1
Dipan	95 in group of 1	5	97.0

Dipan would maximize the score in Maths because it would increase his final score by 1 and hence will end up with highest final score of 97.
So option (5).

11-15 We are given that average after day three is 3. So total of the Erdos numbers is 24. Also after day three 5 of the people had the same erdos number. This can only be erdos number 2, or we wont get average as 3. F has the lowest so it has to be 1. Erdos number of E decreased and average decreased by 0.5, so total decreased by 4. As final number of E is 2 his earlier number has to be 6. Now we know that after day three. F has 1. five others have 2. E has 6 and remaining person has to have 7 to make the total 24.

11. A, C and E changed their Erdos number.

12. We can see that the highest Erdos number remaining is 7.

13. After day three five had erdos number of 2. out of which A and C changed from a higher number, so there were 3 mathematicians with an erdos number equal to 2 at the beginning of the conference.

14. The number of C was changed to 2 after writing a paper with F.

15. Erdos number of E was 6 before writing the paper.

16. – 20. Few of the important points resulting from the basic information are.
The net price of the share has increased by Rs. 10.
In each market day, Chetan buys or sells because the price increases or decreases by Rs. 10 each day.
Now if in total the price has increased by Rs. 10, this means Chetan sells shares for one extra time as compared to the no. of times he buys.
In short there have to be three increases in the price and two decrease in whatever sequence.
Chetan buys at every decrease and sells at every increase and the quantity bought and sold is always 10 in number.

16. If he sells on three consecutive days, this means there has to be three consecutive increases, now the closing price on the five consecutive days so that there are three consecutive increases are
i) 90, 100, 110, 120, 110
ii) 110, 120, 130, 120, 110
Now the price should be greater than 110 only once, because Michael has sold only once.

	Thus out of the 2 cases mentioned only first is possible. Thus the price at the end of day 3 is 110, i.e. 3rd option.
17.	As Chetan is having Rs. 1,300 more than Michael and we already know that Chetan has sold for one extra time. This means Michael has not sold at all. So the prices are between 90 and 110 (inclusive) The possible movements according to closing prices are i) 110, 100, 110, 100, 110. ii) 90, 100, 110, 100, 110. iii) 110, 100, 90, 100, 110. (iv) 90, 100, 90, 100, 110. In all these cases the closing price on the fourth day is always Rs. 100. Thus 2nd option.
18.	If Michael ended with 20 more shares and it is already stated that Chetan has sold for one more time. This means Chetan is having 10 less shares in any case. If the difference is 20, this means Michael has bought shares once. Now the only possible closing prices so that the price must go less than 90 (so that Michael buys) exactly once are 90, 80, 90, 100, 110. The price at the end of day 3 should be Rs. 90. Thus the 1st option.
19.	It is already stated that Chetan has sold for one more time, this means there is a difference of 10 shares due to this. Now that difference must have given a difference of around Rs. 1000 (because price is around 100 always). But the given difference is only Rs. 100, this means Michael must have also sold. Had Michael sold for more than once, then he would had more cash. As it is less, this means Michael has also sold once only. As they sell only 10 shares in each time, in those 5 days they have reduced by a quantity of 10 shares each. In total they both will have equal shares. Thus 5th option.
20.	As the maximum cash balance is asked, this means MICHEAL should be made to sell the maximum no. of times. This means you should try to make the price more than Rs. 110 for maximum days. Considering the closing prices possible are 110, 120, 130, 120, 110. Now in this prices Michael will sell in 2nd, 3rd and 4th and will get Rs. 1,200, 1,300, 1,200 i.e. Rs. 3,700. In this Chetan will receive (+) and pay (-); (+ 1,100, + 1,200, + 1,300, - 1,200, - 1,100). In net Chetan receives Rs. 1,300. Thus the maximum possible total increase in cash is 3,700 + 1,300 = Rs. 5,000 i.e. 4th option.
21.	Putting option 1. 1, 5, 3, 3 S-A-T → 9 + 1 + 5 = 15 S B C T → 2 + 5 + 3 + 3 + 2 = 15 S D C T → 7 + 3 + 1 + 3 + 2 = 16
	S D T = 14 Hence not possible since 'S D T' would still be preferred. Similarly checking for option – 2, 3, 4 & 5 2. S-A-T → 9 + 1 + 5 = 15 S-B-C-T → 1 + 2 + 4 + 3 + 4 + 2 = 16 S-D-C-T → 7 + 3 + 1 + 4 + 2 = 17 S-D-T → 7 + 3 + 6 = 16 3. S-A-T → 9 + 1 + 5 = 15 S-B-C-T → 2 + 5 + 3 + 4 + 2 = 16 S-D-C-T → 7 + 2 + 1 + 4 + 2 = 16 S-D-T → 7 + 2 + 6 = 15 4. S-A-T → 9 + 0 + 5 = 14 S-B-C-T → 2 + 5 + 3 + 2 + 2 = 14 S-D-C-T → 7 + 3 + 1 + 2 + 2 = 15 S-D-T → 7 + 3 + 6 = 16 5. S-A-T → 9 + 0 + 5 = 14 S-B-C-T → 2 + 5 + 3 + 2 + 2 = 14 S-D-C-T → 7 + 2 + 1 + 2 + 2 = 14 S-D-T → 7 + 2 + 6 = 15 ∴ Answer Option (5).
22.	Note: Both the options (2) and (3) are correct. Available routes are SAT → Rs. 14 SBAT → Rs. 9 SDCT → Rs. 10 SDT → Rs. 13 Now fuel cost of SAT - fuel of SDT = 14 – 13 = Rs. 1. Hence toll at junction D should be 1 more than the toll at A. So option (1), (4) and (5) are ruled out. Now fuel cost of route SAT - fuel cost of SBAT = 14 – 9 = Rs. 5. So toll at junction B should be Rs. 5. So answer could be either (2) or option (3).
23.	Note: Both the options (1) and (4) are correct. Available paths considering no toll are SAT → Rs. 14 SBCT → Rs. 7 SBAT → Rs. 9 SDCT → Rs. 10 SDT → Rs. 13 Fuel cost on path SAT - fuel cost on SDT = 14 - 13 = Rs. 1, toll at junction D should be 1 more than the toll at junction A. So option (2), (3) and (5) are ruled out. Checking options (1) and (4). When A = 0, paths SAT, SBAT and SDT are equally likely to be taken by a motorist. When A = 1, toll at B and C should be equal to Rs. 5 and Rs. 3 respectively.
24.	Available routes are SAT → Rs. 14 SBAT → Rs. 9 SBCT → Rs. 7 SDCT → Rs. 10 SDT → Rs. 13 Fuel cost on path SAT - fuel cost on path SDT = 14 – 13 = Rs. 1. So the toll at junction D should be 1 more than toll at junction A. So option 1 and 3 are ruled out. Fuel cost on path SAT - fuel cost on path SBCT = 14 - 7 = Rs. 7. So sum of toll at junction B and C should be 7 more than the toll at A. Hence only option (4)

	matches.
25.	We have to find a route on which minimum cost is incurred and such that total traffic through B does not exceed 70%. So, option (5) is ruled out because we can send all traffic through SDCT or SDT and meet all conditions. Option (1) is also ruled out as in that case all traffic will be passed through SBCT [not possible as traffic at B can't be more than 70%] Option (2) is also ruled out as it is possible only when toll at junction C is 2. In that case also all traffic will pass through B. Option (3) can be the answer, when toll at junction B is 4 and toll at junction C is 0. Then SDCT will have toll equal to Rs. 10. As Rs. 10 is lesser than Rs. 13 so option (4) is also ruled out. Answer is option (3).
26.	The entire paragraph chronicles the growing unease and distrust with which each of the three players regards the behaviour of the other two. Such guarded perspectives eventually snowball into a no-win situation for all concerned. Hence 5.
27.	The tone of the last line suggests the need for a contrast. Combining this with the knowledge (given in the paragraph) that a good map necessitates the pruning of superfluous information, we can conclude that a good theory would retain its worth even after being simplified. Hence option 1.
28.	The last line generates misgivings about the professed position of the concerned players – this apprehension is buttressed by the claims made in option (2). Hence 2. (5 is negated because of the use of the word " penchant" – the use of force is a situational imperative , not a result of an inclination towards violence)
29.	The author tries to disprove the notion held by others that he imposes rules. To support his answer, he exemplifies by asking veiled questions, which represent nothing but indirect suggestion.
30.	Options 2 and 4 compete to some extent, but the former can be ruled out as the overwhelming idea is that of capitalizing on entrepreneurial opportunities and not merely experimenting with new idea. Hence option 4 is the best one.
31.	The passage mentions very clearly in the last lines of the 3rd paragraph that critical attitudes are super-imposed on the dogmatic ones and the latter are the raw material for the development of the former ones. Option 2 represents the best option in terms of a verbal analogy.
32.	Please refer to the last few lines of the first and third paragraphs.
33.	The last lines of paragraph 2 suggest an inverse relationship between experience / maturity and dogmatic behaviour. Since dogmatic behaviour is characteristic of primitives and children, it is likely that the aforementioned attributes are found in smaller

	degrees in these groups – the plausible reasons for which are best explained in option 4.
35.	Please refer to the penultimate paragraph for the right answer.
36.	Please refer to these lines "For all its atrocities…." from paragraph 3.
37.	Para 2, "different elements of communist ideology ……..still seduce many." This suggests that there still exists a need to further glorify the ideology of capitalism. Hence 2.
38.	The first line of paragraph 2 as also its last two lines indicate that while communism might have cost lives, it also served certain progressive purposes. Coupled with line 3 (*and while….*) of paragraph 4, they lead us to the position offered by option 5.
39.	The 3rd line of paragraph 4 suggests a stronger link between Nazism and colonialism than between Nazism and communism. This link is exemplified by the last line of paragraph 4 as also the last two lines of paragraph 5. Hence option 1.
40.	The rest of the options can be logical reasons behind the unwillingness of the Council to decry the colonial atrocities, but option 4 finds a direct mention. Please note that the question is based on inference.
41.	The question talks about a hypothetical situation. Please refer to para 2. *It is understood as a purely hypothetical situation characterized……*
42.	Refer to para 3, line 7. *Assuming that the original position does determine a set of principles ……*
43.	Para 2 states that the principles of justice should be such as to ensure that nobody gets an unfair advantage and that all are treated in a similar manner. Such a situation is best exemplified in option 4 wherein a person is qualified to make rules only if he agrees to adhere by them in his next life, given of course the inevitability of a next life.
44.	Line 4 of paragraph 3 (*moreover…*) states that social institutions and laws need to be accepted by those engaged in them in the manner in which they had originally contracted into them. For it is only in the initial stages of conception that we are free of any binding stipulations and constraints.
45.	Since there has to be an element of fairness and justice, therefore option 4, which talks of similar schools, is the correct choice. All other choices smack of unfairness.
46.	Statement I is an inference because statistical indications are given. Statement II is a judgment because of "significant incentive" which implies an element of judgment.
47.	Statement I is a judgment because of "we should not be". Statement II is a fact because it mentions "the truth". Statement III mentions "people's character", hence a judgment.

48. All the statements mention some element of judgment, hence option 4.

49. Statement I mentions "strongest and most sinister" which implies judgment.
Statement II is an inference as it draws conclusion from war.
Statement III is a judgment as it mentions "insurance for our future".

50. Statement I clearly mentions "should be switching…" hence it is a judgment.
Statement II gives some figures, hence it is a fact.
Statement III is an inference as "would lead to availability" suggests a conclusion.

51. $\frac{a}{b}=\frac{1}{3},\frac{b}{c}\times\frac{c}{d}\times\frac{d}{e}=\frac{b}{e}=2\times\frac{1}{2}\times3=3$,

$\frac{c}{7}=\frac{c}{d}\times\frac{d}{e}\times\frac{e}{7}=\frac{1}{2}\times3\times\frac{1}{4}=\frac{3}{8}$

$\frac{a}{b}\times\frac{b}{e}\times\frac{c}{7}=\frac{1}{3}\times3\times\frac{3}{8}=\frac{3}{8}$

52. $x=-0.5\cdot\frac{1}{x}$ is the only – ive value

53. $t_3=\frac{3}{5},t_4=\frac{4}{6},t_5=\frac{5}{7},.....t_{52}=\frac{52}{54},t_{53}=\frac{53}{55}$

$t_3\times t_4.....t_{53}=\frac{3}{5}\times\frac{4}{6}\times\frac{5}{7}\times.....\times\frac{52}{54}\times\frac{53}{55}$

$=\frac{3}{5}\times\frac{5}{7}\times....\frac{53}{55}\times\frac{4}{6}\times\frac{6}{8}\times.....\times\frac{52}{54}=\frac{3}{55}\times\frac{4}{54}=\frac{1}{55}\times\frac{2}{9}=\frac{2}{495}$

54. $2^{\frac{1}{2}}=\left(2^6\right)^{\frac{1}{12}}=\left(2^6\right)^{\frac{1}{12}},3^{\frac{1}{3}}=\left(3^4\right)^{\frac{1}{12}}=\left(3^4\right)^{\frac{1}{12}}$,

$4^{\frac{1}{4}}=\left(4^3\right)^{\frac{1}{12}}=\left(4^3\right)^{\frac{1}{12}}$

$6^{\frac{1}{6}}=\left(6^2\right)^{\frac{1}{12}}=\left(6^2\right)^{\frac{1}{12}},\ 12^{\frac{1}{12}}=(12)^{\frac{1}{12}}$,

$\Rightarrow 3^{\frac{1}{3}}$ is largest.

55. Length = l = $3x$, Breadth = $b = 2x$,
Height = $h = x$ $2(l\times h+b\times h)$

Area of four walls = $2\left(3x\times x+2x\times x\right),=10x^2$,

Length doubled = $6x$.

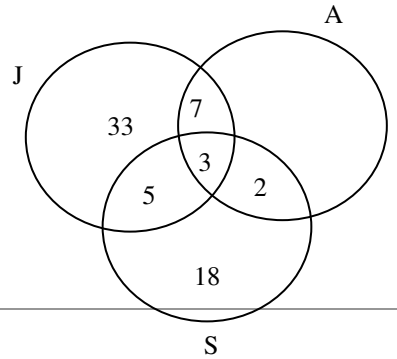
Breadth halved = x, Height halved = $\frac{x}{2}$.

Area of four walls = $2(l+b)h$,

$=2\left(6x+x\right)\frac{x}{2}=7x^2$,

Decrease of 30 %

56. Considering September data as 28 instead of 8 given in the question, we can draw the Venn diagram as follows



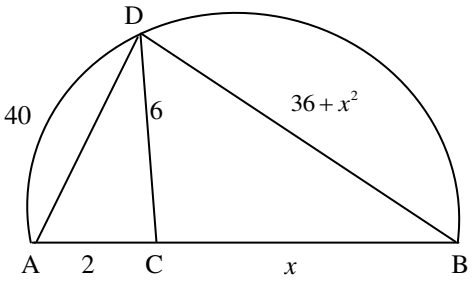
So exactly two Consecutive issues will be in July-August and August – September.
So the answer is 7 + 2 = 9.

57. $\left(\sqrt{40}\right)^2+\left(\sqrt{36+x^2}\right)^2=(2+x)^2$,

$40+36+x^2=4+x^2+4x$

$4x=72\Rightarrow x=18$, Diameter = 20 $\Rightarrow$
Radius = 10cms

Area of Semicircle $=\frac{1}{2}\pi\times10^2=50\pi$



58. As Praja is being charged more than Raja, so definitely Praja is having luggage more than 30 kg.
So answer is either 4th or 5th option.
But 40 kg is giving straight the ratio of 2 : 1 which should come after taking away the free luggage allowance.
So it is not possible.
Hence the answer is 4th option.

59. Let the free luggage allowance be x.
So $35 - x = 2(25 - x)$.
Solving this, we get x = 15 kg.
So answer is 2nd option.

60. Let x be no. of Children in first row & $x - 3$, $x - 6$, …… is Subsequent rows
For 3 rows x = 213 i.e. 213, 210, 207
For 4 rows 162, 159, 156, 153
For 5 rows 132, 129, 126, 123, 120.
No Solution is possible for 6 rows
Or Let the number of children in each row be x.
If number of rows is 6, then equation formed will be $x + x - 3 + x - 6 + x - 9 + x - 12 + x - 15 = 630$.
Solving this we get x = 112.5 which is not an integer.
So answer is 4th option.

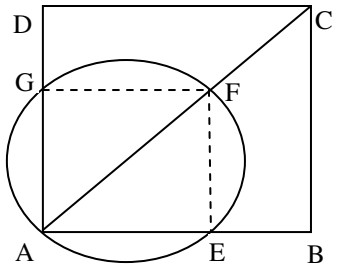
61. Area after Punching
= Area of Square ABCD – Area of Circle
$\left(2\times2=4\right)$ $\left(\pi\times1^2=\pi\right)$ +
Area of the part Outside

Square Sheet which is = $\frac{\pi-2}{2}$

$=4-\pi+\frac{\pi-2}{2}=\frac{8-2\pi+\pi-2}{2}=\frac{6-\pi}{2}$.

So required proportion = $\frac{6-\pi}{8}$.

(Area of the square = 4)



62. Required area = Area of Circle – Area of Square

AEFG = $\frac{\pi \times 1 - \sqrt{2} \times \sqrt{2}}{2} = \frac{\pi - 2}{2}$

63. Putting $x^{1/3} = y$.
So equation becomes $(y + 2)(y - 1) \le 0$.
So solution becomes $-2 \le y \le 1$.
So $-8 \le x \le 1$.
Hence answer is 1st option.
REMOVE FIGURE

64. One set would be the set S itself.
Other sets would be having common difference of 3, 9, 27, 37, 111 and 333.
So in all, we have 7 sets.
Hence answer is 4th option.

65. Looking at the graph for every 1 unit on x – axis there are 2 units on y – axis
$\Rightarrow y + x = 1, y - x = 2$, $y = 1.5, x = -0.5$
This can be cross checked with the options.
Option 2 & 3 are ruled out.
Now take another value such as
y + x = 2, y – x = 4, y = 3, x = -1.
Option 1 and 5 are ruled out.
Hence option 4.

66. Before dividing the number by 10, the only options possible for the sum of the numbers are 90 or 160 or 250 or 360. (as min sum is 11+13+15+17= 56 and max is 93+95+97+99=384)
Let the 4 numbers be $2a - 3$, $2a - 1$, $2a + 1$ and $2a + 3$.
So their addition is $8a$.
As this sum is divisible by 8, so it could only be 160 or 360.
Putting $8a = 160$.
So $a = 20$.
Hence the numbers are 37, 39, 41 and 43.
Hence answer is 3rd option.

67. $2x + y = 40$. As $x \le y$, so we get 13 values of x from 1 to 13.
For $x = 14$, we get $y = 12$ which is not possible.
So answer is 2nd option.

68. The totals of all the ratios are 189, 187, 221, 183 and 181.
The only prime number out of these numbers is 181.
So answer is 5th option.

69.

1	2	3	4	5	6
□	□	□	□	□	□

Task 2 can be assigned in 2 ways (3 or 4)
Task 1 can be assigned in 3 ways (5 or 6 and one of 3 or 4)
Task 3 can be assigned in 4 ways
Task 4 can be assigned in 3 ways
Task 5 can be assigned in 2 ways
Task 6 can be assigned in 1 ways
Using Fundamental Law of Multiplication
Required No. of ways
$= 2 \times 3 \times 4 \times 3 \times 2 \times 1 = 144$. ways.

70. $m_z y = b$, $m_x z = a$, $\frac{1}{m_z x} = a$, $m_z x = \frac{1}{a}$,

$\frac{m_z x}{m_z y} = \frac{1/a}{b}$, .

$m_y x = \frac{1}{ab} = ab$, So $a^2 b^2 = 1$, Hence $ab = \pm 1$.
Only 5th Option is not Satisfying this relationship.

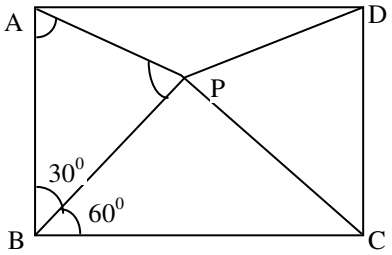
71. $2.^{7x} . 3^{-1.254} = \frac{8\sqrt{2}}{27}$,

$2^{7x} . 3^{-1.25} = 2^3 . 2^{\frac{1}{2}} . 3^{\frac{1}{2}} . 3^{-3} = 2^{3+\frac{1}{2}} . 3^{\frac{1}{2}-3}$, $= 2^{\frac{7}{2}} . 3^{-\frac{5}{2}}$
Comparing Powers with Same bases,
$.7x = \frac{7}{2}, x = 5, -1.25y = -\frac{5}{2}, y = 2$, $\therefore$ 5th option.

72. $f(x) = \max(2x + 1, 3 - 4x)$, $f(x)$ will attain its maximum at x =? determined by when
$2x + 1 = 3 - 4x$, or $x = \frac{1}{3}$. At x
$= \frac{1}{3}$ $f(x) = f\left(\frac{1}{3}\right) = \max\left(2 \times \frac{1}{3} + 1, 3 - 4 \times \frac{1}{3}\right) = \frac{5}{3}$

73. Let digit at unit place is x and ten's place is y.
$\therefore 10y + x - (10x + y) = 18$,
$9y - 9x = 18$, $y - x = 2$
Six Cases Other than (13, 31) are (24, 42), (35, 53), (46, 64) (57, 75), (68, 86) (79, 97) are possible

74.



ΔBPC is equilateral
Δ APB , BP = AB $\Rightarrow$ Triangle is isosceles
$\angle ABP = 30^\circ \Rightarrow \angle BAP = \angle APB = 75^\circ$
$\Rightarrow \angle DAP = \angle ADP = 15^\circ$
$\Rightarrow \angle APD = 180 - (15 + 15) = 150^\circ$

75. Arun will cover 60 km in 2 hrs.
So Barun will take $\frac{60}{10}$ = 6 hrs to meet Arun.
So in 6 + 2 = 8 hrs, Arun would have covered 30 × 8 = 240 km in 8 hrs.
So Kiranmala will take $\frac{240}{60}$ = 4 hrs to overtake Arun.
Hence Kiranmala would start after 8 – 4 = 4 hrs after Arun.