

# Answers and Explanations

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

1. d B. starts at the beginning of Indian industrialization, A. elaborates on it, C. talks about the scenario today, D. states a common element between the beginning and today. The word 'However' in D makes it the conclusive statement AC is mandatory pair. Thus option D (BACD) is the best option.
2. c The correct sequence is ABCD. The question in (1) is answered by A. B follows A by talking about how the state spies upon the taxpayers. C follows B and likens the state's possible behavior to what the tax authority tries to do inconsistently. D talks about an Orwellian System (a despotic form of government described in Orwell's novel 1984) thereby linking it to sentence 6.
3. a C. makes a comparison between competition and justice. D. states what the choice is 'not between', and B. by using 'rather' shows that it should follow D. A continues with the idea and leads to 6. Also DB is a mandatory pair and hence, we are left with only one option i.e. A.
4. a A. uses 'thus' to show the effect of the disparities in Yugoslavia mentioned in B. and C. It should thus follow the two. D. uses the phrase 'will also'..., thus showing that it should follow A.
5. b The use of 'these measures' in A. refers to the measures stated in 1., so it should be the first sentence in the series. B talks about the objectives of these measures and C. and D. elaborate on the idea.
6. a D. introduces the problem related to petroleum products, A. presents statistics to support it. B. talks about electricity, an idea which is continued in 6., so B. should be the last sentence in the series.
7. b A. starts at the beginning of the last 45 years, B. states how external powers tried to control the region, D. continues with the idea. C. talks about supply of arms to Pakistan, an idea that is continued in 6.
8. c C. states a cause for the problem introduced in 1. B. starts with 'added to this', showing that it should follow C. A. introduces a way out of the situation and 6. analyses the solution. Therefore A. should precede 6.
9. c A. introduces us to Rumford's experiments, D. tells us about his observations. C. introduces the term 'caloric', B. explains the term.
10. d C. introduces a controversy regarding 'recognition', A. states an aspect of that controversy, B. talks about what happens when an object is encountered and D. talks about what happens when the same object is countered again. BD is a mandatory pair and D has to be the sentence that makes a pair with sentence 6.
11. a D. continues with the idea introduced in 1. C. states an explanation about the phenomenon, B. refers to this explanation and A. states how it was substantiated. Also A will be the last sentence as it forms a mandatory pair with sentence 6.
12. a There are two mandatory pairs in the questions. BD and A6. B. talks about the beginning of evolution changes, D. about adaptations, C. about further improvements as well as about extinctions, and A. about the approach towards modern lines.
13. c A. states that what has been predicted annually, according to 1. has not happened. B., and then D., talk about events that led to such a prediction. The use of 'then' in D. shows that it should follow B. C. makes a statement that is analysed in 6.
14. c C. introduces the topic of the passage, A. and D. explain it, B. presents the Economists' view of the whole idea.
15. a A. introduces the view of realists regarding reality, B. refers to 'this reality' and should follow A. C. refers to the realists again by using 'they' and should follow A. and B. D. presents the author's view about the given position.
16. d A. introduces 'changes in demands' as the topic sentence, D. gives some factors leading to the changes, C. elaborates on them and B. shows the effect of some more factors on the same issue.
17. c B. talks about the positive aspect of India's technological front, A. continues with the same, C. introduces the other side of the issue by using 'but' and D. contradicts C. by giving certain examples.
18. a D. introduces the topic of destruction of enemy kingdom by conquerors, C. uses the pronoun 'he' thus should follow D., B. and A. present more methods adopted by the conqueror in destroying the enemy.
19. b C. introduces the idea of various industries offering services through millions of firms, A. states that the individual firms vary in size, D. talks about other variations and B. about the variations in policies etc. within the firms.

**For questions 20 to 23:** If we were to number the houses 1-2-3-4 from left to right, the information given in the question can be depicted as:

Nationality	House Colour	Favourite Drink	House Number
English	Red	Milk	3
Italian	Blue	Tea	2
Norwegian	—	—	1
Spaniard	White	Fruit Juice	4

Knowing this, we can answer all the questions.

20. a The colour of the Norwegian's house is yellow.
21. b Milk is drunk by the Englishman.
22. b The Norwegian drinks Cocoa.
23. d The only statement that is not true is (d), as the Italian lives in house no. 2 and the Spaniard lives in house no. 4, which are not next to each other.

**Q24-27:** The best way to solve these kinds of questions is to assume that one of the statements is either true or false and thus figure out whether there is consistency in what everyone is saying.

24. b Let us assume that John's first statement is true. So his second statement must be false. This implies that Mathew did it. This makes Mathew's first statement false. So the second statement has to be true. This implies that Krishna didn't do it. So Krishna's first statement is true and his second statement is false. Since all the statements are consistent with each other, the assumption made by us should be the correct one. So it is Mathew who stole the boat.
25. b The key here are the statements made by Koik. Since we know that he is wearing a cap, if his first statement is false, then his second statement cannot be true. So his first statement is true and his second statement is false. This implies that Koik is the priest. This makes Lony's second statement false and so his first statement is true. So Lony is Koik's son. This makes Mirna's second statement false and so his first statement is true. So Lony's father is a pilot. Thus, Koik is the pilot.
26. a The first statement of Ram is obviously false, as he is saying that he never speaks to a stranger, when he actually is. So he must be new to those parts. This makes the second statement of Lila false. So she should be married to Ram. This makes the first statement of Laxman false. So the left road should take you to the village.
27. b If you observe Charle's statement carefully, you will figure out that his first statement is true and second statement is false. For instance, if his first statement is false, then his second statement cannot be true. There would be inconsistency in what he is talking. So Charles is not the chief. This makes Bobby's second statement false and first statement true. So Bobby is Amar's father and hence, Amar's first statement is false. So his second statement must be true. This implies that the chief is wearing the red shirt. So Bobby is the chief.
28. b What follows the blank shows that what has been happening till now has led to some undesirable consequences and hence a change is now coming in. Therefore, option (b) is the only choice that shows what wrong has happened.

29. c c. suggests that the strategy adopted by some people is not very effective, and the idea is continued with in the passage when the author refers to it as 'this fallacy'.
30. b What follows the blank shows that the author is against the argument projected in the beginning of the passage. B. is the only choice which would support this.
31. a The passage begins with the situation of two people on two different sides of the issue. Each gets a chance to argue his or her position and after listening to each other they decide whether they wish to change their position or not. The use of 'then' after the blank shows that some action has taken place before it, and (a) is the only option showing an action.
32. d A brand is a type of product and a sports car is a type of an automobile.
33. b A gourmet is an expert on food and a connoisseur is an expert on art.
34. a North is the opposite of south and black of white.
35. d Drought and famine are synonyms as are training and skill.
36. a Nuts and bolts are used together as a phrase just as nitty-gritty are also used together.
37. b Salty is the adjective for the noun 'salt'. Bovine is the adjective for the noun 'cow'.
38. a Lack of being just is the defining characteristic of arbitrary just as lack of having order is a characteristic of chaos.
39. d A crime leads to punishment, just as a homicide leads to a penalty.
40. c Stratosphere is a layer of atmosphere, jet is a kind of an aircraft.
41. c The first word of both the pairs implies 'to cut or break up something into parts' while the second word in both means 'bringing things together'.
42. d All others relate to payments made for something.
43. d Equestrian means of or pertaining to horseback riding. Neigh is the cry of a horse. A derby is an annual horse race. Bark is the odd word out.
44. d All others are synonyms.
45. d All others are nouns, while write is a verb.
46. c All others are synonyms.

47. d The correct tag question should use the same auxiliary verb as in the main clause, hence the correct tag question here would be, 'did you?'.
48. b The correct idiomatic usage is 'prevented someone from leaving'.
49. d The 'documents' are a plural noun, so should be referred to by them and not it.
50. a Here who is acting as an object for the verb invited, hence should be replaced by 'whom'.
51. c **From statement I:**  $2X + 2Y \leq 40$  or  $X + Y \leq 20$   
This statement alone cannot give the value of X.  
**From statement II:**  $X - 2Y \geq 20$   
This statement also alone cannot give the value of X.  
**On combining statements I and II:**  
Multiplying the second statement by  $-1$  and adding both the statements, we get  
 $3Y \leq 0$  i.e.,  $Y \leq 0$ , but it is given that Y is non negative.  
 $\therefore Y = 0$  and  $X = 20$   
Hence, using both statements together we can answer the question.
52. c **From statement I:**  
(a, b) can be (1, 8), (2, 4), (4, 2) and (8, 1).  
Therefore, statement I alone cannot give the value of a, b and c.  
**From statement II:**  
(b, c) can be (1, 9), (3, 3) and (9, 1).  
**On combining statements I and II:**  
 $b = 1$ ,  $a = 8$  and  $c = 9$   
Hence, the answer is (c).
53. a If the numbers are a, b, c and d such that  $a < b < c < d$ , then from statement I, we get  $(d - c) > (b - a)$ .  
So we can say,  $(d + a) > (b + c)$  or  $(d + a) + (d + a) > (b + c) + (d + a)$ . Dividing both the sides by 4, we get  
$$\frac{(d + a)}{2} > \frac{(a + b + c + d)}{4}$$
  
This shows that the average of the largest and the smallest of four numbers is indeed greater than the average of all the 4 numbers. Hence, we can answer the question using statement I only.
54. d From statement I, the ages could be either (1, 3, 7) or (1, 1, 21). Statement II doesn't simplify this further as none of the above combinations when added is divisible by 3.  
Hence, the answer is (d).
55. c **From statement I:** From this statement, exact number of widgets produced by machine A cannot be determined.  
**From statement II:** From this statement also exact number of widgets produced by machine A cannot be determined.

**On combining statements I and II:** Dealer produced minimum 10 units of widget A and 15 units of widget B and for that he requires  $10 \times 2 + 15 \times 4 = 80$  machine hours and number of machine hours available per week is also 80 hours.  
Hence, he produced 10 units of widget A.

56. a **From statement I:** We can say that the perimeter of the hexagon is 36 cm, or the length of each side is 6 cm. From this we can find its area. So this statement alone is sufficient to answer the question.  
**From statement II:** It does not provide any other data, but merely states the property of a regular hexagon. So, this statement alone is not sufficient to answer the question.
57. c **From statement I:** Let price per kg of mangoes be Rs.x and price per dozen of oranges be Rs.y.  
 $\therefore 10x + 2y = 252$   
From this statement, we cannot find x.  
**From statement II:**  $2x = y$   
From this statement also, we cannot find the price per kg of mangoes.  
**On combining statements I and II:**  $14x = 252$  i.e.,  $x = 18$   
Hence, using both statements together we can answer the question.
58. c The two equations are :  $2o + 3b + 4a = 15$  and  $3o + 2b + a = 10$ .  
Adding the two equations, we get  
 $5o + 5b + 5a = 25$   
 $\Rightarrow o + b + a = 5$   
 $\Rightarrow 3o + 3b + 3a = 15$ .
59. c Since the inflation rate is 8% in both the years 1994 and 1995, therefore, the rate of increase of the price of sugar is 10%.  
 $\therefore$  Price of sugar on January 1, 1996 = Price of sugar on January 1, 1994  $\times \left(1 + \frac{10}{100}\right)^2 = 20 \times 1.21 = \text{Rs.}24.20$  per kg.
60. c Total number of two digit codes that can be formed is  $10 \times 10 = 100$   
Out of them 0,1,6,8,9 can create confusion.  
Using these five digits, total number of two digit numbers that can be made is  $5 \times 5 = 25$ .  
But out of these 25 numbers 00,11,88,69 and 96 will not make any confusion.  
Hence, the required answer is  $100 - 25 + 5 = 80$ .

61. a It can be very easy to figure out that  $(x + y)$  will always be greater than  $xy$ , only if one of them is 1. **E.g.** If  $x = 1$  and  $y = 2$ , then  $(x + y) = 3$  and  $xy = 2$ . Hence,  $(x + y) > xy$ . Other than this, for all other values of  $x$  &  $y$ ,  $(x + y)$  will always be less than  $xy$ , and hence, the ratio of  $\frac{(x + y)}{xy} < 1$ , and hence, cannot be an integer. Also,

even if one of the values is 1,  $\frac{(x + y)}{xy}$  will never be an integer. Hence, the answer is (a).

62. d You can do this by the method of simulation. For eg. Let the three numbers be 1, 3 and 5. So option (a) is  $1^2 \cdot 3^2 \cdot 5^2 = 225$ , which is odd. (b) is  $3(1^2 + 3^3)5^2 = 2100$ , which is even.  $5 + 3 + 5^4 = 633$ , which is odd. (d) is  $\frac{5^2(1^4 + 3^4)}{2} = 1025$ , which is not even and hence, the answer is (d).

63. c There are 139 players in all. We want to determine 1 champion among them. So all except the Champion should lose. A player can lose only once and since each match produces only one loser, to produce 138 losers, there should be 138 matches that should be played.

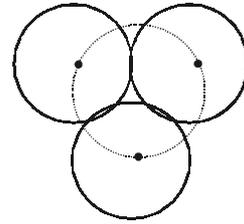
64. a The initial reading for 10 coins is : 6 Tails and 4 Heads. After repeating the process of flipping one coin at random for 7 times, the final reading for 9 coins is: 5 Tails and 4 Heads. Therefore, possible final reading for 10 coins is: 6 Tails and 4 Heads or 5 Tails and 5 Heads. If the final reading is 6T and 4H, it is same as the initial one. However, this is not possible as the process of flipping a coin has taken place an odd number of times, so there has to be atleast one change in the final reading. Therefore, the final reading is 5T and 5H. So the covered coin will certainly be a Head.

65. a Let the two given numbers be  $x$  and  $y$  such that  $x > y$ . According to the question,

$$x - \frac{y}{2} = 3 \left( y - \frac{y}{2} \right)$$

$$\Rightarrow \frac{x}{y} = \frac{2}{1}$$

66. c

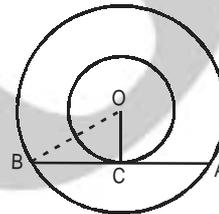


It can be seen that, if we place the 3 cones in such a way that they touch each other, it will be similar to placing 3 circles touching, with vertices of the cone corresponding to the centers of the circles. The centers of the circle form an equilateral triangle with each side being  $2r$ . A circle that passes through the centers will be the circumcircle to such a triangle. The radius of the circumcircle of an equilateral triangle is  $\left( \frac{1}{\sqrt{3}} \right)$  times its side.

Hence, in our case it would be be

$$\left( \frac{2r}{\sqrt{3}} \right) \text{ and } \left( \frac{2r}{\sqrt{3}} \right) > r, \text{ since } \sqrt{3} = 1.73 \text{ (approx.)}$$

67. a



Let  $x$  meters and  $y$  meters be the radius of the outer and the inner circles respectively and  $O$  be their center.

In right angled  $\Delta OCB$ ,

$$CB^2 = OB^2 - OC^2$$

$$\Rightarrow 9 = x^2 - y^2$$

$$\Rightarrow (x + y) (x - y) = 9 \times 1$$

As  $x$  and  $y$  are integers, therefore,  $x + y = 9$  and  $x - y = 1$ .

Thus,  $x = 5$ .

Hence, radius of the outer circle is 5 meters.

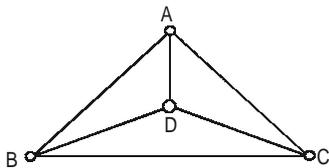
68. b It can be seen that every city is connected to all the other 3 cities.

If we start from city A, there are 3 ways in which we can proceed, viz. AB, AD or AC.

Once we are at any of these cities, each one of them is connected to the other 3 cities. But since we cannot go back to city A, there are only 2 ways in which we can proceed from here.

If we are at B, we can take either paths BD or BC.

From this point, we have a choice of going directly to A (thus skipping 4th city) or go to 4th city and come back to A. Eg. If we are at D, we can either take DA or DCA. So there are 2 more ways to go from here. Hence, required number of ways =  $3 \times 2 \times 2 = 12$ .



**For questions 69 and 70:**

Let  $x$ ,  $y$  and  $z$  be the number of children who took 1 ride, 2 rides and 3 rides respectively.

Since  $z = 20$  and  $y + z = 55$ ,  $y = 35$ .

Then, total number of rides =  $x + 2y + 3z = 145$

$$\Rightarrow x + 2 \times 35 + 3 \times 20 = 145$$

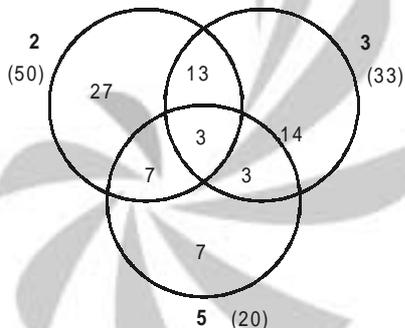
$$\Rightarrow x = 15$$

69. c Number of children, who did not try any of the rides =  $85 - (x + y + z)$   
 $= 85 - (15 + 35 + 20) = 15$

70. c Number of children, who took exactly one ride =  $x = 15$

71. b The price of 1 mango is equal to the price of 2 oranges. Hence, 5 mangoes will be equivalent to 10 oranges. So 20 oranges cost Rs.40, therefore one orange will cost Rs.2.

72. a The following Venn diagram shows the distribution of numbers between 1 and 100 that are divisible by 2, 3, 5 or a combination of two or more of them.



50 numbers are divisible by 2, 33 numbers are divisible by 3 and 20 numbers are divisible by 5.

3 numbers are divisible by all 2, 3 and 5.

16 numbers are divisible by both 2 and 3, therefore 13 numbers are divisible by 2 and 3 but not by 5.

10 numbers are divisible by both 2 and 5, therefore 7 numbers are divisible by 2 and 5 but not by 3.

6 numbers are divisible by both 3 and 5, therefore 3 numbers are divisible by 3 and 5 but not by 2.

Total number of numbers that are divisible by one or more among 2, 3 and 5 =  $27 + 14 + 7 + 13 + 3 + 7 + 3 = 74$

Hence, the required number =  $100 - 74 = 26$ .

73. a  $U_0 = 2^0 - 1 = 0$   
 $U_1 = 2^1 - 1 = 1$   
 $U_2 = 2^2 - 1 = 3$   
 $U_3 = 2^3 - 1 = 7$  and so on.  
Hence,  $U_{10} = 2^{10} - 1 = 1023$ .

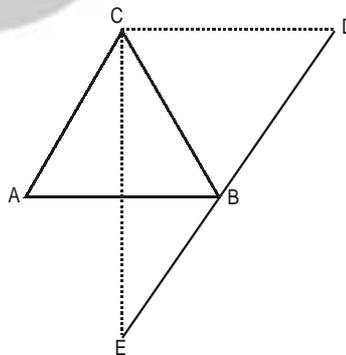
74. a  $f(x) = |x|^3$   
 $\therefore f(-x) = |-x|^3 = |x|^3 = f(x)$ .  
Hence, the given function is even.

75. b Let  $f(x) = g(x) + h(x)$ ,  
where  $g$  and  $h$  are odd functions.  
 $\therefore f(-x) = g(-x) + h(-x) = -g(x) - h(x) = -f(x)$ .  
Hence,  $f(x)$  is an odd function.

76. a If we assume that any digit is in a fixed position, then the remaining four digits can be arranged in  $4! = 24$  ways. So each of the 5 digits will appear in each of the five places 24 times. So the sum of the digits in each position is  $24(1 + 3 + 5 + 7 + 9) = 600$ . Hence, the sum of all such numbers will be  $600(1 + 10 + 100 + 1000 + 10000) = 6666600$ .

77. c Since there are 6 red balls and all six of them are of different sizes, probability of choosing the smallest among them is  $\frac{1}{6}$ .

**For questions 78 and 79:**



78. b Since  $\Delta ABC$  is an equilateral triangle with length of the side 2 km, so its altitude will be  $\sqrt{3}$  km. As point D is directly east of C, so D is 3 km east and  $\sqrt{3}$  km north of A.

79. d ABDC and AEBC, both are rhombus with each side 2 km.  
Hence, the total distance walked by the person = BD + DB + BE = 2 + 2 + 2 = 6 km.

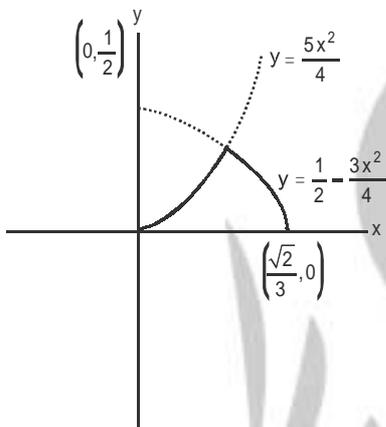
80. b Let l be the length of the rod, then  
Volume of slab = Volume of rod

$$\Rightarrow 8 \times 11 \times 2 = \pi \left(\frac{8}{2}\right)^2 \times l$$

$$\Rightarrow l = 3.5 \text{ inches.}$$

81. b Since there are two numbers which are less than 1 (viz. x and y), it is obvious that the median will be less than 1. Hence, (c) cannot be the answer. Since  $x < 0.5$  and  $0 < y < 1$ , the median will not be less than 0. Hence, the answer is (b).

82. d



So maximum possible value will be at the point of intersection of the two graphs.

$$\therefore \frac{1}{2} - \frac{3x^2}{4} = \frac{5x^2}{4}$$

$$\Rightarrow x^2 = \frac{1}{4}$$

$$\text{Hence, required maximum value} = \frac{5x^2}{4} = \frac{5}{4} \times \frac{1}{4} = \frac{5}{16}.$$

83. b Let the work done by a worker be x units, w be the total work and n be the number of workers in the group. Then,  
w = Work done on the nth day i.e. last day + Work done on the second last day + ... + Work done on the first day

$$\Rightarrow w = x + 2x + \dots + nx = \frac{n(n+1)x}{2} \quad \dots (i)$$

When none of the workers is removed, then

$$w = nx \times \frac{2n}{3} = \frac{2n^2x}{3} \quad \dots (ii)$$

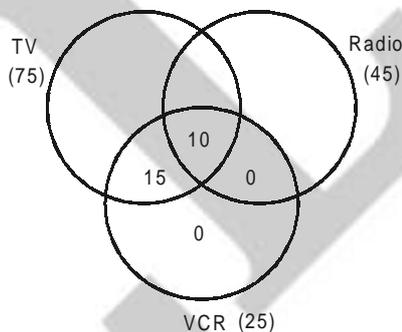
From equation (i) and (ii), we get

$$\frac{n(n+1)x}{2} = \frac{2n^2x}{3}$$

$$\Rightarrow n = 3.$$

84. c We can form a triangle with any 3 points which are not collinear. 3 points out of 5 can be chosen in  ${}^5C_3 = 10$  ways. But of these, the three points lying on the two diagonals will be collinear. So  $10 - 2 = 8$  triangles can be formed.

85. c



Since each VCR owner also has a TV, therefore, 15 families own both TV and VCR but not Radio.

Since 25 families have radio only, therefore, 10 families own both TV and Radio but not VCR.

Hence, number of families having only TV =  $75 - 10 - 10 - 15 = 40$ .

86. a  $@/(*(2, 4), 4), 2) = @/(@/(8, 4), 2) = @/(2, 2) = 2$ .

87. a  $A + B = 2((A + B)/2) = 2(@/(A, B)) = *(@/(A, B), 2)$ .

88. a Sum of A, B, C =  $[A + B + C] = 3\{[2((A + B)/2) + C] / 3\} = *(@/(*(@/(B, A), 2), C), 3)$ .

(HINT : Students please note that for Q87 and Q88, if it doesn't strike you to simplify in this manner, the best way is to simplify the answer choices and work backwards.)

89. a The total number of the characters =  $(20 \times 55 \times 65)$ .  
Let the number of pages in the new format be n.

Thus, the total number of the characters =  $(65 \times 70 \times n)$ .

Since the total number of the characters remains same, therefore,  $n \approx 16$ .

Hence, the required percentage

$$= \frac{20 - 16}{20} \times 100 = 20\%$$

90. a Let us evaluate each option.  
**Option (a):** As  $x < 0$  and  $z > 1$ , let  $x = -1$  and  $z = 3$ , then  $(x^2 - z^2) = -8$ . Hence, this option is not true.

**Option (b):** As  $0 < y < 1$  and  $z > 1$ , let  $y = \frac{1}{4}$  and  $z = 2$ ,

$$\text{then } yz = \frac{1}{4} \times 2 = \frac{1}{2}.$$

Therefore,  $yz$  can be less than 1.

**Option (c):** Since none of the  $x$  and  $y$  is equal to zero, therefore  $xy$  can never be zero.

**Option (d):**  $0 < y < 1$  and  $z > 1$ , therefore  $(y^2 - z^2)$  is always negative.  
Hence, answer is (a).

91. b She counted thumb on 1, 9, 17, 25 and so on. So it forms an arithmetic progression.  
She counted thumb closest of 1994 on  
 $(1 + 1992 \text{ (multiple of 8)}) = 1993$   
Hence, she would have counted 1994 on the index finger.

92. a It is clear that after a particular amount of time  $P$  and  $Q$  are equidistant from  $A$  and  $B$  respectively and speed of  $Q$  is twice the speed of  $P$ , therefore, in the remaining time distance moved by  $Q$  will be twice than  $P$ . Hence, they would meet closer to  $A$ .

93. d Let the speed of  $P$  be  $x$  and the distance between  $A$  and  $B$  be  $d$ , so the speed of  $Q$  will be  $2x$ .  
According to the question,

$$(1+t)v = 2vt = \frac{d}{6} \quad (\text{Let } t \text{ be the travel time of } Q)$$

$$\Rightarrow t = 1 \text{ and } d = 12v$$

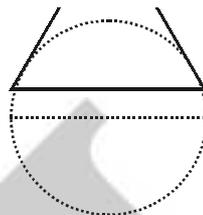
Hence, the time taken by  $P$  to reach to  $B$

$$= \frac{d}{v} = 12 \text{ hours.}$$

94. c As  $P$  takes 12 hours to complete his journey, so  $Q$  moving with twice the speed of  $P$  will take  $\frac{12}{2} = 6$  hours to complete his journey.  
Hence,  $P$  will take 6 hours more than  $Q$  to complete the journey.

95. d Required number =  $\text{LCM}(4, 6, 7) + 2 = 86$ .

96. c It can be seen that if a spherical ball is placed inside a hollow cone of same diameter, the ball won't go up to the diameter. In other words, because of the slanting edges of the cone, only less than 50% of the ball would enter the cone. i.e., more than 50% of the ball would be outside the cone.



97. d The separation between the ship and the seaplane is 18 miles. Since the two are travelling in the same direction, the relative speed would be 9 times the speed of the ship (If speed of ship is  $x$  miles/hour, speed of the seaplane would be  $10x$  and  $10x - x = 9x$ ). Hence, to catch up with the ship, the seaplane would take

$$\frac{18}{9x} = \frac{2}{x} \text{ hours. Now, the ship covers } x \text{ miles in an}$$

hour, so in  $\frac{2}{x}$  hours it would cover 2 miles. So when

the seaplane catches up with the ship, it would be  $18 + 2 = 20$  miles from the shore.

98. b Number of 2 in the product of all integers from 1 to 100

$$= \frac{100}{2} + \frac{100}{4} + \frac{100}{8} + \frac{100}{16} + \frac{100}{32} + \frac{100}{64}$$

$$= 50 + 25 + 12 + 6 + 3 + 1 = 97 \text{ and number of 5 in the}$$

$$\text{product of all integers from 1 to 100} = \frac{100}{5} + \frac{100}{25}$$

$$= 20 + 4 = 24$$

Hence, number of zeros at the end = Lowest of the (number of 2, number of 5) = 24.

99. d In this case since  $x$ ,  $y$  and  $z$  are distinct positive integers, our aim is figure out which of the answer choices cannot be expressed as the sum of 3 integers uniquely. **E.g.** 6 can only be expressed as  $(1 + 2 + 3)$ . 7 can only be expressed as  $(1 + 2 + 4)$ . But 8 can be expressed as either  $(1, 2, 5)$  or  $(1, 3, 4)$ .

100. b Since Akbar likes rain, he cannot be a frisbee player (as no frisbee player likes rain). And since every boy in the school does one of the two, Akbar has to be a fisherman.

101. b It is a manifestation of anomic suicide.

102. a Furkheim was trying to document the fact that something as individualistic as suicide can be explained without reference to individuals.

103. b It is also a manifestation of anomic suicide.
104. c This was categorised as egoistic suicide.
105. d Durkheim uses all three as explanations for suicide within a social entity.
106. a Military personnel, trained to lay their lives for the country are more likely to commit suicide.
107. b Durkheim was successful on all three indicators that he based his contentions on.
108. d He has used all the given indicators to support his contentions.
109. a This would happen due to a manifestation of strong individual ties.
110. a The passage shows that though IBM is losing ground in one market after another, Intel and Microsoft have emerged as the computer industry's most fearsome pair of competitors.
111. c IBM's 'loss' and not the 'lay off' was the biggest in the corporate history.
112. b IBM marketed Ambra.
113. b General Motors, a relatively new company, had surpassed Ford as America's No. 1 car maker.
114. d Intel was the major supplier of silicon chips to IBM.
115. c The passage states that each company feels threatened by its own creations.
116. a The passage states that IBM plans to introduce a new system that would run on a variety of machines.
117. c Windows NT, developed by Microsoft will link together many computers through a network.
118. a Both marketed their own versions of Os2.
119. b NEERI has reported that 70% of the total water available in the country is polluted.
120. a The degradation of natural resources will lead to poor economic utilization of resources.
121. c W.H.O. has made both the observations.
122. d All the given statements are supported by the passage.
123. b 75% of Ganga's pollution comes from municipal sewage.
124. c Drying up of water resources and over pumping causes drinking water crisis.
125. d US, UK, Netherlands, Poland, France, World Bank and India are together going to fund the project.
126. d Ganga, Yamuna, kali, Hindon, cauvery and Kapila, have all shown great amounts of metal pollutants in their waters.
127. a Out of a total outlay of 6,522.47 crores, rural water supply would receive 3,454.47 crores.
128. b The shortage can be best tackled by cleaning up polluted water.
129. c This task should operate at the physical, conceptual as well as at the emotional levels.
130. c Violation of space boundaries makes the quality of space suffer, hence openness of space can be created only by the firmness of its boundaries.
131. d The author has given all three as reasons that make learning a painful process.
132. d Our experiences in the physical world have parallels in our relationships with others, where the concept of space also works.
133. d The author feels that a learning space would be one where the teacher provides information and theories which encourage the process of learning.
134. a Silence unites us and we also become more open to truth.
135. c An effective teacher would be one who is not afraid of dealing with feelings.
136. c An effective teacher would never allow the learning space to be filled by reading of a big number of pages of assigned reading.
137. b An emotionally honest learning space is created by a teacher who is not afraid of dealing with feelings.
138. a Assigned reading and lecturing can create a conceptual space.
139. b The author states that the harmony among these traditional elements has made Japanese industry highly productive and given corporate leadership a long term view.
140. d It was widely perceived that management education was a passport to good life.
141. b In 1980's management education had started getting criticism from various quarters.
142. c Management education faced all other criticisms in the 1980's

143. a Japan has traditionally believed that management ability can only be acquired through years of practical experience.
144. c In 1960's and 1970's management education gained academic stature. A management professor was even awarded the Nobel prize. It also gained more respect.
145. b In 1980's critics charged that learning had little relevance to real business problems.
146. b Training programmes in Japanese corporations have sought the socialization of new comers.
147. d Increased competitive pressures and greater multi nationalism of Japanese business made Japan change its attitude towards management education.
148. a The author states that the Japanese educational system is highly developed and intensely competitive, raising the mathematical and literary capabilities of the Japanese to the highest in the world.
149. d The two differ in their process of selecting and orienting new recruits.
150. a The author has given the example of Wharton to argue that Japanese do not 'do without' business schools.

**Q151 to 154:** The given graph can be represented in the following table:

Company	Sales (1)	Expend. (2)	Profit (3)=(1)-(2)	Equity (4)	Pro/Equ (3)/(4)	Sal/Equ (1)/(4)	Sal/Exp (1)/(2)	Growth Rate Sales
1990	80	76	4	8	0.5	10	1.05	-
1991	92	88	4	8	0.5	11.5	1.04	15%
1992	106	100	6	22	0.27	4.82	1.06	15.21%
1993	128	114	14	22	0.64	5.82	1.12	20.75%

151. c It is clear that the profit per rupee of equity is highest for 1993 viz. 0.64.
152. c The simple annual growth rate in sales is maximum for the year 1992-93 viz. 20.75%.
153. b Sales per rupee of the expenditure is lowest for the year 1991 viz. 1.04.
154. b Sales per rupee of equity is highest for 1991 viz. 11.5

**For questions 155 to 158:** Let the profits of CAT and DAT be x, Sales of CAT and BAT be y and sales of ANT be z. So we have

COMPANY	SALES	EXPENDITURE	PROFIT
ANT	z	0.9z	0.1z
BAT	y	0.8y	0.2y
CAT	y	5x	x
DAT	3x	2x	x

Now, it is said that the total expenses of CAT were Rs.10 lakhs. Thus,  $5x = \text{Rs.}10$  lakhs or  $x = \text{Rs.}2$  lakhs. Also, total expenses of ANT were 10% less than those of CAT = Rs.9 lakhs. Hence,  $0.9z = 9$  lakhs or  $z = 10$  lakhs. Finally, in case of CAT, since Sales – Expenditure = Profit, Sales = Expenditure + Profit =  $6x = 12$  lakhs,  $y = 12$  lakhs.

Our final table will become:

COMPANY	SALES	EXPENDITURE	PROFIT
ANT	10	9	1
BAT	12	9.6	2.4
CAT	12	10	2
DAT	6	4	2

(All values in lakh Rupees)

155. d From the above table, it can be seen that the company that had the lowest sales is DAT viz. Rs.6 lakhs.
156. c CAT had highest total expenses i.e., Rs.10 lakhs.

157. a ANT had lowest profits i.e., Rs.1 lakh.

158. b BAT had the highest profits i.e., Rs.2.4 lakhs.

**For questions 159 to 162:**

The given graph can be represented in the following manner:

Years	Net Fixed Assets (NFA)	Net Current Assets (NCA)	Investments	Total Assets (TA)
1990	7	13	2	22
1991	8	16	1	25
1992	7.5	15	2	25
1993	9	17	4	30

159. b The growth rate of total assets between 1990-93 =  $\frac{(30 - 22)}{22} = 36\%$ . But this is for a 3 year period.

Hence, simple average annual growth rate =  $\frac{36}{3} = 12\%$ .

160. c It can be seen that the growth rate is lowest for investments in 1990-91 viz. 50% decrease.

161. c Between 1991 and 1992, the highest growth rate was seen for investments viz. 100% increase.

162. d It can be seen that every individual item has shown a decrease in some year or the other. Only Total Assets has not followed this trend.

**For question 163 to 166:** Since Soumya was the last one to eat the cookies and she ate 3 cookies, the total number of cookies left when she entered the room =  $(3 \times 4) = 12$ . This should be Soumya's share that was left in the box uneaten. Hence, just before Soumya entered, Swetha, Sneha and Swarna would have eaten their share of 12 cookies each. Total number of cookies left when Sneha entered =  $(12 \times 4) = 48$ . This in turn should have been the combined share of Sneha and Soumya  $(24 \times 2)$  that was left in the box uneaten. So just before Sneha entered, Swetha and Swarna should have eaten 24 cookies each. In other, words number of cookies left, just before Swarna entered =  $(24 \times 4) = 96$ . Now this should have been the combined share of Swarna, Sneha and Soumya  $(3 \times 32)$  that was kept in the box by Swetha . So just before Swarna entered, Swetha must have eaten her share of 32 cookies. Hence, total number of cookies given by Prem uncle =  $(32 \times 4) = 128$ .

The situation is also shown in the following table:

		Number of cookies eaten					
		Swetha	Swarna	Sneha	Soumya	Not Eaten	Total
Girl entered	Soumya	3	3	3	3	-	12
	Sneha	12	12	12	-	12	48
	Swarna	24	24	-	-	$(24 \times 2) = 48$	96
	Swetha	32	-	-	-	$(32 \times 3) = 96$	128
<b>Total</b>		71	39	15	3	-	-

163. c Sneha ate 15 cookies, in total.

164. a Prem uncle gave 128 cookies to Swetha.

165. d Swetha ate 71 cookies, in total.

166. c Swarna ate 39 cookies, in total.

**For questions 167 to 171:** Since 40% of the students were females, i.e., 32 students. Total number of students was 80 and total number of male students was 48. Since half of the students were either excellent or good, (number of average students) = (number of good students + number of excellent students) = 40, number of excellent students = 40 - 30 = 10.

As  $\frac{1}{3}$ <sup>rd</sup> of male students were average, total number of male students that were average =  $\left(\frac{1}{3} \times 48\right) = 16$  and hence, total

number of male students that were good = (48 - 16 - 10) = 22.

Based on the above revelations, the following table can be drawn:

	Performance			Total
	Average	Good	Excellent	
<b>Male</b>	16	22	10	48
<b>Female</b>	24	8	0	32
<b>Total</b>	40	30	10	80

167. a Number of students who were both female and excellent = 0.

168. c Number of students who were both male and good = 22.

169. d Ratio of male to female among average students = 16 : 24 = 2 : 3.

170. b Proportion of female students who were good =  $\left(\frac{8}{32}\right) = 0.25$ .

171. b Proportion of good students who are male =  $\left(\frac{22}{30}\right) = 0.73$ .

172. b Thus, we can see that Solid Fuels and Petroleum together constitute more than 60% of total energy in both World and Asia for the given period.

173. a As seen from the above table, Petroleum is the fuel whose proportion in the total energy demand increases during 1990-2000 and decreases during 2000-2010 for both World and Asia.

174. d In case of Asia, for the given answer choices, we can make the following table:

		1990	2000	2010
<b>Total Energy</b>		<b>10</b>	<b>20</b>	<b>33</b>
<b>Natural Gas</b>	<b>Value</b>	0.5	2.5	5
	<b>Proportion</b>	5%	12.50%	15.15%
<b>Solid Fuels</b>	<b>Value</b>	4	5	10
	<b>Proportion</b>	40%	25%	30.30%
<b>Nuclear</b>	<b>Value</b>	0.5	1	1.3
	<b>Proportion</b>	5%	5%	3.90%
<b>Hydropower</b>	<b>Value</b>	1	1.5	2
	<b>Proportion</b>	<b>10%</b>	<b>7.50%</b>	<b>6.06%</b>

Hence, we can see that the proportion of Hydropower goes on decreasing over the period.

175. d In case of the World, for the answer choices, we can make the following table.

		1990	2000	2010
<b>Total Energy</b>		<b>150</b>	<b>200</b>	<b>250</b>
<b>Natural Gas</b>	<b>Value</b>	30	40	50
	<b>Proportion</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>
<b>Solid Fuels</b>	<b>Value</b>	50	60	75
	<b>Proportion</b>	33.30%	30%	30%
<b>Nuclear</b>	<b>Value</b>	10	20	25
	<b>Proportion</b>	6.66%	10%	10%
<b>Hydropower</b>	<b>Value</b>	10	10	20
	<b>Proportion</b>	6.66%	5%	8%

Hence, we can see that the proportion of Nuclear gas in total energy demand of the World remains constant over the given period and its proportion will increase in the total energy demand in Asia.  
(Use information of the question number 174.)