CAT 2008 (Series 333)

<u>SECTION – I</u>

SERIES 333

Section » Q	uantitative A	bility					
No. Key							
<u>1 4</u>	<u>2 1</u>	<u>3 4</u>	<u>4 1</u>	<u>5 1</u>	<u>6 1</u>	<u>7 5</u>	<u>8 1</u>
<u>9 2</u>	<u>10 2</u>	<u>11 5</u>	<u>12 3</u>	<u>13 2</u>	<u>14 2</u>	<u>15 4</u>	<u>16 3</u>
<u>17 3</u>	<u>18 5</u>	<u>19 3</u>	<u>20 1</u>	<u>21 4</u>	<u>22 3</u>	<u>23 5</u>	<u>24 2</u>
<u>25 5</u>							

Section » DI

| No. Key |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <u>26 3</u> | <u>27 3</u> | <u>28 2</u> | <u>29 5</u> | <u>30 1</u> | <u>31 5</u> | <u>32 2</u> | <u>33 1</u> |
| <u>34 1</u> | 35 4 | <u>36 4</u> | <u>37 1</u> | <u>38 5</u> | <u>39 2</u> | <u>40 4</u> | <u>41 4</u> |
| <u>42 5</u> | <u>43 5</u> | <u>44 2</u> | <u>45 3</u> | <u>46 4</u> | <u>47 5</u> | <u>48 3</u> | <u>49 3</u> |
| <u>50 2</u> | | | | | | | |

Section » V	erbal Ability						
No. Key							
<u>51 3</u>	<u>52 4</u>	<u>53 5</u>	<u>54 1</u>	<u>55 3</u>	<u>56 5</u>	<u>57 2</u>	<u>58 5</u>
<u>59 3</u>	<u>60 2</u>	<u>61 2</u>	<u>62 1</u>	<u>63 1</u>	<u>64 4</u>	<u>65 3</u>	<u>66 5</u>
<u>67 5</u>	<u>68 1</u>	<u>69 1</u>	<u>70 5</u>	<u>71 3</u>	<u>72 2</u>	<u>73 1</u>	<u>74 4</u>
<u>75 5</u>	<u>76 1</u>	<u>77 4</u>	<u>78 3</u>	<u>79 4</u>	<u>80 5</u>	<u>81 5</u>	<u>82 2</u>
<u>83 2</u>	<u>84 1</u>	<u>85 4</u>	<u>86 3</u>	<u>87 4</u>	<u>88 4</u>	<u>89 2</u>	<u>90 1</u>

11

1. Required number of integers =
$$3 \times 5 \times 5 \times 5 + 1 = 376$$
. Answer: (4)

2. Number of distinct terms =
$${}^{20+3-1}C_{3-1} = 231$$
.

```
Answer: (1)
```

3.



Neelam must go from diagonal of park P for the shortest route. She will go A to X, then X to Y and then Y to B. Number of ways from A to $X = {}^{4}C_{2} = 6$ Number of ways from X to Y = 1 Number of ways from Y to B = ${}^{6}C_{2} = 15$ Total ways = 6 × 1 × 15 = 90 **Answer: (4)**

4.



Number of ways from A to C via B = (Number of ways from A to B) × (Number of ways from B to C) Number of ways A to B = 90 (solved in the previous question) Number of ways B to C = (number of ways from B to Z) × (number of ways from Z to C) + Path B – M – C = ${}^{6}C_{1} \times 2 + 1 = 12 + 1 = 13$ Total ways = 90 × 13 = 1170 Answer: (1)

5. Let's say r and h are the height of cylinder which can be placed in the cone. Now triangles ADE and AFC are similar

So,
$$\frac{AD}{AF} = \frac{DE}{FC}$$

 $\frac{AD}{10} = \frac{r}{4} \Rightarrow AD = 2.5 r$
h = AF - DD = 10 - 2.5 r
Now total surface areas of the cylinder
T.S.A = 2 πr (h = r)
= 2 πr (10 - 2.5 r + r)
= 2 πr (10 - 1.5r)(1)
Now for T.S.A to be maximum
 $\frac{d}{dr} [2\pi r(10 - 1.5r)] = 0$
 $\Rightarrow 2\pi x 10 - 2\pi x 3r = 0$
 $\Rightarrow 10 = 3r$
Or r = $\frac{10}{3}$
Let's plug in the value of r in (1)
T.S.A = $2\pi x \frac{10}{3} (1 - 1.5 \times \frac{10}{3})$
= $\frac{20\pi}{3} \left(10 - \frac{15}{3} \right) = \frac{20\pi}{3} \times 5 = \frac{100\pi}{3}$ Answer: (1)

6. Last two digits of a number is the remainder obtained by dividing the number by 100.

Let's study the pattern of remainder:

For $7^1 - 7$ For $7^2 - 49$ For $7^3 - 43$ For $7^4 - 01$ Now, $7^{2008} = (7^4)^{502}$, so remainder for 7^{2008} is also 01. Hence, 7^{2008} will have 01 at last two places. **Answer: (3)**

7. Circum-radius, R = $\frac{abc}{4\Delta}$ = $\frac{17.5 \times 9 \times BC}{4 \times \frac{1}{2} \times BC \times 3}$ = 26.25 Answer: (5) 8. First term = $\sqrt{1+1+\frac{1}{4}}$ = $\frac{3}{2}$ = 2 - $\frac{1}{2}$ Sum of fist two terms = $\frac{3}{2}$ + $\sqrt{1+\frac{1}{4}+\frac{1}{9}}$ = $\frac{3}{2}+\frac{7}{6}$ = $\frac{8}{3}$ = 3 - $\frac{1}{3}$

By symmetry, required sum = $2008 - \frac{1}{2008}$ Answer: (1)

9.

	Quantity Taken	Remaining Quantity
1 st man	$\frac{x}{2} + \frac{1}{2}$	$\frac{x}{2}-\frac{1}{2}$
2 nd man	$\frac{x}{4} + \frac{1}{4}$	$\frac{x}{4} - \frac{1}{4}$
3 rd man	$\frac{x}{8} + \frac{1}{8}$	$\frac{x}{8} - \frac{7}{8}$

After third person remaining quantity = $\frac{x}{8} - \frac{7}{8} = 0$

x = 75 $\leq x \leq 8$ Answer: (2)

Solutions 10 & 11:

 $f(x) = ax^{2} + bx + c$ f(x) = 0 for x = 3 $9a + 3b + c = 0 \qquad(1)$ f(5) = -3 f(2) $37 a + 11b + 4c = 0 \qquad(2)$ From (1) & (2) a = bSum of roots = $\frac{-b}{a} = 3 + d$ (Where d is second root) d = -4

10. Answer: (2)

- 11. From here we are not able to find the value of a + b + c. Answer: (5)
- 12. General term of sequence of common terms is,

 $\begin{array}{l} T_n = 21 \, + \, (n-1) \, 20 \\ = 20n \, + \, 1, \, T_n \, \leq \, 417 \\ \\ Therefore: \, n = 20 \qquad \qquad \mbox{Answer: (3)} \end{array}$

- 13. f(x) f(y) = f(x y) f(1) f(1) = f(1) $\Rightarrow f(1) = 1, \text{ as } f(1) \text{ cannot be zero.}$ $f(2) f\left(\frac{1}{2}\right) = f(1)$ $\Rightarrow f\left(\frac{1}{2}\right) = \frac{1}{4} \text{ Answer: (2)}$
- 14. Roots are $\frac{a}{3} 1, \frac{a}{3}, \frac{a}{3} + 1$ $\therefore b = \frac{1}{3}(a^2 - 3)$ Smallest value of $a^2 - 3 = -3$ \therefore Smallest value of $b = \frac{1}{3} \times (-3) = -1$ Answer: (2)
- 15. We need to combine both the statements as Statement (A) will give us the total number of matches played but will not give whether champion got a bye or not. Statement (B) says that he got a bye. So we can get a definite answer by combining both the statements. **Answer: (4)**
- 16. Let's try to analyze it. To have a perfect match without a tie we must have following players at the start of each round.

Final -2 Quarter Final -8Semi Final -4 then -16-32-64-128

Now we need to find exact number of players between 65 and 128.

Let's take each statement:

Statement (A) says exactly one player received a bye so if we have 127 players at the start, one will get bye and rest 126 will play. At the end of first round we have 63 + 1 players. After that it will be a perfect match without a bye. So, total players are 127. So we can get answer from statement (A) alone.

Now let's take **Statement (B)**

If we assume total players at the start of the match as 124, then in the

First round,	we will have 62 matches
Second round,	we will have 31 matches
Third Round,	we will have 15 matches + 1 bye
Fourth Round,	8 matches
Fifth Round,	4 matches

And so on.

So, in the above combination, a player is getting a bye while moving on to fourth round from third round. And we can definitely say that number of players as 124. Hence we can get the answer from Statement (B) alone as well. Answer is (3)

- 17. Let's start by taking small series 1, 2, 3, 4, 5.
 - Step I: We will remove any two numbers (a, b) and replace it with a + b - 1. Let's climate 4 and 5 1, 2, 3, 8 Repeat the above process 1, 2, 10 Step II: Step III: Again repeat 1, 11 Step IV: Repeat the above step again. We have final number left as (1 + 11 - 1) = 11. Now if you see carefully 11 is nothing but "sum of first 4 terms of our series +1". i.e. (1 + 2 + 3 + 4 + 1) = 11Now if we repeat the above procedure with series 1, 2, 40, our final number should be $(1 + 2 + 3 + \dots 39) + 1$ $=\frac{39}{2}(1+39)+1$ $= \frac{39}{2} \times 40 + 1 = 39 \times 20 + 1 = 781$ Answer: (3)

18. Let side of square be 2,

$$SR = 2 - \frac{1}{\sqrt{3}} - \frac{1}{\sqrt{3}} = 2 - \frac{2}{\sqrt{3}}$$
Required ratio = $\frac{\text{Area of ABQCDP}}{\text{Area of APD + BQC}}$

$$= \frac{\text{Area of APQB}}{\text{Area of APH + BQF}}$$

$$= \frac{\frac{1}{2}(PQ + AB) \times SP}{2 \times \frac{1}{2} \times AH \times PH}$$

$$= \frac{\frac{1}{2}\left(2 - \frac{2}{\sqrt{3}} + 2\right)}{\frac{1}{\sqrt{3}}} = 2\sqrt{3} - 1$$
Answer: (5)





20. You can safely eliminate (4) and (5) options because these values are very high and then cube will run into big numbers.

From the first option, of we take m as 3 then the numbers are 3, 4 and 5.

Let's check the given conditions:

 $3^{1} + 4^{2} + 5^{3} = 3 + 16 + 125 = 144$

Now $\sqrt{144} = 12$ which is nothing but some of our numbers (3, 4 and 5) Hence Answer (1)

21. Raju spent Rs. 6000 on betting, so he must have Rs. 6000 at the end.

The cases possible are

(B – Black, W – White, R – Red)

Position→	1	2	3	4	5
Case 1		W	7	R	В
Case2		Ŵ	1		R
Case3	В		W	R	
Case4	В		W		R

In all cases, there can not be three horses between White and Red. Answer (4)

22. Raju spent Rs. 6000 on betting, so he must have Rs. 6000 at the end.

The cases possible are

(E	6 – Black, W – W	hite, R – Red)	<u> </u>			
	Position→	1	2	3	4	5
ĺ	Case 1		W		R	В
	Case2		W			R
	Case3	В		W	R	
	Case4	В		W		R

If Grey is fourth, then it must be case 4, & white must be at third position. Answer: (3)



n = 55 **Answer: (5)**

<u>SECTION – II</u>

26. The mutual transfer of an employee between marketing and finance increases the average age of finance by one year. So the aggregate age of marketing people decreases by 20 years. The transfer of one employee from marketing to HR. Again makes the average of marketing people same as before so the person who joined HR must be of age 35 – 20 = 15 years. So know the average age of HR

department equal to $\frac{45 \times 5 + 15}{6} = 40$. Answer (3)

- 27. If a 40 year old person transfer from marketing to HR his allowances increase by 10% of his basic pay. So his gross pay will become 8000 + 90% of 8000 = 15200, where as the average gross pay of HR is 5000 + 70% of 5000 = 8500. So if the marketing person joins HR, the average increase by $\frac{15200 - 8500}{6} = 1116$. So the percentage change equal to $\frac{1116}{8500} \times 100 = 13\%$. Answer (3)
- 28. Total three persons joining HR department with the basic salary of 20000 (together) the average basic pay increases by $\frac{5000}{8}$ because of this. So the percentage change in the basic pay of HR department

$$= \frac{\frac{5000}{8}}{\frac{5000}{5000}} \times 100 = 12.5\%.$$
 Answer (2)

- 29. Since nothing is mentioned about the beginning price and closing price and the prices in between, we can not sure any of the first four options. **Answer (5)**
- 30. Abdul bought the shares at 10 a.m. hence he will get maximum return Chetan invested equal amounts, he will buy more shares of low price, where as Bikram purchased equal numbers of shares so Bikram will get minimum return. **Answer (1)**
- 31. We know that only the closing price is greater than the beginning price but we don't know how it changes in between, so we can not answer this question. **Answer (5)**
- 32. Abdul lost his money means the closing price is less than the price at 10 a.m. The price at 2 p.m. is less than the closing price and the price at 12 noon was lower than the opening price. It is given that Dane and Emily made profits. Dane can make profit only if the price at 1 p.m. is less than the closing price. Since Emily also got profit, the price at 11 a.m. should be the least. (because the price at 10 is greater than the price at 3 p.m. and the price at 12 noon is greater than the price at 1 p.m. (Dane got profit)). Answer (2)
- 33. Same as before the price at 10 a.m. must be the highest. Answer (1)
- 34. In 2010, total subscribers = $60(1.05)^7 + 40(1.1)^7 = 84.4 + 77.9 = 162.34$ Percentage growth over $2003 = \frac{162.34 - 100}{100} \approx 62\%$ Answer: (1)

35. Percent change in the gap between subscription revenues in the US and Europe

 $= \frac{340 - 300}{300} = \frac{40}{300} = \frac{2}{15}$ For 03 – 04 $= \frac{270 - 340}{340} = \frac{-70}{340} = \frac{-7}{340}$ For 05 – 06 $= \frac{210 - 270}{270} = \frac{-60}{270} = \frac{-2}{9}$ For 06 – 07 For $08 - 09 = \frac{110 - 180}{180} = \frac{-70}{180} = \frac{-7}{18}$ For 09 - 10 = $\frac{100 - 110}{110} = \frac{-10}{110} = \frac{-11}{110}$ Absolute value is the highest in year 08 -09. Answer: (4) Percent change in growth of 2007 (over 2006) = $\frac{500 - 390}{390} \approx 28 \%$ 36. Percent change in growth of 2005(over 2004) = $\frac{280 - 190}{190} = \frac{90}{190} \approx 47\%$ Relative change = $\frac{28}{47} \approx 60\%$ Answer: (4) Percent growth of 2007 over $2006 = \frac{500 - 390}{200} \approx 28\%$ 37. Estimated subscription in $2008 = 1.28 \times 500 = 640$

Given estimation ≈ 600 Difference = 40 ≈ 50 Answer: (1)

Solutions 38 - 40:

From the statements (vii), (viii) and (ix)



From (v) and (vi) T, is the tallest house and it is opposite to Red House hence house S is Red and U is the shortest from (x) P is white and R is the second shortest. So the final arrangement is shown below.



38. S or Q can be the second tallest house. Answer: (5)

39. T is the tallest house which is blue. Answer: (2)

40. Answer: (4)

Solutions 41 to 44:

From the given information we can form the following table.

Stage one

	Α	В	С	D	, E	F	
Win	B/C/D	E/F		C/F	Ç/F		
Loss		А	A/D/E	А	В	B/D/E	
Stage two							
	Α	В	С	D	E	F	
Win	A	B C/D	С	D	E A/D	F A/C	
Win Loss	A E/F	B C/D	C B/F	D B/E	E A/D	F A/C	

- 41. Answer: (4) Answer: (5) 42.
- 43. B and E won four matches. Answer: (5)
- 44. Answer: (2)
- 45. By 2010 the revenue from data transfer will be 27% (9 \times 3) of total in India and 36% (18 \times 2) in Sweden. If x is the total revenue in Sweden, 2x will be the revenue in India. The ARDT in Sweden is \$6. So in India it will be $\frac{27\% \text{ of } 2x}{36\% \text{ of } x} \times \$6 = \$9$

So the percentage increase is 800% (because the ARDT in India was \$1 before). Answer: (3)

Going with the options, the fourth options satisfies. For UK it is $\frac{30\% \text{ of total revenue}}{1000 \text{ cm}}$ 46. 12.5

For Spain it is $\frac{15\% \text{ of total revenue}}{7}$

Since total revenue is same (given). Both the values are almost equal. Answer: (4)

- 47. If X is the volume of data transfer, X(\$1) = 8% of total revenue (India). So total revenue in India = 12.5 X. X(\$9) = 21% of total revenue. (Singapore). So, total revenue in Singapore = 45X. Answer: (5)
- 48. If we assume that Charlie get calls from college 2 and college 3 he can score 25 in section A and 50 each in the remaining sections his total will be 175. Which is the aggregate cut off marks for college 2 and college 3. So he can get a minimum of 25 marks in one section. Answer (3)
- 49. If Aditya gets 41 in section C and 43 in section D and 50 each in A and B he doesn't get any call so the maximum marks that he can score is 50 + 50 + 41 + 43 = 184. Answer (3)
- 50. If she gets 45 in section A and 45 in section B and 46 in section C and 45 in section D, she will get all calls so the minimum marks obtained by her each 45 + 45 + 46 + 45 = 181. Answer (2)

<u>SECTION – III</u>

Questions 51 to 54 (Sentence completion)

- 51. The first filler should go with 'sinister' which is a strongly negative word. The choice is between options 3 and 5 only. 'Sinister' is a design same as 'disingenuous'. 'Tragic' is an occurrence, not a design. Also 'victims' will go with 'perpetrators' for the second filler. **Answer: (3)**
- 52. For the first filler, options number 1, 3 and 5 do not fit cogently with 'navigators and calendar makers'. That limits our choice only to 2 and 4. When you accept the other person's opinion reluctantly, the proper usage should be 'concede'. **Answer: (4)**
- 53. A human being is a product of his genetics and his upbringing. Such upbringing should also include education or 'pedagogy'. **Answer: (5)**
- 54. The science has progressed, but the human mind is fixated to the past. Also the control over men's minds is exercised by central principles or 'tenets' of education. **Answer: (1)**

Questions 55 to 58 (Word usage)

- 55. 'Run over' means 'to be crushed'. One person can't run over another Answer: (3)
- 56. The correct usage in this sentence should be 'around'. Answer: (5)
- 57 'Buckle' means to yield or to give way. We also use buckle to tighten our belt. All sentences, except 2 fit these meanings. **Answer: (2)**
- 58. In sentence (5), the correct usage should be 'broke the ranks'. **Answer: (5)**

Questions 59 to 62 (Vocabulary based)

- 59. Brooch is an ornament use on the lapel of a coat or jacket. One should meet the local 'councillor' for neighbourhood complaints. We have to use the noun 'advice' in sentence 3. In sentence 4, we are talking of the climax of the film. Hence, the word to be used is 'climactic'. **Answer: (3)**
- 60. 'Currant' is a type of dry fruit. 'Exceptionable' is the behaviour that we take exception to. 'Assent' is approval granted when you are in a superior position. Here the sense conveyed is different. So the appropriate usage is 'consent'. The minister is 'obliged' not 'compelled'. Likewise the analysis of the situation is far too optimistic or 'sanguine' **Answer: (2)**
- 61. A biting comment is 'caustic'. A plea is 'cogent'. If we are open to something, we are not 'averse'. A two-seater in a train is a 'coupe' **Answer: (2)**
- 62. Spreading a message or idea is 'diffusing'. 'Bait' is a trap. A crowd is a 'horde'. Confinement is 'internment'. Somebody's behaviour is unsociable' **Answer: (1)**

Questions 63 to 66 (Sentence Correction)

63. Statement A is eliminated due to incorrect spellings of the word 'immigrant'. Statement C is incorrect as there is no comma after 'brother-in-law'. Statement D should use article 'a' for a particular business. In statement E, verb 'became' is incorrect. **Answer: (1)**

- 64. Statement B has an error of pronoun agreement. Statement C does not use comma after 'perhaps' and incorrectly uses comma after 'concerns'. Statement E uses incorrect article 'a'. **Answer: (4)**
- 65. Statement B should use 'millions' in plural. Statement D should use article 'the' before 'hundreds'. Statement E incorrectly uses plural auxiliary 'have'. **Answer: (3)**
- 66. Statements B and C suffer from the error of tense (associate; seem). Statement E suffers from an error of missing article. **Answer: (5)**

Questions 67 to 70 (Theme based)

- 67. The paragraph is about a patient's reaction to a surgeon's hands. **Answer: (5)**
- 68. Trade protectionism is raising its head in a different garb. Answer: (1)
- 69. The paragraph is about a Jewish settlement popular for its history and religious tolerance. **Answer: (1)**
- 70. There is a mix up of Western and Eastern culture and thought. Answer: (5)

Questions 71 to 75 (Reading Comprehension)

- 71. The passage is about art being an embodiment of a range of concepts and ideologies, a trait which it shares to some extent with science. The concluding lines of the passage sum up art and creation as translation and development of what has gone before. Option 3 can be directly derived from 'accidental meetings' in the first paragraph. **Answer: (3)**
- 72. The word 'fossil' is used to denote derivations from past knowledge. **Answer: (2)**
- 73. Option 1 can be directly derived from the first paragraph Answer: (1)
- 74. Option 4 can be directly derived from the lines "Different groups of artists would collaborate in trying to make sense of a rapidly changing world of visual and spiritual experience." **Answer: (4)**
- 75. The observation of TS Eliot has been explained in the last sentence of the passage. The only choice is between options (1) and (5). But (1) is rendered incorrect by the use of the extreme expression 'always'. **Answer: (5)**

Questions 76 to 80 (Reading Comprehension)

- 76. The very first line of the passage identifies five reasons for the collapse of Maya Culture. The names of Rwanda and Haiti have been mentioned in connection with the first reason. Here also option (2) mentions land resources only, whereas the passage mentions 'available resources'. Answer: (1)
- 77. The answer can be directly derived from meaning of the word 'anthropogenic'. Answer: (4)
- 78. Answer to this question is directly mentioned in the third paragraph as the fourth reason for collapse of the Maya Culture. **Answer: (3)**
- 79. Answer to this question is provided in the opening lines of the passage. Answer: (4)

80. Option (5) has been mentioned in the passage in the context of 'kings and nobles', not in the context of 'Maya population'. **Answer: (5)**

Questions 81 to 85 (Reading Comprehension)

- 81. The passage is about language development being biological, spontaneous and instinctive, rather than being 'a cultural invention'.
 'Psychological faculty' is attributed in the passage to 'some cognitive scientists', not to 'popular wisdom'. Answer: (5)
- 82. The answer to this question can be directly derived from the lines 'for a magnificent ability unique to a particular living species is far from unique in the animal kingdom'. **Answer: (2)**
- 83. Animals can also communicate to others of their species through sound, symbolism etc. Only they cannot use 'voice modulation'. **Answer: (2)**
- 84. Keeping the main idea of the passage in mind, the answer should be (1). Answer: (1)
- 85. Keeping the main idea of the passage in mind, the answer should be (4). Answer: (4)

Questions 86 to 90 (Reading Comprehension)

- 86. The gist of the passage is available in the fifth paragraph. Answer to this question can be derived from use of the word 'mendacious' before the justification given in paragraph 4. This is directly countered in option (3). **Answer: (3)**
- 87. This is a vocabulary based question. Answer: (4)
- 88. The author's pining is mentioned in the third paragraph where the 'liturgy seemed to me so sumptuously enviable'. **Answer: (4)**
- 89. The obvious answer to this question is option (1). Answer: (2)
- 90. The justification for refusal was meant to be didactic as admitted by the author in the lines "Two twocent cones instead of one at four cents did not signify squandering, economically speaking, but symbolically they surely did. It was for this precise reason that I yearned for them: because two ice creams suggested excess. And this was precisely why they were denied to me: because they looked indecent, an insult to poverty, a display of fictitious privilege a boast of wealth. **Answer: (1)**