CAT 1994 Actual Paper

Answers and Explanations

1	c	**21**	b	**41**	d	**61**	c	**81**	d	**101**	d	**121**	a	**141**	c	**161**	b	**181**	d
2	b	**22**	c	**42**	c	**62**	a	**82**	c	**102**	c	**122**	d	**142**	d	**162**	d	**182**	c
3	a	**23**	b	**43**	a	**63**	b	**83**	a	**103**	d	**123**	c	**143**	b	**163**	a	**183**	b
4	c	**24**	b	**44**	b	**64**	a	**84**	c	**104**	d	**124**	c	**144**	c	**164**	b	**184**	d
5	d	**25**	c	**45**	d	**65**	b	**85**	b	**105**	a	**125**	b	**145**	b	**165**	d	**185**	a
6	b	**26**	d	**46**	b	**66**	c	**86**	c	**106**	c	**126**	b	**146**	c	**166**	d	**186**	b
7	a	**27**	a	**47**	c	**67**	c	**87**	b	**107**	d	**127**	c	**147**	c	**167**	c	**187**	b
8	c	**28**	d	**48**	a	**68**	d	**88**	c	**108**	d	**128**	b	**148**	d	**168**	a	**188**	c
9	a	**29**	b	**49**	b	**69**	d	**89**	b	**109**	d	**129**	b	**149**	c	**169**	d	**189**	d
10	d	**30**	a	**50**	d	**70**	b	**90**	c	**110**	c	**130**	b	**150**	b	**170**	a	**190**	d
11	b	**31**	c	**51**	c	**71**	b	**91**	c	**111**	b	**131**	d	**151**	c	**171**	b		
12	c	**32**	a	**52**	b	**72**	a	**92**	a	**112**	c	**132**	c	**152**	c	**172**	b		
13	d	**33**	a	**53**	a	**73**	b	**93**	b	**113**	b	**133**	b	**153**	d	**173**	c		
14	b	**34**	b	**54**	c	**74**	d	**94**	b	**114**	d	**134**	a	**154**	d	**174**	c		
15	a	**35**	d	**55**	b	**75**	d	**95**	d	**115**	a	**135**	c	**155**	c	**175**	c		
16	a	**36**	c	**56**	a	**76**	b	**96**	c	**116**	c	**136**	a	**156**	c	**176**	c		
17	b	**37**	a	**57**	d	**77**	c	**97**	b	**117**	b	**137**	b	**157**	d	**177**	b		
18	d	**38**	b	**58**	d	**78**	c	**98**	c	**118**	a	**138**	c	**158**	a	**178**	d		
19	d	**39**	c	**59**	b	**79**	d	**99**	d	**119**	b	**139**	a	**159**	a	**179**	d		
20	a	**40**	d	**60**	b	**80**	a	**100**	d	**120**	a	**140**	d	**160**	d	**180**	c		

1. c C. should be the first sentence as it states that the logic presented in 1. is not true. A. and D. talk about the qualities of a good actor. B. talks about the author's own plays and 6. continues with his observation in B.

2. b C. introduces the idea that some comedies have survived over many years. B. gives a reason for it and A. continues with the reason.

3. a B. introduces 'an ally of the wind', hinted at in 1. C. states that the author did not hear it and A. gives the reason for it.

4. c D. talks about the 'power' introduced in 1. A. states that if 'it is an anchor in difficulties it should be remembered in good times too'. C. states the work done by some organizations and B. adds to it.

5. d A. suggests that seniors should help in showing the path. B. continues by referring to 'the seniors' mentioned in A. C. and D. state how one should accept the help provided by seniors.

6. b C. introduces the idea of making a will, A. gives a reason for doing so, B. and D. exemplify it through an example from author's life.

7. a C. introduces the topic of the passage, B. states how India is doing what C. has warned against. B. compares India's attitude with that of the smaller countries and D. refers to a specific case to prove the point.

8. c C. states a situation, A. contradicts by using 'but', D. states that as the trail continues one feels that one would son see the plain, but B. shows that this hope is not fulfilled.

9. a D. introduces an idea of using something in tricks. C. gives an example of one such trick B. talks of something entertainers would do and D. tells us about something that happened during one such show.

10. d B. introduces the author, D. says that he enjoys his profession, A. and C. continue with it.

11. b Privilege can be used in A., B. and D.

12. c Disaster can fit in A., C. and D.

13. d Depression fits in A., B. and D.

14. b Imagination fits in A. and D.

15. a State fits in A., B. and D.

16. a Perjury is an extended form of lying just as a testimony is an extended form of a statement.

17. b Medieval follows prehistoric, just as future follows present.

18. d Both the pairs are pairs of synonyms.

19. d C. should precede D. as D. uses 'they' to refer to 'the evils of one's own life' mentioned in C.B. and A. logically follow.

20. a Only C. uses the noun 'the writer', which is referred to as 'he' in all other choices, hence C. should be the first one in the series. Also B should logically follow C. So this makes option (a) correct.

21. b The subject of the sentence has been introduced in A. as 'the masterpiece', so should be the first part of the sentence. A masterpiece cannot be a career, or untaught genius. Only D. can follow A.

22. c C. introduces the central point of the sentence as 'the public being easily disillusioned'. It should be the first part in the series. B., D. and then A. logically follow.

23. b D. introduces the subject as 'the roots of the riots', B. states what the roots are related to, C. gives another point of relation, which has to logically precede A.

24. b Only 'happened to' or 'wasn't' can grammatically fit here. 'Wasn't' does not give the sentence the appropriate meaning.

25. c One 'launches' a product.

26. d 'Unexpected success' goes best with 'fortune was made'.

27. a The correct idiomatic usage is 'smothering the flames'.

28. d Because there is a reference of two peoples Sam and I, therefore there is a need to use ‘Between’.

29. b 'Hinge upon' means 'depends upon'.

30. a Only 'come in' fits here grammatically as others present incomplete verbs.

31. c C. and D both present facts and no other choice gives that as an option.

32. a A. presents a judgement on part of the author, B. and C. present facts and D. presents a logical conclusion based on the facts.

33. a B. presents a fact and no other choice gives that as an option C. Presents an inference based on a logical conclusion of the fact that the revenues are already dwindling.

34. b We can see that B. presents a fact and D. presents an inference.

35. d A. and C. clearly present facts. B. is an opinion of the author based on common sense .D. presents an inference.

36. c A. is based on common sense. B. is a well known fact. C. is a logical conclusion based on B.

37. a B. is a well known fact which logically leads to the inference drawn in C. Other two are opinions of the author and hence judgements.

38. b B. and D. clearly present facts. C. presents an inference based on these facts.

39. c A. and D. present facts, B. presents a logical conclusion based on these facts and C. presents a judgement on part of the author.

40. d A. is not a fact as it uses the phrase 'it appears'. C. and D. clearly present facts.

41. d If all vegetarians eat meat and all those who eat meat are herbivores, it follows that all vegetarians are herbivores.

42. c If all roses have nectar and all shrubs are roses, it follows that all shrubs have nectar.

43. a If no seasons are autumn, and all springs are autumn, it follows that no spring is a season.

44. b All falcons are birds and all birds are yellow, thus all falcons are yellow.

45. d No wires are hooks and all springs are wires, therefore no spring is a hook.

46. b All abra are cabra and all dabra are abra, therefore some cabra will be dabra.

47. c No plane is a chain but all manes are chains, therefore no mane is a plain.

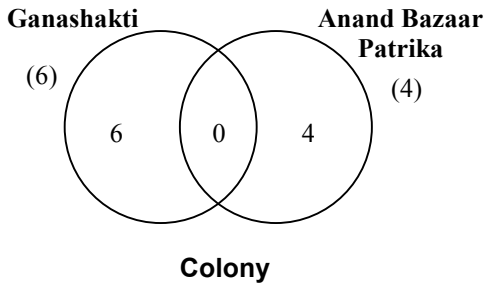
48. a All toys are dolls and some toys are nice so some nice things are dolls.

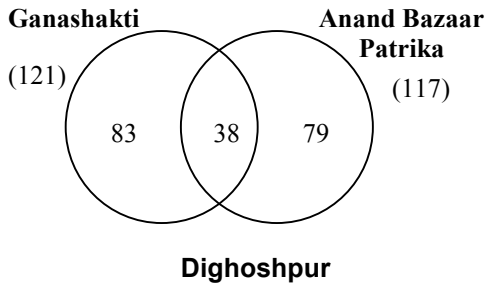
49. b Some sky- scrapers are not buildings but all sky- scrapers are structures, therefore some structures are not buildings.

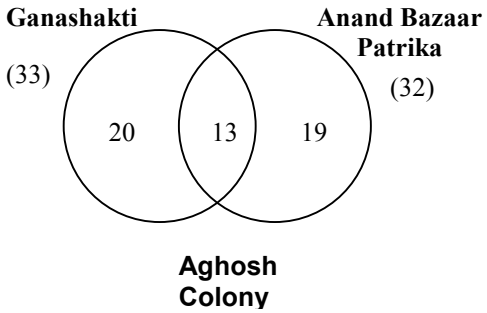
50. d All gins are buckets, but no buckets are baskets, hence no basket is a bin.

51. c Let x be the number not cast for Praja Party in the previous polls. So the number of votes not cast for the party in this assembly polls would be 1.25x. This means that the number of votes cast for the party in the two polls would be (260000 – x) and (260000 – 1.25x) respectively. Margin of victory in the previous polls = (votes cast) – (votes not cast) = (260000 – x) – x = (260000 – 2x). Margin of loss in this years polls = (votes not cast) – (votes cast) = 1.25x – (260000 – 1.25x) = (2.5x – 260000). Now, it is said that (Margin of loss this year) = 2 x (Margin of victory last year). Therefore, (2.5x – 260000) = 2(260000 – 2x). Solving this equation we get, x = 120000. This means that 120000 votes were not cast for the party in the previous assembly polls. So the number of votes cast for the party = (260000 – 120000) = 140000.

52 to 54: The data can be represented in the following Venn diagrams.







52. b Number of persons in Dighoshpur who read only Ganashakti = 83.

53.a Number of persons in Aghosh Colony who read both the newspapers = 13.

54. c Number of persons in Aghosh colony who read only 1 newspaper = 20+19 = 39.

55. b $\log_7 \log_5 (\sqrt{x+5+\sqrt{x}}) = 0, \therefore \log_5 (\sqrt{x+5+\sqrt{x}}) = 7^0 = 1$, or $(\sqrt{x+5+\sqrt{x}}) = 5^1 = 5. \therefore 2\sqrt{x} = 0.$ or $x = 0$.

56. a HINT : Students please note that if the diameters and the heights of a cone and a cylinder are same, then the volume of cone is always $1/3^{rd}$ the volume of the cylinder. So the ratio of the volume of cone to the volume of cylinder = 1 : 3. The only answer choice that supports this is (a).

57. d

Option	Location	Expenditure of Town A students	Expenditure of Town B students	Total Expenditure
(a)	33 km from A	33x1.2x30 = 1188	67x1.2x100 = 8040	1188+8040 = 9228
(b)	33 km from B	67x1.2x30= 2412	33x1.2x100 = 3960	2412+3960 = 6372
(c)	Town A	0	100x100x1.2 = 12000	12000
(d)	Town B	30x100x1.2 = 3600	0	3600

Hence we find that the least expenditure will be incurred if the school is located in town B. HINT : Students please note that since there are more number of students from Town B, to minimise the total expenditure the school should be located as closer to town B as possible.

58. d It is clear that since there are 39 people in the ratio 6 : 5 : 2, there are 18 men, 15 women and 6 children. Ratio of the work done by a man : woman = 2 : 1. The ratio of the work done by a woman : child = 3 : 1. Hence the ratio of work done in a day by a man : a woman : a child = 6 : 3 : 1. So the ratio of the work done in a day by 18 men, 15 women and 6 children would be (18x6) : (15x3) : (6x1) = 108:45:6. Hence the daily wage of Rs.1113 should be divided in this ratio. That makes it, Rs.756 for men, 315 for women and Rs.42 for children. Hence 6 children earn Rs.42 in a day. So the daily wage of a child should be equal to 42/6 = Rs.7

59. b The volume of the original cone is $V = \pi r^2 h/3$. The height and radius of the smaller cone are $2h/3$ and $2r/3$ respectively. So its volume $= (1/3)\pi(2r/3)^2(2h/3) = 8V/27$. $\therefore$ Volume of frustum = $V(1-8V/27) = 19V/27$. $\therefore$ Ratio of the volumes = 8 : 19.

60. b HINT : Students please note that the fastest way to solve such sums is the method of simulation. In other words, assume some values of a, b & c such that a + b + c =0 and $a \neq b \neq c$, and find the value of the expression that is given. So let a = 1, b = -1 and c = 0. So we find that :

$\frac{a^2}{2a^2+bc} + \frac{b^2}{2b^2+ac} + \frac{c^2}{2c^2+ab}$ = ½ + ½ + 0 = 1. Hence the answer.

61. c The harmonic mean of two numbers x and y is $2xy/(x+y)$ and the geometric mean is $\sqrt{xy}$. $\therefore 2xy/(x+y)/\sqrt{xy} =$ 12/13, squaring both sides we get $\therefore 2x^3y^3/(x+y)^2$ = 144/169. Although this can be simplified to get the answer, the best way to proceed from here would be to look out for the answer choices and figure out which pair of x & y satisfies the above equation. You will find the answer is (c).
HINT : Students please note that this sum is a classic example of how you could have gone for intelligent guess work. Since we know that the denominator of the ratio is the geometric mean, which is $\sqrt{xy}$, the two numbers should be in such a ratio that their product should be a perfect square. The only pair from the answer choices that supports this is 4 & 9, as $\sqrt{4x9} = \sqrt{36} = 6$.

62.a If one root of $x^2 + px + 12 = 0$ is 4, then $4^2 + 4p + 12 = 0$, i.e. p = -7. $x^2 - 7x + q = 0$ has equal roots. $\therefore$ If the roots are α each, $2\alpha = -(-7)/1 = 7$, i.e. $\alpha = 7/2$, and $\alpha^2 = (q/1) \Rightarrow q = 49/4$.

63. b We have $Ma[md(-2), mn(md(-3),-2), mn(6, md(-8))]$
$Ma[2, mn(3,-2), mn(6,8)] = Ma[2,-2,6] = 6$.

64. a For $a > b$, the given equation reduces to $Ma[|a|, b] = mn[a, |a|]$. If $b < a < 0$, then $|b| > |a| > 0 > a > b$. $\therefore Ma[|a|, b] = |a|$ and $mn[a, |a|] = a$. Thus the two are not equal.

65. b Since a bucket holds 5 litres of water, Tap A discharges 20 litres of water in 24 min or 5/6 litres of water in 1 minute. Tap B discharges 40 litres in 1 hours or 2/3 litres in 1 minute. Tap C discharges 10 litres in 20 min. or ½ litres in 1 minute If A, B & C are all opened simultaneously, total discharge = (5/6 + 2/3 + ½) = 2 litres in 1 minute. So in 2 hours, the discharge would be 240 litres, which should be the capacity of the tank.

66. c It is clear that the ratio of the distances between (Delhi-Chandigarh) : (Chandigarh-Shimla) = 3 : 4. The ratio of the speeds between (Delhi-Chandigarh) : (Chandigarh-Shimla) = 3 : 2. Let the distances be 3x & 4x respectively and speeds be 3y and 2y. So the time taken will be (x/y) and (2x/y) respectively. Since average speed is given as (Total Distance) / (Total Time)
= (7x)/(x/y + 2x/y) = 7y/3 = 49. Hence y = 21. So the average speed from Chandigarh to Shimla = 2y = 42 kmph.

67. c HINT : Students please note that you need not apply any formula in this case. The middle term of an AP is always the average of all the terms. Hence, if we multiply the middle term by the number of terms, we should get the sum of all the terms of that AP. In our problem, we have to find the sum of first 7 terms and we have been given the 4th term (which is the middle term). Hence the required answer is 8 x 7 = 56.

68. d Students please note that the more relevant thing in this case is not the number of strikes but the number of time intervals. In other words, if a clock has to strike 4, there are 3 time intervals between the 4 strikes (this is so taken because the first strike happens at the zeroth second). So in 7 seconds the pendulum elapses 3 time intervals. To strike 11, there has to be 10 time intervals, which will take (10 x 7)/3 = 23.33 seconds.

69. d Totally, a person covers 4.8km.That means he covers 2.4km on one side and 2.4km on other side. So, distances he will be covering will be 20+40+60+…….

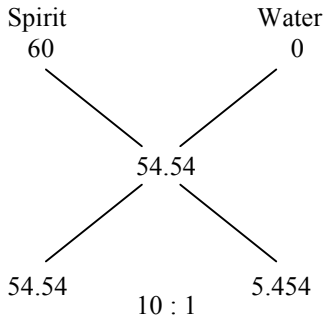
$\therefore 2400=(\,(n/2)(2\times 20+(n-1)20)=10n(n+1)$.

After solving, we get n=15

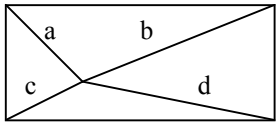
$\therefore$ Total number of stones=15+15+1=31

70. b Required number = LCM (8, 11, 24) – 5 = 259.

71. b Since his SP of (spirit + water) = Rs.75/l and he ultimately makes a profit of 37.5%, his CP of (spirit + water) = 75/1.375 = Rs.54.54. This should indeed be the weighted average of the costs of spirit and water. So if we alligate, we can get the ratio of spirit : water (assuming that cost of water is 0).



72. a For any point inside a rectangle as shown, $a^2 + d^2 = b^2 + c^2$. $\therefore$ Pairing up the distance so that say, d is to be the maximum, $40^2 + d^2 = 50^2 + 60^2$. $\therefore$ $d = 67$ m.



73. b Let them meet at a distance x kms. from X. So total distance travelled by A = x at a speed of 5 kmph. Total distance travelled by B = 27 + (27-x) = (54 – x) at a speed of 7 kmph. Total time travelled by A = x/5 and that by B = (54 – x)/7. Since they have met at the same time, they would have travelled for the same time. Hence x/5 = (54 – x)/7 or x = 22.5 kms.

74 to 76 : The best way to solve this sum is to work backwards. Let us assume that Alphonso's total property was of Rs.x.

Who was on death bed?		Who gave what share to whom?					
		Widow	**Mother**	**Ben**	**Carl**	**Dave**	**Total Share**
	Aplhonso	x/2	-	x/6	x/6	x/6	x
	Ben	x/12	-	-	x/24	x/24	x/6
	Carl	5x/48	-	-	-	5x/48	5x/24
	Dave	15x/96	15x/96	-	-	-	15x/48

74. d Since Alphonso's wife is also the mother of Dave, the total share of this lady would be (x/2 + 15x/96) = 63x/96. And this share is equal to 1,575,000. So x = 2400000 or 24 lakhs. This is the worth of the total property.

75. d Cal's original share was 5x/24 = 5 x 24/24 = 5 lakhs.

76. b The ratio's of the property's owned by the widows of the 3 sons = (1/12 : 5/48 : 15/96) = 8:10:15.

77. c If $\log_6 216\sqrt{6} = x$, then $6^x = 216\sqrt{6} = 6^3 (6^{1/2}) = 6^{7/2}$. $\therefore x = 7/2$.

78. c Since the leak can empty the tank in 8 hours, the rate of leak = 1/8. And since the laek along with the tap can empty it in 12 hours, we can write the equation as : 1/x – 1/8 = –1/12 (where x is the time taken by the tap to fill the tank). Simplifying we get, 1/x = 1/24 or x = 24. This means that the tap can fill the tank in 24 hours. Since the tap admits 6 litres per hour, it will admit (6 x 24) = 144 litres in 24 hours, which should be the capacity of the tank.

79. d The LCM of 7, 12 and 16 is 336. The closest multiple of 336 to 1856 is 1680. So 1684 when divided by 7, 12 and 16 leaves a remainder of 4. This is the closest such number to 1856. Hence the number to be subtracted from 1856 to get 1684, must be the least such number. So the answer is (1856 – 1684) = 172.
HINT : Students please note that in case you are not able to figure this method out, you can go with reverse substitution by subtracting each of the answer choices from 1856 starting with the least of the answer choices and going higher up and thus finding which of them fits into the given condition.

80. a We know that Profit percentage = 20%. So SP = 1.2CP. This profit is made after the loss that he has incurred by selling 16 articles at the price of 12. This loss would be (16 – 12)/16 = 25%. So his actual SP x 0.75 = 1.2CP. So his actual SP = 1.6CP. Also his actual SP = 0.8MP. Therefore 0.8MP = 1.6CP or MP = 2CP. This means that he had marked his goods 100% above his CP.

81. d Since the ages of none of them is mentioned, we have a situation where we have two equations and three unknowns. Hence we cannot say anything about the ages of any of them.

82. c Since $\angle C = 2\ \angle E.$, therefore ∠BCA = 60°. Also since ABCD is a parallelogram, AB = CD and AD = BC = AC. Hence Δ ABC and Δ ACD are equilateral triangles. Hence area of this triangle = $\sqrt{3}s^2/4$, where s is the side of the triangle = AB = AD = DC = BC. Hence the area of the parallelogram is twice this area = $\sqrt{3}s^2/2$. Now since ∠CAD = 60°, ∠DAE = 90°. So Δ EAD is a right triangle with side AD = s. Also since it is a 30-60-90 triangle, hence side AE = $s\sqrt{3}$. Hence the area of this triangle = $(s \times s\sqrt{3})/2 = \sqrt{3}s^2/2$. Hence the required two areas are equal or I = II.

83. a Miguel's income = $5 + (0.02 \times 25) + (0.03 \times 25) + (0.04 \times 50) = \$8.25$, Martin's commission = \$10. Hence obviously I > II.

84. c Since the lines are parallel, AB/BC = DE/EF, i.e. $AB \times EF = BC \times DE$. Hence I = II.

85. b 53 Sundays can occur in a non-leap year, if 1st January is either a Saturday or a Sunday. But 54 Sundays can never occur. Hence obviously I < II.

86. c Since it is a relay race, all the runners ran the same distance. Hence for a same distance, (ratio of times) = 1/(ratio of speeds). Hence ratio of times taken by B t& D = 18 : 16 = 9 : 8.

87. b Let $g(x) = \frac{x-3}{2}$. be y. So, $f_o g(x) = f_o(y) = 2y - 3$. Substituting y = $\frac{x-3}{2}$. we get
$f_o g(x) =$ (x – 3) + 3 = x = [(2x + 3) – 3]/2 = $g_o f(x)$.

88. c If $2x + 3 = [(x-3)-3]/2$, then $x = -4$.

89. b From Question 87, $f_o g(x) = g_o f(x) = x$. You will realise that if you were to form a chain of these functions for even number of times, you would still end up getting x. For eg. $f_o g_o f_o g(x) = f_o g_o(x) = x.$. Since both the brackets have the functions repeated for even number of times, each of their value will be x and their product will be x^2.

90. c $f_o(f_o g)_o(g_o f)(x) = f_o(f_o g)_o(x) = f_o(x) = 2x+3.$

91. c Statement I tells us that the time taken to cover both distances is the same, but it does not tell us anything about the speeds at which these are covered. This information is given by the second statement, which says the speed from cinema hall to home is less than that between home to the office. Hence by using both the statements we can say that the distance between cinema hall to home is less than that between home to the office.

92. a The first statement can be rearranged to get $\left(1/a + 1/b\right) = 1/n$. Under this condition, if n is an integer, then no matter who starts the job on the first day, the job will be completed in the same time. However if n is not an integer, then it does matter on who begins the job on the first day. So only the first statement is required to answer the question.
Students please note that you can verify this result using some values of a & b, such that n is an integer eg. a = 3 and b = 6 and then choosing another such value such that n is not an integer.

93. b $2g + 3b = 20$. Since b & g should be integers the values that satisfy this equation are (g = 10 & b =0), (g = 7 and b = 2), (g = 4 & b = 4), and (g = 1 and b = 6). From the first statement we can shortlist the last two possibilities i.e. g =4 or g = 1, but cannot get a unique answer. The second statement suggests that the number of girls and boys have to be equal. Hence we get a unique answer viz. g=4 & b=4. Only statement II is required to answer the question.

94. b P = (SP – CP) x Sales. From the data given in the question we can figure out that P1 = (1.1SP – CP) x 0.9Sales. Hence P/P1 = 1.11(SP – CP)/(1.1SP – CP). To find this ratio we need to eliminate the variables CP & SP. This can only be done if in the denominator, CP is replaced by 1.1CP. In other words, if the CP increases by 10%, as in that case our ratio will be 1.11/1.1 = 1.01. Hence only Statement II is required to answer the question.

95. d Students please note the average weight of the original members is not mentioned anywhere. Neither do we know the number of members in the original team. And unless we know one of these this question cannot be solved.

96. c We cannot use the first statement I unless we know that the points are collinear. This is obtained from the second statement. Hence PQ = PB +BQ and RS = RE + ES. If BQ = ES and PB > RE, then PQ > RS. Hence both statements are required to answer the question.

97. b Let the number of toffees with the three boys be x, (x+4) and (x+8) respectively. Hence total number of toffees = (3x+12). The first statement merely suggests that (3x+12) is a multiple of 2, which means that x is a multiple of 2. The second statement suggests that (x – 4 + 2), (x + 4 –6 + 2) and (x + 8 – 4) are in GP or (x-2), x and (x+4) is in GP. $\therefore x^2 = (x+4)(x-2), \ \therefore x = 4.$ or (3x+12) = 24. So only second statement is required to answer the question.

98. c The first statement suggests that the number of sheep had increased by 20% last year over the previous year. But it does not suggest whether the rate of increase is annual or not. For eg. 20% increase in a year can also be obtained by 9.5% increase ever 6 months. i.e. 1.095 x 1.095 = 1.20. The second statement however suggests that the increase is compounded annually. Hence now we can find the answer. If the number of sheep last year was x, then $x + 400 = x(1.2)^2$ Hence $x = 909$. Thus we require both statements to answer the question.

99. d From the first statement we can find out the area that needs to be bordered. And from the second statement we can find out the cost of each tile. But to find the total cost, we require the total number of tiles and to find this we require the dimension of each tile. Since this is not known, we cannot answer the question using either statements.

100. d From the first statement we can only find the number of mangoes stolen by 4 of the 10 boys. The second statement suggests that the number of mangoes stolen by each of the remaining six boys is more than 4 and less than 40. Although from the two statements that are given it is tempting to assume that the number of mangoes stolen by the boys must be in AP, since it is not mentioned explicitly we cannot answer the question.

101. d The passage is basically about how ants communicate.

102. c Ants attack strangers who might belong to the same species.

103. d If they did so they would have been unable to communicate with the drunken ants.

104.d Chloroform killed the ants.

105. a The author uses clever arguments in his writing. That is what 'sophistry' means.

106. c All others can pass through the atmospheric windows without distortion.

107. d Clouds from volcanic eruptions do not find a mention in the passage.

108. d Telescope mounting is used to neutralize the Earth's rotation relative to the stars.

109. d The precession period of the Earth is 26,000 years.

110. c The diurnal spinning is the spinning of the Earth on its own axis, having no relation to the gravitational force of the Sun or the Moon.

111. b The last passage states that there can be uncertainty in the rate of orbital motion of the Earth.

112. c Man made signals can interfere with the radio wavelengths between 1cm. And 20m. implying that they also fall in the same range.

113. b US was more concerned with 'order' than with reforms of any kind.

114. d Latin Americans regarded it as economic imperialism.

115. a The Act of Bogota was most closely related to the Marshall Plan or Latin America.

116. c US preferred dictatorship to the spread of communism in Latin America.

117. b The President's initiative to present financial economic aid to Latin America has been presented as an example of his efforts to mend his 'Latin Ameriacn fences'. Thus he was not acting to continue to keep communism from intruding the country.

118. a The passage states that speeding up social reforms implied a risk of revolt, which could be avoided by maintaining status quo.

119. b The examination system was the traditional avenue of selecting the officials.

120. a The Restoration statesmen tried to restore the society, and not create a new one. They tried to stretch the traditional ideology in order to make the Confucian system under the new conditions.

121. a The only similarity was their intent to conserve.

122. d None of these philosphers has been mentioned in the passage.

123. c The aim of the Restoration was to restore to their original vitality the best of the ancient institutes.

124. c Western conservatism distrusted cosmopolitanism.

125. b The passage is basically about Chinese Conservatism.

126. b India has the lengthiest constitution in the world.

127. c Israel does not have a written constitution.

128. b Presidential cabinet is not even mentioned in the American constitution.

129. b The constitutions of new states in the US are very concise.

130. b A normative constitution has the status of supreme law and is fully activate and effective.

131. d Where the written constitution is only nominal, behind the verbal façade will be found the real constitution containing the basic principles according to which power is exercised in actual fact.

132. c Since a long constitution says too many things, on too many subjects, it has to be amended often.

133. b The presence or absence of a written constitution makes a difference, but only of a degree.

134. a The author is concerned about the books and is also well informed about the topic.

135. c The paper of 'archival quality' refers to a long lasting paper.

136. a Wood pulp helped in producing large quantities of paper.

137. b Paper that is acidic is highly unstable.

138. c This is not a reason mentioned in the passage, for producing long lasting paper.

139. a Reduction in government funding has not been mentioned as a reason for curtailing purchase of new books.

140. d The continued use of wood pulp will not have any effect on the governments.

141. c Lignin is a major factor that causes paper to discolour.

142. d Eisaku Sato was the Prime Minister for eight years.

143. b Hirohito has been said to be on throne for 61 years at the time of writing of the passage, which was in 1987.

144. c Mr. Tanaka was involved in a bribe scandal.

145. b The passage says that Mr. Yasuhiro Nakasone is 'now bowing out'.

146. c He has proved himself more skillful in the game of factional politics and thus his hopes are stronger.

147. c The author states how Mr. Takeshita will fare after taking over the reins of the government is not certain, and has reasoned about this in an objective manner.

148. d The quick turnover of Prime Ministers has led to factionalism in LDP.

149. c Mr. Takeshita will be the first Prime Minister with humble rural origins.

150. b The three Prime Ministers mentioned by name here are Mr. Nakasone, Mr. Eisaku Sato and Mr. Kakue Tanaka.

151. c

Option	Description	Solubility
(a)	Potassium Chlorate at 80^{o}	0.4
(b)	Potassium Chloride at 35^{0} C	0.4
(c)	Potassium Nitrate at 39^{0} C	**0.48**
(d)	Sodium Chloride at 85^{0} C	0.4

Hence (c) is the correct answer.

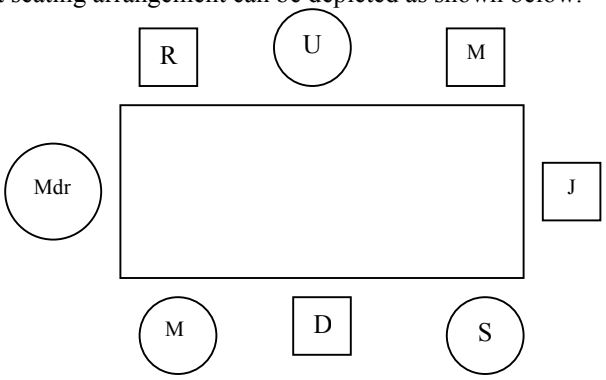
152.c At 30 ^{o}C, solubility of potassium nitrate is 0.38 kg./lt. Hence in 10 lt. 3.8 kg., Approx = 4 kg. of potassium nitrate can be dissolved.

153. d Clearly, % increase in solubility of potassium chlorate = (0.4 – 0.1) 100/0.1 = 300%.

154. d Solubility of potassium chloride at 36^oC = 0.4 kg./lt. Hence the amount of Potassium chloride that can be dissolved in 100 lt. at 36^oC = 40 kg.
Number of moles = 40 / 0.075 = 533 (Students you need not actually calculate 40/0.07456, rather just calculate 40/0.075). Hence approx. 540 moles can be dissolved in 100 lt. of water at 36^oC.

155. c From the graph it can be seen that between 15^oC &25^oC, solubility of sodium nitrate, potassium chloride, sodium chloride, is almost constant. It can clearly seen from graph that solubility of sodium chlorate is maximum.

156 – 159 : The correct seating arrangement can be depicted as shown below:

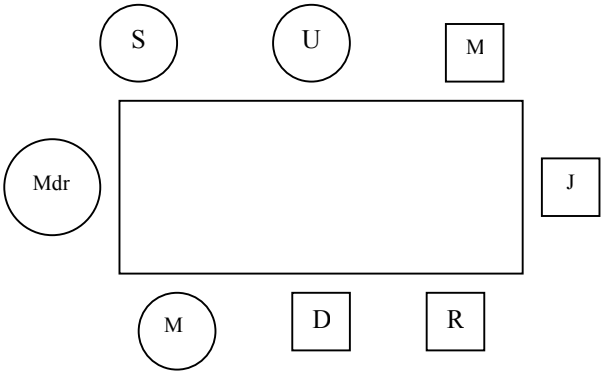


R Ratan
M Monisha
Mdr Madhuri (Hostess)
U Urmila
D Dhirubhai
J Jackie (Host)
M Maqbool
S Shobha

156. c Jackie is the host and also sitting on Shobha's right. Hence (c) is the correct answer.

157. d Shobha is siting next to Jakie and Dhirubhai. So she is the only person who is not seated next to a person of the same sex.

158. a If Ratan would have exchanged seat with a person four places to his left, which is Shobha, the following arrangement would exist.



The first statement is hence true, since no man is sitting between two woman and no woman is sitting between two man. However statements II and III are not true. Hence the answer is (a).

159. a Among the given choices, only Ratan & Monisha are sitting opposite to each other and hence they must be married.

160 – 163.

From the data that is given we can find the following data: (the explanation of how the following values were arrived at is given after the table).

Item	1984-85	1985-86
Food (Percentage)	22%	23%
Food (Value)	4928	5934
Manufactured Articles	11648	11352
Raw Material	5824	8514
Total Value of Exports in Crore of Rs.	22400	25800

160. d Food related exports in 85-86 = 0.23x25800 = 5934. So food related exports in 1984-95 = (5934 – 1006) = 4928. Hence Percentage of food related exports in 84-85 = 4928/22400 = 22%.

161. b In 84-85, Value of Manufactured articles & Raw materials exports = (22400 – 4928) = Rs.17472 crores.
Since Export in manufactured goods is twice that of raw materials, Rs.17472 has to be divided in the ratio 2:1. viz. Export of manufactured goods = Rs.11648 crores and Raw materials = Rs.5824 crores.
Hence the difference between raw material and food = (5824 – 4928) = Rs.896 crores.

162. d In 85-86, the combined percentage of Manufactured articles and Raw materials = 77% and this is in the ratio 4 : 3. Hence percentage of Manufactured articles export = 44% and that of Raw materials export = 33%. Hence value of manufactured = 0.44x25800 = Rs.11352 crores and the value of Raw materials = Rs.8514 crores. Hence percentage difference between the value of Raw materials between 84-85 and 85-86 = [(8514 – 5824)/8514] × 100 = 31.6%

163. a The change in the value of exports from 84-85 to 85-86 = (11648 – 11352) = Rs.296 crores.

164 – 166 :

From the given conditions the only arrangements that are possible is :

Left Right

Sushmita	Manpreet	Aishwarya	Rachel	Anu
1	2	3	4	5

Or

Left Right

Aishwarya	Manpreet	Sushmita	Rachel	Anu
1	2	3	4	5

164. b If Aishwarya is standing at the extreme left, the latter arrangement holds good. Hence it is Sushmita who is standing in the middle.

165. d Again the latter arrangement holds good. So the girl who is standing second from left is Manpreet.

166. d Under the given condition, following arrangement is possible :

Left Right

Sushmita	Anu	Rachel	Aishwarya	Manpreet
1	2	3	4	5

Hence Rachel is standing on the extreme right.

167. c The skin & muscular protein totally constitutes 33% of the total proteins. The total proteins itself is 15% of the total body weight. Hence the percentage of skin & muscular protein as a fraction of the total body weight = 33% of 15% = 5 %. = 1/20.
Required fraction = (8+25)% of 15% = (1/3) x (3/20) = 1/20.

168. a Required Ratio = 25 : 8 = 3 : 1 (approx.).

169. d We can determine only the percentage of skin protein in Ghosh Babu's total body weight. But there is no data given about the percentage of skin in Ghosh Babu's body. Hence the answer is (d).

170. a Proportion of material other than water & protein in Ghosh Babu's body is 15/100 = 3/20.

171 – 174 :

The first statement suggests : B is now as old as C was in the past. Hence B < C. Also sometime in the past A was twice as old as D. So A > D. C will be as old as E in future. Hence C < E.
The second statement suggests : A > F. A was as old as G in the past. Hence A > G. D will be as old as F in future. Hence F > D. F will be as old as G now in future. Hence G > F. G was as old as B, when A was as old as G. Hence A = B.
Combining both the results, we get : and E > C > B = A > G > F > D (Note by A=B, it is meant that they are of similar age group, not necessarily the same).

171. b It could be figured out that E is the eldest brother.

172. b D is the youngest brother.

173. c Only A & B could probably be twins.

174. c It could be figured out that only statement (c) is false as B has only 2 elder brothers and not 3.

175 – 178:

175. c Required percentage growth = (68718 – 42137) 100 / 42137. Students please note that to calculate the exact value of this expression, we need calculator. Since, options given are not very close to each other so we can approximate values. And using approximations we get the value of required ratio = (68600 – 42000) 100 / 42000 = 2650 / 42 = 63%

176. c

Books	**1975**	**1980**	**Percentage growth**
Primary	42137	68718	66%
Secondary	8820	20177	125%
Higher Secondary	65303	82175	26%
Graduate Level	25343	36697	45%

Hence percentage growth is least for higher secondary books viz.26%.

177. b Again referring to the above table we can see that the percentage growth rate is maximum for secondary level books viz.125%.

178. d It can be seen from the given table that though primary level books have shown a consistent growth, it has declined in the year 1978. On the other hand even Secondary and Higher secondary level books have shown a consistent increase except for the year 1977 when it had declined. But the graduate level books have shown a consistent growth over the period.

179 – 182: The data given the graph can be tabulated as given below :

College	**1988-89**	**1989-90**	**1990-91**
Private Engg. College	120	180	250
Govt. Engg. College	80	120	130
Regional Engg. College	40	75	100
IIT	30	40	80

179. d Total number of students in 1989–90 = (180 + 120 + 75 + 40) x 100 = 41500 = 42000 (approx)

180. c Growth rate in number of students in Govt. Engg. College = (120 – 80) / 80 = 50%
Growth rate in number of students in Private Engg. College = (180 – 120) / 120 = 50%. Hence the growth rate is equal.

181. d Total number of students in 1990–91 = (250 + 130 + 100 + 80) 100 = 56000
Hence the total number of students in 1991-92 = 0.9 x 56000 = 50400. Hence (d) is the correct answer

182. c % of IIT students in 1990 – 91 = 80 / 570 = 1/7 = 14% (approx.)

183 – 186 :

183. b All the sentences are possible except (b) as Grumbs have to be used with Ihavitoo and Grumbs cannot be used in any other type but Bingoes.

184. d Since Grumbs and Harrumphs are the Bingoes and Grumbs has to always go with Ihavitoo, so we will have to use Ihavitoo as the Cingo. Since statement I is true, the answer can only be (a) or (d). So we will only evaluate the option (d). Since we have not used Koolodo as Cingo, we can use either Lovitoo or Metoo or both as Dingos. Hence statement III is also true, so the answer is (d).

185. a The sentences (b) uses two Cingo's instead of one, hence grammatically incorrect. Sentence (c) violates the same rule again and in addition it uses ihavitoo without using Grumbs. Sentence (d) again uses two Cingo's instead of one. Hence the only sentence that is grammatically correct is (a).

186. b If Grumps is the Bingo, then Ihavitoo must also be used. And since Ihavitoo is common to Bingo and Cingo, Ihavitoo must be used as a Cingo . Also no other Cingo can be used. So obviously Harrumphs must also be used as a Bingo. And since we are not using Koolodo as Cingo, we can use Lovitoo as Dingo. So (a), (c) and (d) can all be true. So (b) cannot be true.

187 – 190 : The data given in the question can be computed as :

187. b From the first week data we can arrive at the following work pattern of Bankatlal for the 1st month.

First Month :

	1st week	2nd week	3rd week	4th week
Hours of rest	2	5	2	5
Working hrs.	5	2	5	2
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.100	Rs.20	Rs.100	Rs.20
Total Wage per week	Rs.600	Rs.120	Rs.600	Rs.120

Thus his total wage = (600+120+600+120) = Rs.1440

188. c Let us compile the data for 2nd, 3rd and 4th month.

Second Month :

	5th week	6th week	7th week	8th week
Hours of rest	3	7	3	5
Working hrs.	7	3	7	2
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.140	Rs.30	Rs.140	Rs.30
Total Wage per week	Rs.840	Rs.180	Rs.840	Rs.180

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hrs.	6	4	6	4
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.120	Rs.40	Rs.120	Rs.40
Total Wage per week	Rs.720	Rs.240	Rs.720	Rs.240

Fourth Month :

	13th week	14th week	15th week	16th week
Hours of rest	0	8	0	8
Working hrs.	8	0	8	0
Wage per hour	Rs.20	Rs.10	Rs.20	Rs.10
Total Wage per day	Rs.160	0	Rs.160	0
Total Wage per week	Rs.960	0	Rs.960	0

Total wage for 1st month = Rs.1440
Total wage for 2nd month = (840+180+840+180) = Rs.2040
Total wage for 3rd month = (720+240+720+240) = Rs.1920
Total wage for 4th month = (960+960) = Rs.1920
Total wage for the 4 months = (1440+2040+1920+1920) = 7320
Hence the average salary = 7320/4 = Rs.1830

189. d Using the above data, we can revise the wage compilation for the third month as given below:

Third Month :

	9th week	10th week	11th week	12th week
Hours of rest	4	6	4	6
Working hrs.	6	4	6	4
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.150	Rs.50	Rs.150	Rs.50
Total fine per day	Rs.20	Rs.30	Rs.20	Rs.30
Effective wage per day	Rs.130	Rs.20	Rs.130	Rs.20
Total Wage per week	Rs.780	Rs.120	Rs.780	Rs.120

So now his third month age = (780+120+780+120) = Rs.1800.
Previously he used to earn Rs.1920 in the third month.
Hence change in Bankatlal's salary for the 3rd month = (1920 – 1800) = Rs.120.

190. d For the fourth month, the new wage compilation will be as given below :

Fourth Month :

	9th week	**10th week**	**11th week**	**12th week**
Hours of rest	0	8	0	8
Working hrs.	8	0	8	0
Wage per hour or work	Rs.25	Rs.12.5	Rs.25	Rs.12.5
Fine per hour of rest	Rs.5	Rs.5	Rs.5	Rs.5
Total wage per day	Rs.400	0	Rs.400	0
Total fine per day	0	Rs.40	0	Rs.40
Effective wage per day	Rs.400	-Rs.40	Rs.400	-Rs.40
Total Wage per week	Rs.2400	-Rs.240	Rs.2400	-Rs.240

So now his total wage for the 4th month = (2400+2400-240-240) = Rs.4320.
Since the calculations for the first two months are made as per the old scheme of things, this has already been computed.
Total wage for 1st month = Rs.1440
Total wage for 2nd month = Rs.2040
Calculation for the third and fourth month are as per new calculations and they are :
Total wage for 3rd month = Rs.1800
Total wage for 4th month = Rs.4320
So total salary for the four months = (1440+2040+1800+4320) = Rs.9600.