

CAT 2000 Answer Key

1	1	41	4	81	4	121	1	161	1
2	3	42	2	82	3	122	4	162	2
3	1	43	2	83	1	123	4	163	1
4	2	44	1	84	2	124	3	164	2
5	4	45	4	85	1	125	3	165	1
6	2	46	1	86	2	126	4		
7	4	47	3	87	1	127	1		
8	1	48	3	88	4	128	2		
9	3	49	2	89	3	129	1		
10	3	50	4	90	2	130	2		
11	2	51	1	91	2	131	1		
12	3	52	4	92	3	132	4		
13	1	53	1	93	3	133	2		
14	3	54	3	94	4	134	4		
15	4	55	2	95	2	135	3		
16	4	56	3	96	2	136	2		
17	2	57	3	97	2	137	2		
18	1	58	4	98	3	138	2		
19	3	59	1	99	3	139	3		
20	2	60	4	100	2	140	4		
21	3	61	4	101	1	141	4		
22	4	62	3	102	3	142	4		
23	1	63	2	103	3	143	3		
24	4	64	3	104	2	144	1		
25	1	65	4	105	3	145	2		
26	2	66	4	106	4	146	1		
27	3	67	2	107	2	147	3		
28	1	68	3	108	1	148	4		
29	4	69	3	109	2	149	4		
30	3	70	2	110	4	150	1		
31	1	71	1	111	2	151	2		
32	2	72	2	112	2	152	2		
33	4	73	4	113	4	153	3		
34	2	74	3	114	1	154	4		
35	2	75	2	115	3	155	3		
36	1	76	2	116	1	156	2		
37	3	77	2	117	3	157	4		
38	4	78	2	118	4	158	3		
39	1	79	4	119	4	159	1		
40	3	80	2	120	3	160	4		

CAT 2000 Solutions

1.	The paragraph must start with B and followed by E and C		
2.	B introduces the subject and must be followed by "But being educated by photographs."		
3.	A introduces the subject "culturally literate" followed by "that information."		
4.	The introduction is social cost followed by "both parties" mentioned in A.		
5.	The best introduction is "simplest strategic problem" followed by B and then A must precede C.		
6.	B is the logical sequel to changing colours mentioned in (1), then A is directly related to B.		
7.	"Low light must follow "darkened sheds" hence para must start with B.		
8.	D introduces a contrary idea and there is a direct link with B.		
9.	The logical sequence to fraud is suspicion in C followed by A and then B.		
10.	After the first sentence, we must describe horses and communists, in A and B.		
11.	Directly stated in the second paragraph.		
12.	Third paragraph, second line.		
13.	Stated in third last paragraph, second line.		
14.	Stated in third last paragraph, "according to Paulo Freitas..."		
15.	"By measuring the current that flows through the sandwich..."		
16.	Note that they are all working on different aspects, hence 4.		
17.	Directly stated in the fourth paragraph.		
18.	The first statement is not stated in the passage.		
19.	The author is clearly comparing two innovations.		
20.	Traditionally, neighbours provide solace to the bereaved family, as stated.		
21.	Directly stated in the last paragraph.		
22.	"a formally trained person armed with a diploma from the university..."		
23.	First paragraph.		
24.	All the given choices re directly stated in the passage.		
25.	It is stated the county regulations require making use of the counseling as a right.		
26.	The innovations do not lead to migration of communities.		
27.	Third last paragraph: the author explains the notion of property.		
28.	First paragraph: the tradition of <i>guru</i> and <i>shishya</i> , hence 1.		
29.	The cassette does not serve the purpose of capturing the transient moments.		
30.	The tradition is stated to be oral – hence it does so without written words.		
31.	The question asks why the raga remains greater than the artist. That's because performance is valued greater than permanent record.		
32.	The music does not lie mute but is written down in		
33.	According to the passage, Indian classical music through a codified format has not produced any		
			noteworthy student or performer.
34.			A comparison is done of two systems of music, hence (2) conveys the central idea.
35.			The debate is about building a dynamic national agricultural research system, hence (2) is wrong.
36.			By definition, a public good is something that can be used by all.
37.			The passage states that both public and private sector companies should be involved because of their different objectives.
38.			Directly answered in the last paragraph.
39.			Development of newer varieties will lead to monocultures, not biodiversity.
40.			Stated in the first paragraph – patents were necessary to stimulate inventions.
41.			All the given choices are mentioned in the passage.
42.			It is stated that public and quasi-public institutions have a broader and long-term, hence (2).
43.			Third paragraph: "it led art towards the exploration of the subconscious mind..."
44.			Same as above – it was not part of the conservative trend.
45.			It is stated that some artists have taken it to the point of extinction, hence (1).
46.			Middle of the passage – points of affinity with the more mystically oriented of the major sources.
47.			The passage says, "Like all solutions..." hence we infer (3) which says it has not taken the path of politics or art.
48.			"the idiom is based on the lyric play of forms..."
49.			Last paragraph: "it is an art that points up the loss of a shared language of signs in society."
50.			All the choices are stated in the passage.
51.			Since the images are conflicting, the first word should be "reconcile" and then decide goes with reconcile than understand.
52.			Since the sentence has a negative tone, the word should be "touts" who do not care for the poor.
53.			<i>Morals</i> goes with manners (idiom) and then recurrent theme is better than story.
54.			The best choice is spiraling prices and soaring crime rates.
55.			One eye is kept on the future, yet contemporary popular art is promoted.
56.			For a triangle the sum of its any two sides is always greater than the third side (5,5,4), (3,5,6), (6,6,2) , (4,4,6) all possible sides of the triangle. So triangles are four in number.
57.			$N = (1421 \times 1423 \times 1425) / 12$ The remainder of each term will be as $5 \times 7 \times 9$, which when divided by 12 leaves the remainder 3. Therefore option 3 is correct.
58.			Between 100 to 200, there are total of 33 numbers that are divisible by 3. Total number of odds among them = 16, but the numbers (105, 147, 189) are divisible by 7. Therefore x will be = $16 - 3 = 13$.
59.			The product of 2 and 5 will give the only possible zero.
60.			The difference of these two numbers will be completely divided by n . Therefore 1535 is divisible by n , and hence option 4 is correct.
61.			In option 4, $(x - y)$ is even, and any number

	multiplied by an even number is always even.
62.	Focus on only the last four digits. For the number to be odd, it has to end in 1, 3, 5, 7 or 9. When the number starts with 635, total possible case = $(1 \times 9 \times 9 \times 4 + 9 \times 1 \times 9 \times 4 + 9 \times 9 \times 1 \times 4 + 9 \times 9 \times 9 \times 1)$ = $21 \times 81 = 1701$ Similar number of cases when it starts with 674. Total cases = $1701 \times 2 = 3402$.
63.	$f(0,2) = 2 + 1 = 3$ $f(0,1) = 2, f(1,2) = f(0, f(1,1))$ $f(1,1) = f(0, f(1,0)) = f(0,2) = 3$, So $f(1,2) = f(0,3) = 4$.
64.	1982 in base 12 will be $1982 = 1728 \times 1 + 144 \times 1 + 12 \times 9 + 1 \times 2 = 1192$.
65.	Let x be number of posts. The length of the property will be $(x - 1)$. Number of posts required at 8 m intervals is $8(x - 1)$. If the posts are placed at 6 m interval, he would need $6(x - 1 + 5)$ or $6(x + 4)$ posts. And the distance covered is the same. Hence $8(x - 1) = 6(x + 4)$. Solve for x ; $x = 16$ and the distance is 120.
66.	Let c be cone vol. So $c + 300 = 2(c - 200)$; $c + 300 = 2c - 400$; $c = 700$. So cylinder = $700 + 500 = 1200$ litres.
67.	Heaviest + second heaviest = 121 kg, lightest + second lightest = 110 kg. Total weight of all 4 = $121 + 110 = 231$ kg Weight of all 5 = $(110 + 112 + 113 + 114 + \dots 121) / 4 = 1156$ kg. [each is counted 4 times in above, so weight of all 5 = $1156/4 = 289$ kg] Weight of median = $289 - 231 = 58$ kg. Both heaviest and 2nd heaviest > 58 kg. And also they must add up to 121. It only fits in when weights are 60, 61 or 59, 62.
68.	Distance travelled = $(19.5 \times 100) / (130 \times 10)$ = 150 km.
69.	The given equation can be re written as $\frac{1}{2} [1 - 1/3 + 1/3 - 1/5 + \dots - 1/21]$ = $\frac{1}{2} [1 - 1/21]$ = $10/21$.
70.	Since $x > 2$, $-x < -2$ and since $y > -1$, $2y > -2$. Hence the option is 2.
71.	There can be 6 possible arrangements 1) W B W B W R 2) W B W R W B 3) W R W B W B 4) B W B W R W 5) R W B W B W 6) B W R W R W
72.	The data is not linear. So check (b). Let the equation be $y = a + bx + cx^2$. Putting the values of x and y , we get the following result. $\Rightarrow 4 = a + b + c$, $8 = a + 2b + 4c$ and $14 = a + 3b + 9c$. Solving these, we get $a = 2$, $b = 1$ and $c = 1$. So the equation is $y = 2 + x + x^2$.
73.	a_1 can be written as $(6 \times 2^0 - 5)$. a_2 can be written as $(6 \times 2^1 - 5)$. So $a_{100} = (6 \times 2^{99} - 5)$
74.	$D = 0.a_1a_2a_1a_2\dots\dots\dots = (a_1a_2) / 99$, i.e. the number has to be a multiple of 99. Therefore option 3.
75.	Let the numbers be $A, A+1, A+2, \dots$ therefore $(5A+10) / 5 = A + 2 = n$ and $(7A + 21)/7 = A + 3 = n + 1$.
76.	Diagonals intersect at right angles, so rhombus is

	also a square. Then the equation of the other side will be $y + x = -1$.
77.	Area = $1 + 1 + 2$ half squares = 3.
78.	$x^2 + y^2 = 0.1$, $(x - y)^2 = 0.2^2$; $x^2 + y^2 - 2xy = 0.04$, $2xy = 0.1 - 0.04 = 0.06$, So $xy = 0.03$, So $x = 0.3, y = 0.1$.
79.	Triangle ABC is isosceles, if $\angle DAE = x$, $\angle CBD = 180 - 2x$. The remaining angle of the triangle will be $180 - (2x + 2x) = 180 - 4x$. If we look at the 3 angles forming at point C, we get the third angle as $3x$ ($180 - x - (180 - 4x)$). But that angle and the $\angle AED$ are the same = $3x$. Because of the symmetry, $\angle ADE = 3x$. Adding all the internal angles of ADE, we get $x + 3x + 3x = 180$. So $x = 25^\circ$.
80.	$x^3 - ax^2 + bx - a$ can be rewritten as $x(x^2 + b) - a(x^2 + 1)$. In case $b = 1$, then the equation becomes $(x - a)(x^2 + 1)$. We know for sure that the second term will have imaginary roots.
81.	$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ = $72 [55^2 - 55.17 + 17^2 - 72^2]$ = $72 [17^2(55 + 72) - 55.17 + 17^2]$, so divisible by 3 and 17.
82.	$S1 + 2S1 + 2^2S1 + \dots 2^6S1$ = $\pi \times 1/8 \times S1 [2^7 - 1] / (2 - 1) = \pi/8$, So $S1 = \pi / (8 \times 2^7) = \pi/1016$.
83.	Because of the symmetry of the figure, it should be equilateral
84.	Another way of saying that $g(n)$ are all $g(1) = f(f(1)) + 1$ for $n \geq 1$, so it has to be even.
85.	Here the number of jumps required will always be even (4 jumps in case it is not going back to any vertex, 6 if it regresses once and so on) $-2n - 1$ will always be odd. It is not possible that the number of jumps is odd, so the answer is zero. Or In order to reach E from A, it can walk clockwise as well as anticlockwise. In all cases, it will have to take odd number of jumps from one vertex to another. But the sum will be even. In simple case, if $n = 4$, then $a_n = 2$. For $a_{2n-1} = 7$ (odd), we cannot reach the point E.
86.	Let number of direct roads between A and B be x , that between B and C be y and that between A and C be z . The equations are $x + z + y(x + z) = 56$ Or $(x + z)(y + 1) = 56 \dots 1$ $(x - z)(x - y) = 10 \dots\dots\dots 2$ Now substitute values of z in these equations from the options and see which yield integer values of x and y . Only for $z = 3$, $x = 7$ and $y = 2$, do we satisfy both the equations with integer values.
87.	$\backslash @ (A, B), 2) = / (A + B / 2, 2) = A + B$. Hence option 1 is the correct answer.
88.	From the earlier question, $\backslash @ (A, B), 2) = A + B$ and $@ (A + B, C)$ is the average of A, B and C.
89.	Substitute $x = 2$ in the formula and we get $f(2) = 1/3$. Similarly we get $f^2(2) = 3/4, f^3(2) = 4/7, f^4(2) = 7/11$,

	$f^5(2) = 11/18$. So the required value is $1/18$.
90.	We can generalise, $f^n(-x) = n - x$. Substituting, we get expression as $(r - 1 - r) + (r - r) + (r + 1 - r) = 0$
91.	These problems can be solved by referring to the following table: For every value of x , write down table of $f(x)$. For this question it will be, -2, -1, 0, 1, 2 $f(x)$ will be 1, 1, 1, 1, 1. For $f(-x)$ the values can be found by referring previous table – 1,1,1,1,1. In this question, $f(x) = f(-x)$.
92.	Here the tables are – x : -1, 0, 1 $f(x)$: 1, 0, 2. $f(-x)$: 2, 0, 1; $-f(-x)$: -2, 0, -1. Here $3f(x) = 3 \times 2 = 6$. And $6 \times f(-x) = 6 \times 1 = 6$ are equal. So answer is 4.
93.	Here the tables are x : -3, -2, -1, 0, 1, 2, 3, $f(x)$: 2, 1, 0, 0, 0, 0, -1, -2, $f(-x)$: -2, -1, 0, 0, 0, 0, 1, 2; $-f(-x)$: 2, 1, 0, 0, 0, 0, -2, -1. So we get $f(x) = -f(-x)$. So option 3 is correct.
94.	Since the numbers are distinct, none of them are equal. Hence the possibilities are $x > y > z$; $y > z > x$ and $z > y > x$. Check the options taking all the three cases.
95.	Same as above.
96.	Same as above.
97.	$f\left(x + \frac{1}{x}\right) = x^2 + \frac{1}{x^2}$ $f\left(x + \frac{1}{x}\right) = \left(x + \frac{1}{x}\right)^2 - 2$ $\Rightarrow f(y) = y^2 - 2$ where $y = x + \frac{1}{x}$, $\Rightarrow$ Now for $x > 0$ $y = x + \frac{1}{x} \geq 2$ for $x < 0$ $y = x + \frac{1}{x} \leq -2$. Thus $f(y) = y^2 - 2$ for all y , where $ y \geq 2$.
98.	The rule for divisibility by 4 is that the last two digits should be divisible by 4. But we have a further limitation in this case, that we can only use these 6 digits. The numbers thus possible are 12, 16, 24, 32, 36, 52, 56 and 64. For each of these 8 numbers, there are $4 \times 3 \times 2 = 24$ combinations of the remaining digits without repetition. So the answer is $24 \times 8 = 192$.
99.	28 + 28 in round robin, 7 in next rounds. Total = 63 matches.
100.	There are a total of 28 points in each group. The highest that any team can get is 7. Here qualification is certain. We can have a case where 4 teams have 6 points, the balance 4 points being distributed amongst the remaining 4 teams. But we cannot have 5 teams with 6 points (then sum will be greater than 28). In this case also entry is assured. But with a score of 5, we can have 5 teams with 5 points. So we will then have to resort to some tie-

	breaking rule, and entry into the next round is not assured.
101	We can have a situation where the points by teams in descending order are 7, 6, 2, 2, 2, 2, 2 - in which case two of the teams also qualify - with 1 win. Such a thing is not possible.
102	$8 \Rightarrow 4 \Rightarrow 2$ - there will be 3 rounds.
103	Options 1, 2 and 3 $\Rightarrow$ group 1 and group 2 results can vary.
104	After the end of the first instruction, we will have 3 litres in A and 2 in C. At the end of it we know that A has only 1 liter. So in the second step, something must happen that leads to 2 litres more being taken out of A. If we look at the second option, then we know that liquid is being transferred to B from C. So, then C will be empty again and ready to receive 2 more litres from A.
105	Once A has been drained – 1 liter of water has left the system. In all now only 4 litres remain. If all 4 litres are in A, then at the end of it, 0 litres must be in both B and C.
106	4 th option definitely gives us the positive value.
107	If both x & y are -1, $f(x, y) = (-1-1)^2 = 4$, $g(x, y) = -(-1-1) = 2$, $f(x, y) > g(x, y)$. Hence option 2 is valid.
108	The condition can only be possible when n is even.
109	Total %ge of people below 35 years of age = 64.75. Therefore total number of people = 617.76 m. Total number of females = $617.76 \times 0.3 \times 0.96/1.96 = 90.8$ m.
110	Steps are – 1. Entire lot from A – B. 2. Both 2-3 from B – A 3. Both 3 from A – B 4. Both 2 from A – B. So in all 4 steps.
111	In circle will give us altitude and so similar triangles will give ratio of PR/QR Put together 2 equations and 2 unknowns
112	Both statements independently mean that C is mid point of BD.
113	Infinite combinations of difference 6 and pairs divisible by 6 are possible.
114	A gives $x < 0$ $x > -3$ or $x > 0$ and $x < -3$ B gives $x > 0$ and $x > 3$ or $x < 0$ and $x < -3$. Either way in statement B, $ x $ will always be > 3 . So statement B gives a definite answer
115	Both required because we cannot conclude that $0 \oplus 1 = 0$ unless we know that $1 \oplus 0 = 0 \oplus 1$
116	Only A is required. Profit % does not depend on number of shares
117	Both required as $P + Q + P \cap Q = 1500$; $Q = 1000$ $P \cap Q = 100$
118	If $a/b = d/e$ then they will not intersect otherwise they will. Since everything will depend on the values of a , b , d and e , the answer is 4.
119	Here, by combining the two statements, we get the duration of the flight. For the arrival time we should have information regarding the time zone difference of Mumbai and No-man's-land.
120	Statement I implies $X > Y$, or $X > Z$, or $X > Y$ and Z Statement II implies $Y > X$, or $Y > Z$, or $Y > X$ and Z .

	Combining both statements, we can get $Y > X > Z$ or $X > Y > Z$. Hence, Z is the smallest.
121	Find the difference between FEI in 1998 relative to its FEI in 1997. Hence, for India it is $0.72 - 1.71 = -0.99$. For China it is $4.8 - 5.96 = -1.16$. For Malaysia it is $9.92 - 10.67 = -0.75$ and for Thailand it is $5.82 - 5.09 = 0.73$. Change in FEI in 1998 relative to its FEI in 1997. For India, percentage = $\frac{-0.99}{1.71} \times 100 = -57.89$ for Malaysia, percentage = $\frac{-0.75}{10.67} \times 100 = -7.02$ For Thailand, change is 14.34% For China and Korea, changes are -19.76% and 15.74% respectively. Hence, we can see that the country with the largest change in FEI in India.
122	Since the absolute values are not given, it cannot be calculated.
123	Assume of GDP of India for 1997 to be x. For 1998, India's FEI = $\frac{0.72 \times 102x}{100} = 0.7344x$ And foreign equity inflows for 1997 = $1.71x$ For China, assume GDP as y. Then FEI in 1998 = $\frac{107y}{100} \times 4.8 = 5.136y$. And FEI in 1997 = $5.96y$. For South Korea, let GDP be z. FEI in 1998 = $\frac{95z}{100} \times 2.5 = 2.375z$. and FEI = $2.16z$. we can see that India and China were lower in 1998 than in 1997, and South Korea is higher in 1998 than in 1997
124	Let x be the foreign equity inflow of India. Hence, China's foreign equity inflow is $10x$. Now in 1998, FEI in India was 0.72, therefore $0.72 = \frac{x}{\text{GDP of India}}$ Similarly, FEI in China in 1998 was 4.8, therefore $4.8 = \frac{10x}{\text{GDP of India}}$ Hence, $(\text{GDP of China} / \text{GDP of India}) = (10 \times 0.72) / 4.8 = 1.5$ Thus, China's GDP is 50% higher than that of India.
125	Clear from the given graph.
126	First find out the growth in 1990 of the all four sectors. So manufacturing 9% of 20 = 1.8. Hence, $20 + 1.8 = 21.8$. Similarly, for mining and quarrying it is 15.6. For electrical, it is 10.85 and for chemical it is 16.1, now in 1991 there is 1% negative growth in manufacturing. So 1% of 21.8 becomes 0.218. Thus, $21.8 - 0.218 = 21.582$. Similarly, for mining and quarrying it is 15.44. For electrical it is 11.88 and for chemical it is 16.21. Now we add the figures for 1991 of all the sectors which comes to $21.582 + 15.75 + 11.88 + 16.21 = 65.42$. Now $65.42 - 64.35 = 1.07$ which comes to approximately 1.5%

	growth rate
127	Clear from the graph
128	In 1990, there is 4% growth. Hence, 4% of 15 = 0.6 So weightage in 1990 becomes 15.6. Similarly, in 1991 it becomes 15.44, in 1992 it is 15.6, in 1993 it is 14.97, in 1994 it is 16.16. Hence, it can be seen that the lowest level of production was in 1993.
129	Find out the weightage for all the sectors for 1994. For manufacturing it is 25.54, for mining and quarrying it is 16, for electrical it comes out to be 14.5 and for chemical it is 19.5. The total comes to approximately 77. In 1989, it was 60. Hence, $77 - 60 = 17$ which is approximately 25% increase.
130	Since the index of total industrial production in 1994 is 50% more than in 1989, it becomes 150. Now total weightage for manufacturing, mining and quarrying, electrical and chemical in 1994 is approximately 77. So $150 - 77 = 73$. In 1989, it was $100 - 60 = 40$. So $73 - 40 = 33$, which is approximately 87.5%.
131	As from the table, the deficit intensity from 1993-94 to 1997-98 are 5.1, 6.3, 7.6, and 5. Therefore, highest growth rate is $7.6 - 6.3 = 1.3$ which is in 1994-95
132	The highest growth rate = $\frac{7.6 - 6.3}{6.3} \times 100 = 23.5\%$
133	From the tables given, Import of raw material = $10.1 \times \text{Sales (S)}$ import of Capital goods = $17.6 \times \text{Gross fixed assets (GFA)}$ Given imports = Raw material + Capital goods So import = $10.1 S + 17.6 \text{ GFA}$ So import = $14.2 S$ Hence, $14.2 S = 10.1 S + 17.6 \text{ GFA}$ Hence, $\frac{S}{\text{GFA}} = \frac{17.6}{4.1} = 4.3$
134	Clear from the table
135	If the number of students enrolled for a certain class do not fit into that age interval, they are in excess and hence, unrepresentative, thus resulting in bloated ratios. (a) is wrong because the definition of gross enrolment ratio itself is flawed. Attendance is not the focus of our argument. We are also not concerned with demographic trends, but only with given data
136	The Central Bank can only express 'reservations' on 'monetisation' to the government. It cannot be the 'boss', it only advises (c) does not support the conclusion in any way. (a) and (d) are specific observations, but they do not contribute to our answer.
137	'Manoeuvrability' is linked to 'flight direction changes' in (d). (c) just vaguely mentions 'faster'. (a) makes no inference, as such. It may or may not be true. There is insufficient evidence to infer (d), it sounds rather farfetched
139	(a) and (d) cover the government's honourable intentions, which look best on paper. (b) discusses one feasibility factor. (c) is the best choice as it shows how the project has reached the implementation stage from the pilot stage.
140	(a) would only in more cars per family. (b) and (c)

	defeat Athens' purpose as citizens devise ingenious methods to maintain status quo both in terms of number of cars and congestion.
141	Only (d) connects the recommendation directly to the cause 'rising tensions' in prisons and not to any marginal political factors. (a), (b) and (c) may have contributed, but peripherally, to the minister's decision.
142	(d) is a summary for the general words 'varied use' 'common basis' pertaining to the 'symbol' in the geographical and historical context. (c) does not present the complete picture. (a) refuses to divulge the significance of the umbrella. (b) is wrong as the ruler is regarded as the instrument of firmament of the supreme law
143	This answer goes without guessing. There are two parties in the game, and each has its own strategy and a guess on the opponent's move. (a) involves more of cooperation strategies than game plans. (b) is competition involving more than two candidates. (d) is about cartels.
144	(b) does not attack the argument it helps the Association's cause. (c) is pointless, if there isn't adequate consumption. (d) has little to do with the core issue in the argument. But (a) if true, would render the cumulative efforts of the Association fruitless.
145	Total exports = Software export + Hardware export + Peripherals export Hence, Total export as a percentage of IT business for $1994-95 = \frac{668}{2041} \times 100 = 32.7\%$ for 1995-96 = $\frac{775}{2886} \times 100 = 26.8\%$ for 1996-97 = $\frac{1383}{3807} \times 100 = 36\%$ for 1997-98 = $\frac{1970}{5031} \times 100 = 39\%$ for 1998-99 = $\frac{2672}{6052} \times 100 = 44\%$
146	Percentage growth for 1995-96=41%, 1996-97=32%, 1997-98=32%, 1998-99= 20%
147	(a) and (b) can be easily eliminated from the given table.
148	Total IT business in hardware (Export + Import) shows a continuous increase from 1994-95 to 1997-98 and then declines in 1998-99.
149	In this question there are two activities – hardware and peripherals, hence for year X to dominate year Y, at least one activity in year X has to be greater than that in year Y and the other activity in year X cannot be in year Y. In (a), (b) and (c) while hardware dominates in one year, the peripherals dominate in the other.
150	If the total number of factories is 100, then the total number of employees =60×100=6000 of which 64.6%=3876 work in wholly private factories. Since the number of wholly

	Private factories=90.3, the answer=$\frac{3876}{90.3} = 43$ Short Cut: $0.64 \div \frac{60}{0.903} < \left(\frac{2}{3}\right) \times 60 = 45$															
151	Value added per employee = $\frac{\text{Value added}}{\text{Employment}}$															
152	Compound productivity = $\frac{\text{Gross output}}{\text{Fixed capital}}$ Hence, compound productivity for various sectors is: Public sector = 0.6, Central Government = 0.725, States/Local = 0.47, Central/States/Local= 1.07, Joint sector = 1.23 and wholly private = 1.36. Hence, the order should be: Wholly private, Joint, Central/State/Local, Central Government, Public sector and state/ Local government.															
153	Calculate the ratios: Value added/employment and value added/fixed capital for the sectors mentioned in the choices. The respective values are: Wholly private 0.9 and 1.25; Joint sector 1.59 and 1.19; Central/State/Local 1.8, 1.28; others 0.92 and 0.75.															
154	The number of factories in joint sectors is 1.8%=2700, thus the number of factories in Central Government=1% of $(2700 \times 100 / 1.8) = 1500$. Value added by Central Government = 14.1% of 140000 crore = 19740 Hence, answer = $\frac{19740}{1500} = \text{Rs.13.1 crore}$															
155	Cost in shift operation = 800+1200= Rs. 2000 Variable cost for 40 units = Rs. 3600 Approximate average unit cost for July $= \frac{3600 + 2000}{40} = \text{Rs.140}$															
156	The only change for change of production from 40 to 41 is the variable cost which is Rs. $(3730 - 3600) = \text{Rs.130}$.															
157	As the graph is an increasing function graph , MC always increases with increase in the number of units produced.															
158	Total sales revenue = Rs.$(150 \times 40) = \text{Rs. 6000}$ Total production cost = Rs. $(3600 + 2000) = \text{Rs. 5600}$ So profit = Rs/ 400															
159	Profit is highest when there is no second shift															
160	For production level in the range of 0-30 units, AC is always greater than Rs. 100 whereas MC is always less than or equal to Rs. 100.															
161	Since yellow is between green and red, it should be house number 2 or 3. Also green is adjacent to blue house, it should have blue and yellow house on either side. Hence, the following table can be constructed <table><tr><td>House number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Colour</td><td>Blue</td><td>Green</td><td>Yellow</td><td>Red</td></tr><tr><td>Occupant</td><td>X</td><td>Z</td><td></td><td></td></tr></table> Since X does not live adjacent to Z, it has to live in blue house.	House number	1	2	3	4	Colour	Blue	Green	Yellow	Red	Occupant	X	Z		
House number	1	2	3	4												
Colour	Blue	Green	Yellow	Red												
Occupant	X	Z														
162	The following table can be created using the data given. <table><tr><td>Peros n</td><td>P</td><td>M</td><td>U</td><td>T</td><td>X</td></tr><tr><td>Colo</td><td>Blue</td><td>Yello</td><td>Red</td><td>Black</td><td></td></tr></table>	Peros n	P	M	U	T	X	Colo	Blue	Yello	Red	Black				
Peros n	P	M	U	T	X											
Colo	Blue	Yello	Red	Black												

	ur choic e	and Red	w	and Blue		
	Stays in					Hotel
	Does not stay in	Palac e		Palac e	Palac e	

Since X stays in hotel and P or U or T cannot stay in a palace, M stays in palace

163

The ratio of points for carrying books of various subjects is:
Management : Mathematics : Physics : Fiction
= 4 : 3 : 2 : 1
Since the points are to be maximized, the number of books that Ramesh should carry in descending order is management, mathematics, physics and fiction. The ratio which Ramesh has to maintain is:
Management : Fiction < 1 : 2,
Mathematics : Physics < 1 : 2.
This means that a combination of management and fiction books in the ratio of 1 : 2 will give 6 points while a combination of mathematics and physics book in the ratio of 1 : 2 will give 7 points, hence, Ramesh should carry the following combination of books to maximize the point; management 1, mathematics 2, physics 5 and fiction 2, a total of 22 points.

164

By trial and error, we can make different combinations and find the cost.
Like 20 kg × 2 + 10 kg × 4, the cost would be Rs. 180. The minimum cost comes in the case of 10 kg × 8, i.e. Rs. 160.
Direction for students: The table for questions 126 to 130 in CAT 2001 Bulletin has some misprints and it should be read like the following.
Information Technolog Industry in India
(Figures are in million US dollars)

	1994 -95	1995 -96	1996 -97	1997 -98	1998 -98
Softw are					
Dome stic	350	490	670	950	1250
Expor ts	485	734	1083	1750	2650
Hard ware					
Dome stic	590	1037	1050	1205	1026
Expor ts	177	35	286	201	4
Perip herals					
Dome stic	148	196	181	229	329
Expor ts	6	6	14	19	18
Traini ng	107	143	185	263	302
Maint enanc e	142	172	182	221	236
Netw orkin	36	73	156	193	237

	g and others					
	Total	2041	2886	3807	5031	6052

165

The attendants of X,Y and Z are to be Mohan, Jack and Rita. The animals under Mohan’s care is given in the data. Since Jack does not attend to deer, lion and bison, the following table can be created using the data given.

Attendant s	Mohan	Jack	Rita
Animals	Lion and Panther	Bear and Panther	
Enclosure	X	Y	Z

Nam e	Moha n	Jack	Rita	Shali ni	Suma n
Anim als	Lion and panth er	Bear and panth er	Deer and bison	Lion and bear	Deer and bison
Cage	X	Y	Z	Q	P

The data for Mohan and Jack can be filled directly. Similarly, X, Y, Z can be filled directly from data given. The key after filling in these animals is that Z and P have the same pair of animals, the only option is deer and bison.