CATalsyt Education Group :

CATaylst is a Unique group tuition program. It was created by Munira Lokhandwala with general idea of selecting a small group of students every year and training them to crack the mother of all entrance tests.

Rahul Vani and Bijoy Shah soon joined the group to give CATalyst a whole new dimension, so that maximum number of students benefit from CATalyst.

Our CAT 2006 Results

Total Students : 28 IIM call getters : 9

More than 33% CATalystians scored 99.xx%tile

Munira Lokhandawala teaches at CATalyst.

Who's Munira Lokhandawala:

- **30 year old woman. Currently resides in Vashi**
- **Mathematics graduate, St. Xavier's, Class of 1997**
- **IIM Calcutta, Class of 1999**
- **Worked as CAT Product Head and Faculty, IMS, CL etc.**
- **Loves solving Maths Puzzles, dancing, bullet points**
- **99.99%ile in CAT 2004, 100%ile in CAT 2005, 99.99%ile in CAT 2006**

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2007 CATalyst Edcation Group
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Solution for CAT 2001 :

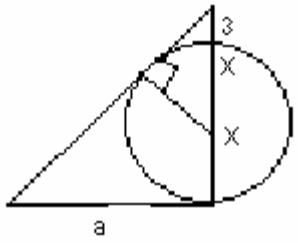
Section I

1. d The Pythagorean triplet 8, 15, 17 satisfies the given condition. If the ladder is moved away by 2, it would rest at the foot of the wall. [It is recommended that students should learn the Pythagorean triplets]

2. a Mistake =β + α) = - b/a is correct. Hence β + αin constant term implies that the sum (7. Secondly mistake in coefficient of x means that the product was correct. = 6. Only choice (a) satisfies both these conditions.βαHence

3. c Total marks = 6x + 7x + 8x + 10x = 40x. This was equal of 60% of 5y, if y are the 5y = 40/3 = 13.33x. The number of×total marks in each subject. Hence 40x = 0.6 papers in which he can receive 50% marks = 4. [Only when x = 4 is y > 50]

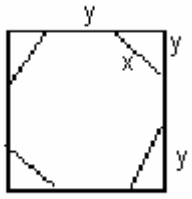
4. b



The best way to do this sum is to use Pythagoras and work from the choices. Taking choice (b) we get $12^2 + 9^2 = 144 + 81 = 225$, hence hypotenuse is 15. To check the answer, put x = 4.5 and see in the upper triangle whether the relationship holds.

5. a (x - z) = odd will always give odd, hence the first×odd - even = odd; y = odd. Odd statement is wrong.

6. b



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We have $x^2 = 2x/2.\sqrt{2}$ from (1) which is $\sqrt{y^2 + y^2} = 2y^2$ and 2y + x = 2 (side of square). y = x/ 2 +$\sqrt{}$2x + x = 2; hence x = 2/($\sqrt{}$Then substitute in second equation to get 1).

7. c Sum of natural numbers = n(n + 1)/2 < 1000 We get $n^2 + n < 2000$; hence n = 44 since $44^2 + 44 = 1936 + 44 = 1980$.. $(n^2 + n)/2 = 1980/2 = 990$. Hence the number added twice = 1000 - 990 = 10.

8. c Substitute possible figures in the given choices. In choice (a) x can be 2.9 and y can be - 6.9. In choice c) this becomes 5(xy) which is less than x^2y.

9. a If the base is x, then 44 = 4x + 4 and 11 = x + 1. Then, $(4x + 4)(x + 1) = x^3 + 3x + 4$. This becomes $x^3 - 4x^2 - 5x = 0$. 125 + 25 + 5 + 1×Solving, we get x = 0, -1, 5. Hence base = 5. Hence 3111 = 2 = 406.

10. b First look for sides of a right angled triangle with sides x – 3 and x + 4, i.e. a difference of 7. One such triplet is 8, 15, 17. So x = 11.

11. b Time 4 = 40/3 =×taken for the journey = 200/60 = 10/3 hrs. Litres consumed = (10/3) 13 - 33

12. b At 40 2.5 = 12.5 litres. At×km/hr, she spends 200/4 = 5 hrs and there by consumes 5 7.9 = 19 litres. Hence she must reduce the speed.×80 km/hr 2.5

13. d Visual question. Notice that the difference between BA and MBA is in the denominator. Since the denominator in MBA_2 is higher, it implies that this quantity must be smaller. But MBA_1 could be greater than MBA_2 but less than BA. Hence statement d) is correct.

14. b supposing be plays 10 matches and BA = 50. Then MBA_2 = (500 + 45)/11 = 545/11 = 49.5, hence MBA_2 will decrease

15. c The number of boxes containing same number of oranges will be least when there are maximum boxes containing different number of oranges. This means that each box has 120, 121, 122, … 144 oranges = 25 boxes. Repeating this five times, we get 5 boxes containing the same number of oranges. This covers 125 boxes. Since three boxes are left, there must contain one more box with the same number, hence answer is 5 + 1 = 6.

16. c We derive the table as follows:

	Male	Female
Chora Hazri	11264/2 = 5632	14174 - 2910 = 11264
Mora Hazri	14174 - 4020 = 10154	14174

17. d Substitute some values, say x = 6 and y = - 2 Then all the given choices are wrong. Also, since no upper value is given, we cannot get any specific answer.

18. b ABCF, ABF, ABEF, ABDCF, ABDEF, ADCF, ACDF, ADCEF, ADEF, ADEF.

19. b Let the total track be x metres. Then,

A	B	C
X	x – 12	x – 18
	X	x – 8

Since the ratio of speeds is same, then (x – 12)/(x – 18) = x/(x – 8). Solving, we get x = 48.

20. a Use the s(s - a) (s - b) (s - c) where s = (a + b + c)√formula of area of triangle. A = /2. Substitute a = 20, b = 10 to get the value of c. Or, use the formula: (1/2) b x h, which is simpler.

21. a Time taken to cover 60 km by train y = 60/50 = 1 hr 12 min. Rest = 15 min. Total time = 1 hr 27 min. Distance from A of train X = 100 km approx. Remaining distance = 180 - (100 + 60) = 20 km. Time taken to meet = [Distance/Relative Speed] = 1/6 = 11 approx. Total distance = 100 +×20/120 = 1/6 hr. Distance from A = 70 11 = 111 km.

22. d The number of mints must be divisible by 3

23. b Ratio of the steps taken by the two = 3 : 2. Since Vyom = 20, Shyam = 30 steps. Total steps = 20 + 30 = 50.

24. c The minimum value will occur when a = b = c = d = 1.

25. d The new product must be a multiple of 53. Only one choice fulfills this requirement

26. a We see that 1944.81 is 441^2. Hence the CP of the article must be a multiple of 21. Alternately, we see that 3 and 4 cannot be correct as we cannot get 441 or 1944.81. Option 2 is too small, and after a cycle the price will become less than stated.

27. a Average = 602/17. After erasing, the numbers remaining will be a multiple of 17. By hit 68 = 2408. Numbers before erasing =×and trial, we take 68, then total = 602/17 70/2 = 2415. So the number that is erased is 2415 –×69 and their sum = 69 2408.

28. c The number can end in multiples of 4, that is 12, 16, 24, 36, 32, 52, 56, 64 = 8 2 = 24 ways. Hence× 3 ×cases. The first three positions can be filled by 4 8 = 192 ways.×total number of ways = 24

29. b Taking x and y, we get (83x + 76y)/(x + y) = 79; and taking y and z we get (76 y + 85z)/(y + z) = 81. From a), 83x + 76y = 79x + 79y, hence 4x = 3y. From b), 76y + 4 +× 3 + 76 ×85z = 81y + 81z, hence 5y = 4z. Average for all the classes = 83 5)/2 = 81.5.×85

30. a Since ABC, hence it is 1/6 of the∆ CEF = 1/3 of ∆height is the same, are of rectangle.

31. a We get 3x + 7y + z = 120 and 4x + 10y + z = 164.50. Subtracting, we get x + 3y = 44.50 or 2x + 6y = 89. Substitute in first equation to get x ty + z = 120 - 89 = 31.

32. d Work ×from the choices. A + D = t/4 + 1/32 = 9/32 BtC = 1/8 + 1/16 = 3/16 and a/32 2/3 = 3/16.

33. a We use hit and trial to solve this sum. Taking the first choice, we can get the number 1854, which satisfies all conditions.

34. a Let x be 0.60x = 360x. This is×the number to be contacted. Then amount collected is 600 75% of the amount, hence total amount is 480x. Remaining amount = 120x. Required contribution = 120x which is paid by 40% of x. Hence average contribution = 300.

35. c Let the time taken together = x. Then the friends take x + 6, x + 1 and 2x hours to do the work individually. Hence 1/x = 1/(x + 6) + 1/(x + 1) + 1/x. solving the equation we get x = 2/3 or 40 minutes.

36. a Red light = 60/3 = 20 sec and green light = 120/5 = 24 sec. They will flash together in 120 sec (LCM of 20 and 24); i.e. 2 min. No. of times they flash in an hour = 60/2 = 30.

37. d Area of it angled triangle = (1/2) (24) (32) = 384 units and area of isosceles triangle with sides 25, 25, 40 = 300. Total area = 300 + 384 = 684 units.

38. d The coin should be put as follows: 1, 2, 4, 8, 16, 32, 64, 31, and hence he can meet all denominations. Hence 8 bags

39. c Let angle A = a, E = a, F = b, B = b. Then a + b = 140, since D = 40. Taking the quadrilateral ABCD, angle ACB = 360 - [40 + 180 - + 180 - b] = - 40 + a + b = 100.

40. c $a^2 - b^2$ 47. (a + b) (a - b) Sum of terms is 47 and difference of terms is×= 517 = 11 11. Hence x + x + 11 = 47, and the two terms are 18 and 29. Hence 5^{th} term = 47, 9^{th} term = 47 + 29 = 76 and 10^{th} term = 76 + 47 = 123.

41. b We get a = 4, c = 2, e = 6; b = c + a = 6 + 4 = 10 and b - d = d is given by 10 - 5 = 5

42. d Let speed of Rohit = x and current = y. then, 12/(x + y) = 12/(x – y) – 6. Also in the second situation, 12/(2x + y) = 12/(2x – y) – 1. Solving the two equations we get y = 8/3.

43. a X ◊ 12× 5 × 12) = 870 × 30 ×a = 300, d = 30, t = 10; s = 5 (600 + 9 = 52, 200. Y ◊ 6 =× 15) ×= 200, d = 15, t = 20; s = 10(400 + 19 41,100. Total amount = 52, 200 + 41, 100 = 93,300

44. a Substitute from the choices. We get a negative value for n = 4, and 0 for n = 5. Hence n must be greater than 5.

45. c Outer 20 = 1200. Then, (60 + 2x) (20×area = (60 + 2x) (20 + 2x) and inner area = 60 + 2x) - 1200 = 516. Solving the equation, we get x = 3.

46. a 1971 - 2 + 22 = 38;×2001 = 30 years in including 8 leap years. No of odd days = 8 hence 38/7, remainder = 3. Sunday - 3 = Thursday.

47. c a = b^2 - 4. Substitute some values to get b = 4, 5, 6…….. hence a =≥b and b 12,20,30…..In each case, a^2 - 2a is divisible by 24.

48. c In 20 kg fresh grapes, 18 kg is water and 2 kg is dried grapes. But these must contain 20% of water of total weight. Hence 2.5 kg.

49. b We get 3 equations: x + y + z = 300, x + 2y + 5z = 960; 2x + y + 5z = 920. Subtract 1) from 2) and 3) to get: 3x + 3y + 10z = 1880 and 3x + 3y + 3z = 900; 7z = 980 hence z = 140.

50. c minimum value will occur when x = y = 0.5, hence value of one term is 6.25. answer will be 6.25 + 6.25 = 12.5

Section II

51. c The film is about the present, in which forests are cut, juxtaposed with the pre-modern era, which showed an understanding with nature.

52. a The film opens with Arseniev searching for Dersu's grave

53. d All the choices show Arseniev's reflective nature.

54. d The story is told through Arseniev's nostalgic memories.

55. c This is explained right in the first paragraph.

56. c Dersu is already dead when the film opens.

57. b It is mentioned in the last para that her beauty and self respect was too much of a handicap.

58. c Her physical death called for relief (first para).

59. a "The most heart-rending voice of the past generation."

60. d Though she pursued self destruction, it cannot be said that she welcomed suffering.

61. c Inverted representations have often been employed as balm for the forsaken (first para)

62. a The reference is to make the social inequities well known (reverse globalisation)

63. d The argument is about whether caste is admissible into the agenda, hence b). Also mentioned in the beginning of the second para.

64. b Second paragraph - “all subsequent distinctions are constructed ones”

65. a Racial and related discrimination - first line.

66. b the ignorance of astronomers….

67. b

68. a Can best be done by eliminating choices b, c and d.

69. b “leftover material that did not condense into stars or quasars”.

70. b The words have the same onset, rhyme and phoneme.

71. b directly stated in the second last line

72. d It is stated that any deficit could lead to dyslexia.

73. a stated in the passage

74. d “than the version based on phonemes” (last line).

75. b statements A and B can be inferred from the first three paragraphs. But the author does not say about
C or D

76. c second last line states this.

77. a A and D can be inferred (last paragraph).

78. d directly stated “But a system…..”

79. a directly stated in the second paragraph.

80. c directly stated in the last paragraph.

81. d choose the most logically related sentences

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82. a 83. c 84. c 85. a

86. a some words stop being used; opposite: prevalent.

87. a

88. c false, but has a ring of truth: deceptive; opposite is credible.

89. d

90. d obviate: to get rid of

91. a 92. d 93. c 94. b 95. d 96. d 97. c 98. b 99. c 100. d

Section III

101. b We know A < 3B, C > B, D = C - B and A = 3 D. B must have 500, since he has to borrow 100 from A. C must have at least 700, but this is not correct as this leaves D with 200 and A with 600. Since A lends 300 to C and 100 to B, A must have at least 1000 since A = 3D, we get A = 1200, D = 400, hence D can buy one shawl.

102. b There are 6 males and 6 females. Hence the minimum number of people present can be 6 + 6 = 12.

103. c We get the following table which satisfies all the given conditions.

M1	M2	M3	M4
O	P	Q	R
FB	DE	AG	CH

104. b We must maximise the number of items and minimise the balance money. By hit and 220 = 870 which× 215 + 2 ×trial, we must buy 2(E + 2D + B) and 2(D + 2B) = 2 leaves 130, the minimum amount. Note that we must by the cheapest combination, which is E + 2D + B, in order to maximise the number of items purchased.

105. b We have 22 + 6 = 28 maple leaves. The red spotted oak leaves must be 2 and non-red spotted oak leaves must be 10. This accounts for 40 leaves. Then, spotted maple leaves not red = 0, this means that red maple without spots must be 5, which is equal to the red oak leaves without spots. Total oak leaves = 10 + 2 + 5 = 17.

106. d likings: M_1 = F + S; M_2 = S + D; M5 = D, M6 = F -- at least one liking is shared. Dislikes: M1 = G, M2 = F, M5 = S + M, M6 = S + M. Since G is not in the liking list, choice (a) is wrong. Continue checking. Only M1, M2, M4 and

M7 (liking = F + S + D + M + G, dislike = G + F + D + F) meets all the requirements.

107. b Radha cannot be in W1 or with Tara or Komal. This leaves her to be in the group with membership 1, so Elina is her instructor.

108. d The group of 4 cannot be made, except S + R + F + D.

109. c From the above

110. b In all the other choices we have D, who insist that F be with him.

111. c We have E = 3Y, Z = ½ W, Y > Z. To find E, we must know Y, hence both statements are needed.

112. b Y could be 11, 12, … hence the minimum age of E can be 33. Since W = 20, we can infer that E > W.

113. c P. A = @ implies Pluto is not an alsation, but POA = D implies both P and A are dogs.

∩114. c Fish @ implies that some elements are common between Fish and≠ Vertebrate) ∩(Dogs Dogs

115. a Z = Mammals∪ Mammals = Pluto ∪ Dogs) ∩(Pluto

116. a X = Dogs = Dogs, hence dogs are mammals.∩Mammals

117. c 9-10: SS, 10-11: VA, 11-11.30: SK, 11. 30-12: 30: JKR; 12.30-1.30: Lunch, 1.30-2: JKG, 2-3: RS.

118. b **Case I**: The dog has black hair:

a) Black hair - short tail

b) Short tail - not wearing collar

c) Black hair - not wearing collar

Case II: The dog has white hair:

a) white hair - long tail

b) long tail - wore a collar

c) white hair - wore a collar.

Now check the choices. Only b) is correct as per the above.

119. c We get the following table.

12	1	2
Sharma	Patti	Banerjee
Sambar	Brinjal	Makki
White	Blue	Red

120. c Supriya -April - 4; Vaibhav - June - 7; Anshuman - September - 2.

121. c There are 6 US airports in top 10

122. c 1, 2, 3, 5, 9 = 5 airports

123. a Count the A's in the top 10

124. c 62/336 = 20% approx.

125. b Court the surplus in the last row

126. b Court the X-X-L lots, row-wise

127. d XXL yellow and white are produced by 5 lots

128. d Count the lots produced under yellow

129. d Avanti - Vidisha carries 300 + 700 for Panchal, free capacity = 0

130. d Avanti - Vaishali carries 700; spare capacity = 300.

131. d Avanti - Vidisha : full capacity.

132. c Calculate the cost by ship, air and road.

P = 3/1.08 = 2.77; Q = 2.10/1.32 = 1.58; R = 1.80/2.64 = 0.68 hence P > Q > R

133. b 3.60/1.08 = 3.33

134. a Road is the cheapest, from Q 132.

135. d We cannot find out how many apples they bought, even from the two statements.

136. d We do not know the base figures hence cannot come to a conclusion.

137. b We can get X = 6 from either statement

138. a Only the second statement gives the time, hence total number of trips can be found out.

139. c We need both statements to find out the time required.

140. b The area of square and circle can be found out using either statement

141. c We have three cases: 15, 2; 10, 3 and 6, 5. Using both statements (m > n), we get the first one.

142. b Interchange the times between B and E. Then arrange in ascending order

143. d In company 5, (B + C + D)/3 = 36.8/3 = 12.3. Add to E = 28.6 + 12.3 = 40.9 which is the highest.

144. a Total reduction = 81.7/5 = 16.3 Reduction = 28.6 - 16.3 = 12.3

145. a Distribute 50% of the work and we find that coding > testing

146. c (80 + 100 + 150)/(180 + 520 + 430) = 330/1130 = 30%

147. c Total onsite hours: 440 which is equal to off-shore testing.

148. a 800/2 = 400 hours. Only coding comes equal to this figure.

149. b 140/330 = 33%

150. a Visual question.