Mock CAT Test – 3

Answers & Explanations

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

	Question number	Total questions	Total attempted	Total correct	Total wrong	Net Score	Time Taken
RC + EU	1 to 80	80					
Quant + DI + DS	81 to 165	85					
Total		165					

1. Clearly given in the last line, fifth paragraph (computerization of the registration department …)

2. Refer to the second paragraph, lines 1 and 2 (Today it has come to play …).

3. Refer to the last paragraph, line 4-10 (In our enthusiasm for the information …).

4. Refer to para 7, last line (2 to 3 per cent …).

5. Options (a), (b) and (c) are discussed throughout the passage. Option (d), however, is not given in the passage.

6. Refer to the eighth paragraph, line 1 (Many of the state governments …).

7. Refer to the eighth paragraph, lines 6 and 7, in the context of what the Tamil Nadu government is trying to do.

8. Refer to the seventh paragraph, opening line (At the National Conference …).

9. The passage talks about effectiveness in business as a whole.

10. Refer to the first paragraph, lines 4–7 (Indian business has historically …).

11. Can be inferred from fifth paragraph (beginning).

12. The author says this in ninth paragraph, lines 2 and 3 (This is not to say …).

13. Refer to opening lines of paragraphs 11, 12 and 13

14. Refer to paragraph 9, last line (Unfortunately, I was unable …).

15. Refer to paragraph 9 where it is mentioned 'unfortunately'.

16. None of a, b and c can be validly inferred.

17. Refer to para 8, lines 1 and 2 (Careful workforce planning …).

18. The title should communicate the central idea of the passage. The central idea of this passage is explicitly stated in para 1, lines 3-5 (One way to appreciate …). Therefore option (b) is the most appropriate answer.

19. The author must be a strategist or a consultant for the service sector.

20. Paragraph 5 implies this subtly.

21. Clearly stated in fourth paragraph, last line ('because employees resistant …')

22. Conclusion I is borne out by statement (I), paragraph 10.
Conclusion II is borne out by ninth paragraph.
Conclusion III is borne out by statement (I), paragraph 7.

23. (c) does not figure in the passage.

24. I. is borne out by statement (I), second paragraph.
II. contradicts paragraph 6.
III. is borne out by sixth paragraph.
IV. is borne out by the entire passage.

25. Refer to the first paragraph, lines 3-6 ("What does it mean …).

26. Refer to para 2, lines 4 and 5 (… perpetuator of greatness …).

27. Refer to para 4, line 6 (like Morgan could realize …).

28. Refer to para 10, lines 3 and 4 (… Morgan hung banners …).

29. Refer to paragraph 12, line 2 (Morgan worked on her first major solo …).

30. Refer to paragraph 14, line 3 (she expressed this 'affection and admiration' …).

31. Refer to paragraph 16, lines 2 and 3 (Hearst should hire her …)

32. Refer to paragraph 17 (Page 12), line 3 (Hearst adored …)

33. Refer to opening lines, paragraph 1.

34. Refer to opening lines, paragraph 2.

35. Refer to para 2, lines 5-7 (It is surprising …).

36. Refer to paragraph 4, line 2 (they saw it as sorcery …).

37. Refer to paragraph 5, mid-portion (Sukayna got the most famous singer …)

38. Refer to paragraph 6, lines 8 and 9 (Exploring alternative loyalties …)

39. The passage is talking about some evolution or change in love.

40. The passage tends towards option (c).

41. Only option (b) is a figurative complement to the latter part of the sentence.

42. Only option (c) provides a required cause-effect idea.

43. Options (a) and (b) are eliminated, as 'a new language to help understand' is not as good as 'a new language for understanding'. Option (d) is obviously better than option (c).

44. Option (c) is obviously wrong. Among the other options, (b) is the best choice, as 'a one-time leader' is a good follow-up to 'it has even inspired a man like Tom Hayden, . . . '

45. Options (c) and (d) are clearly eliminated. Option (b) is a better choice than (a), because of 'mode of achieving this objective'.

46. Options (a), (c) and (d) are eliminated. Option (b) is the correct choice, even though it does away with 'yet', as it adds an 'a' before 'ruling'.

47. Option (a) is wrong because of 'purely an'. Option (b) is wrong because of 'an'. Option (d) is again obviously wrong. Hence, option (c) is the best choice.

48. Options (a) and (c) will be eliminated for lack of auxiliary verb. Option (d) is again wrong. Thus option (b) is the best answer choice.

49. Option (c) is the only choice in which the tenses ('had' and 'tried') match.

50. Sentence D talks about 'several other clones'.
Then C refers to D with 'These 17 curious creatures …'. Sentence B continues from C.
Therefore, DCB should figure in the right answer choice in that order.

51. Sentence C starts the topic and logically follows 1.
CD is a mandatory pair.
Therefore option (b).

52. Sentence C introduces the subject and logically follows 1.CD is a mandatory pair.
Sentence B takes the idea expressed in D forward.
BA is a mandatory pair.
Therefore, (b) is the right answer choice.

53. Sentence B talks about 'regional Taekwondo centres…'
Sentnece C continues the idea expressed in B with 'These would be nurseries…'.
Sentence C also talks about 2004 Olympics.
Sentence D continues after C and also talks about 2004 Olympics.
Therefore BCD should figure in that order in the right answer choice.

54. Sentence A continues on the subject of 'hype about e-commerce'. Sentence B describes the meaning of 'transactions through the wired world'. C then states the effects of transferring data electronically. D concludes by stating what is needed to bring about the desired changes.

55. The first three statements form a sequence of information about divorce figures in America (ABC), D is a logical follow-up.

56. 'Her' in 'C' relates to 'she' in sentence 1. Sentence A logically follows C what does a marriage give - love, happiness, husband and, so on. A fact is established and then the contradiction is stated. Thus D logically follows A. There are two ways of introducing a person either you first state the situation related to the person and then introduce the person or introduce the person followed by characteristic detail and situation. In this case as sentence 1 already narrated a situation has followed the first pattern and hence the introduction comes at the end.

57. The trait in sentence C refers to the trait of people in having respect for community property. Thus, 'C' follows 1. The passage then states the cause of the problem, i.e. tourism and more of tourists. Sentence A introduces the concept, this is placed after C. Logically follows B which talks about the adverse effect of tourism. D talks about a specific bird of tourism. So, from more general to specific.

58. The passage talks about a situation where extinction of lions was almost inevitable but then there was a gradual improvement in situation which is stated in chronological order. Thus, logically, Sentence 1 is followed by B (1848), A (1913) and D (1920 and 1955). And hence the fact, sentence the extinction had been warded off in sentence C.

59. Sentence A logically continues the idea expressed in 1. A also introduces the painter.
C talks about the cause of the painter's early fame.
B continues after C with 'in an attempt to expand his achievement…'
Therefore, ACB should figure in that order in the right answer.

60. Sentence C is a logical continuation to the opening statement, as it gives details of what conditions have been relaxed. The only answer choices starting with C are CDAB and CBDA; so the continuations are DAB and BDA. DAB is obviously better.

61. A has to follow sentence 1 because of the words 'these measures' and it is logically followed by BCD.

62. Sentence B continues with 'These roots'. D can't follow B. Therefore, the correct sequence is BACD.

63. Sentence C introduces the 'computer chip' and B continues with the idea. Therefore, CB is a mandatory pair.
D starts with, 'Twenty years ago…'
Statement 6, is a logical comparison with D, as it starts with. 'But now …'
Therefore, D6 is a mandatory pair.
Both these conditions are satisfied only in option (b)

64. Statement C logically follows statement 1.
Sentences A and D further the idea expressed in 1 and C. Statement B logically precedes 6.

65. 1C is an obvious mandatory pair.
So is D6.
Therefore, CBAD is the correct answer choice.

66. Sentence A repeats what is stated in the passage, also saying 'no bearing on real life', indicating the nature of an exercise.

67. The very fact that it is a presumption means that it is unproven.

68. The passage states that designations are forgotten during the meetings and even a sales engineer can question the CEO on company policies.

69. The passage states that the rape of Indian architectural wealth can be attributed to the blend of activist disunity and local indifference.

70. The moral police feel that *Fire* would influence the Indian psyche and ruin the moral fabric of the nation, which it should not be allowed to do.

71. The passage states that the rich have never felt secure against the poor and their aggressiveness stemmed from fear of the poor.

72. The passage states that the second kind of traveller visits only such monuments as the time at their disposal allows them to contemplate without irreverent haste.

73. None of the given options is supported by the passage.

74. The passage supports none of the given options.

75. The Indian middle class, what it wants and what it buys has been the focus of economic policies since the mid-80s.

76. None of the conclusions follows logically from the opening statements.

77. None of the conclusions follows logically from the opening statements.

78. Some discontented persons, because they are happy (statement II), cannot be idiots (statement I).

79. Only 6 and D can be correct using deductive logic.

80. None of the conclusions follows logically from the opening statements.

81. The ratio between the distance and the speed is the same. Since the ratios between the two are the same, the time has to be constant and hence the ratio needs to be 1:1:1 or mathematically,

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\text{Hence, Ratio of time} = \frac{\text{Ratio of distance}}{\text{Ratio of speed}} = 1:1:1.$$

82. Ratio of the speeds of the planes $\frac{V_1}{V_2} = \sqrt{\frac{\frac{121}{2}}{\frac{169}{2}}}$

or $\frac{V_1}{260} = \frac{11}{13}$

or $V_1 = 220$ kmph

83. Time taken by the plane = $\frac{121}{2} \times \frac{260}{220} + \frac{169}{2} = 156$ min

= 2 hours 36 min

$\therefore$ This plane will reach Patna at 10.36 a.m.

84. Profit percentage in winters = $\frac{10}{90} \times 100 \Rightarrow \frac{100}{9}$

Loss percentage in summer = $\frac{10}{110} \times 100 \Rightarrow \frac{100}{11}$

Hence, net profit percentage = $\frac{3}{10}\left(\frac{-100}{11}\right) + \frac{7}{10}\left(\frac{100}{9}\right)$

$\Rightarrow 10\left(\frac{7}{9} - \frac{3}{11}\right)\% \Rightarrow 10\left(\frac{50}{99}\right)\% \Rightarrow 5.05$

85. Data is insufficient in this case because the selling price for winter and summer has not been specified. Mind you, the data given in 84 (on account of selling price being equal to the cost price) is meant only for question number 84. Common error is marking the answer as 11 : 9 or 9 : 11.

86. Profit in winter = $\frac{990}{9}$ = Rs. 110 per metre.

Loss in summers = $\frac{990}{11}$ = Rs. 90 per metre.

Thus, net profit for 2 m = Rs. 20 or net profit per metre is Rs. 10.

87. $18 \times A^4$ should end in 8. So A^4 should end in 1. So A can take any value 1, 3 , 7 or 9. Caution not just these values, A can take all values except 0 and 5. So, the answer has to be picked up in accordance with the best answer choice available!!!!
The **error committed** in such questions is in leaving the question unanswered because none of the choices is the complete answer. In the paper, the job of a candidate is to look for the best among the choices.

88. It happens when both of them meet for first time at the starting point. Ratios of speeds = 4 : 12. Hence, ratios of distances covered = 1 : 3. Hence, when A makes one round, B makes 3 rounds, so the answer is 1.

89. Suppose he took x chickens to the market. We have

$$\frac{4}{5}\left\{\frac{3}{4}\left(\frac{2}{3} \times \overline{\frac{x}{2} - \frac{1}{2}} - \frac{1}{3}\right) - \frac{3}{4}\right\} - \frac{1}{5} = 19$$

or x = 101
It is better to use options here.

90. Since all of them drank three of the four beverages, one can drop only one beverage. So no one can drop vodka and whiskey both.
∴ Percentage of people taking liquor is 100.

91. $x = -\left(\frac{b}{a}\right)$ and hence in case of Pallavi we can say that '8' is correct in the numerator, and in case of Anuva, we can say that '3' has to be there in the denominator (since she commits the mistake in copying "b-which is actually the numerator. Because of the negative sign the answer can be either $\frac{8}{3}$ or $-\left(\frac{8}{3}\right)$.

Sure??? No, the answer is data insufficient because the wrong 'a' and the wrong 'b' which are copied by Anuva and Pallavi may actually not be coprimes of a and b (which means the wrong 'a' and the wrong 'b' can be factors). Thus $\frac{8}{3}$ or $-\left(\frac{8}{3}\right)$ could be the fraction or the ratio but not the exact number. Hence data insufficient.

92. Take some values in x, y, z and use in options.

93. The required sum is $75\left(1+\frac{1}{2}+\frac{1}{4}+....\right)$

$= 75\left(\frac{1}{1-\frac{1}{2}}\right) = 150$ cm.

94. Check choices. Working backwards with the smallest choice 9, we get inconsistent data. Working with 12 we get 28 apples in the beginning. Hence, initially there must have been 28 apples. Therefore, taking option (c), we arrive at consistent solution.

95. SP of 18 oranges = CP of 18 oranges – SP of 4 oranges (SP = CP – Loss)
∴ SP of 22 oranges = CP of 18 oranges

∴ Loss percentage = $\frac{22-18}{22}\times 100 = 18\frac{2}{11}$.

96. Ashok's watch will show 7 o'clock when the actual time is 7.15 and since he thinks that his watch is 10 min fast, Ashok will think that the actual time is 6.50 and plan to reach the airport 10 min later, i.e. at 7.10 by his watch when the actual time is 7.25. Similarly, Vikram will arrive at the airport at 6.35.

Short cut:
It is clear that Vikram will reach first. Here one should not be worried about the time gap because no other choice has Vikram as the first to reach.

97. $\frac{a-b}{ab}$, $1 \$ 2$

$= \left(-\frac{1}{2}\right)\$ 3 = \frac{7}{3}$ ... and, so on to get the answer $\frac{29}{5}$.

98. $D < 0$
$b^2 - 4ac < 0$
$\Rightarrow b^2 - 4c < 0$

99. Suppose α is the common root, so we have
$p\alpha^2 + 3q\alpha + r = 0$ ... (i)
$p\alpha^2 + 3r\alpha + q = 0$ ... (ii)

Subtracting (ii) from (i), we get
$3\alpha(q - r) + r - q = 0$ or $(q - r)(3\alpha - 1) = 0$

We know that $q \neq r$, so $3\alpha = 1$ and $\alpha = \frac{1}{3}$.

Putting the value of α in (i), we get $\frac{p}{9} + q + r = 0$

or $p + 9q + 9r = 0$.

100. Meter reading = 53 paise.
Next higher multiple of 4 = 56 paise.
56 × 12 = 672 paise
672 paise rounded up to the nearest multiple of 25 paise = Rs. 6.75.

101. ∵ 60% people own TV and 85% own scooter, at least 85 + 60 – 100 = 45% own both, and 95% own radio sets.
∴ At least 95 + 45 – 100 = 40% people own all the three.
Or
100 – [(100 – 40) + (100 – 85) + (100 – 95)] = 40%

102. Solving the three equations, we get $(k + 2)x = 10$ or the value of $k = -2$ is not possible.

103. We have $\begin{array}{r} abcde \\ \times\ 4 \\ \hline 9\ abcde \end{array}$

Clearly, e = 6, d = 7, c = 0, b = 3 and a = 2.
So, the five-digit number is 23076.

104. 190747 lies between the cubes of 50 and 60. So we can guess that the numbers should be around 50-60. Moreover, the last digit of the product is 7. So the last digits of the numbers should be 3, 9 and 1. Based on these we can say that numbers are 53, 59 and 61.

105. Probability of hitting the target in maximum of 5 attempts

$= \frac{2}{5} + \frac{3}{5}x\frac{2}{5} + \left(\frac{3}{5}\right)^2 x\frac{2}{5} + \cdots + \left(\frac{3}{5}\right)^4\frac{2}{5}$

$= \frac{2}{5}\left[1+\frac{3}{5}+\left(\frac{3}{5}\right)^2+\left(\frac{3}{5}\right)^3+\left(\frac{3}{5}\right)^4\right] = \frac{2}{5}\left[\frac{1-\left(\frac{3}{5}\right)^5}{1-\frac{3}{5}}\right]$

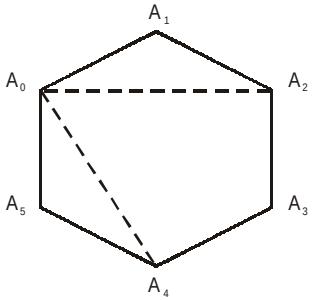
$= 1-\left(\frac{3}{5}\right)^5$

106. $x + y + z = x(b + c) + y(a + c) + z(a + b)$
On comparing the co-efficients of x, y and z on both sides of the equation, we find
$b + c = 1$
$a + c = 1$
$a + b = 1$

$a = b = c = \frac{1}{2}$. Put these values in the given expression,

i.e. $a^2 + b^2 + c^2 + 2abc = \frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=1$.

107.



Since $A_0A_2 = \sqrt{3}\,(A_0\ A_1)$

or $A_0\ A_2 = \sqrt{3} = A_0A_4$

$\therefore\ A_0A_1 \times A_0A_2 \times A_0A_4 = 1.\sqrt{3}\,.\sqrt{3} = 3.$

108. $\frac{1}{x}+\frac{1}{y}=\frac{5}{6}$

$\frac{1}{y}+\frac{1}{z}=\frac{3}{5}$

$\frac{1}{z}+\frac{1}{x}=\frac{1}{2}$

$\frac{1}{x}+\frac{1}{y}+\frac{1}{z}=\frac{29}{30}$

Then

$\frac{1}{x}:\frac{1}{y}:\frac{1}{z}$

= 11 : 14 : 4.

Short cut:

Work with choices. Choice (a) gives the ratio of $\frac{1}{x}:\frac{1}{y}:\frac{1}{z}$ as 11 : 14 : 4 .

$\frac{5xy}{x+y}=6$ can be written as $\frac{5}{\frac{1}{x}+\frac{1}{y}}=6$. Substitute the ratio of $\frac{1}{x}$ and $\frac{1}{y}$. We get $\frac{5}{25}=6$ or

1 = 30. Similarly for $\frac{3yz}{y+z}=5$, we get 1 = 30 . Thus, in terms of ratios we get the same answer. Hence choice (a).

109. Out of 16 outcomes ${}^4C_2$, i.e. 6 outcomes number of heads will be equal to number of tails.
So 16 – 6 = 10 outcomes will not be equal.

Hence, the required probability = $\frac{10}{16}=\frac{5}{8}$.

110. The data is insufficient because we do not know if any of the remaining 6 points are collinear with the points on the two lines, i.e. a point not on any of the two lines may be collinear with a point each on the other two lines.

111. Another googly! If you simplify

$f\left(\frac{1}{1999}\right)+f\left(\frac{1998}{1999}\right)=1,$

$f\left(\frac{2}{1999}\right)+f\left(\frac{1997}{1999}\right)=1,$

.....

$f\left(\frac{n}{1999}\right)+f\left(\frac{1999-n}{1999}\right)=1,$

where n is any number.
Clearly, out of 1,998 terms, you will get 999 pairs.

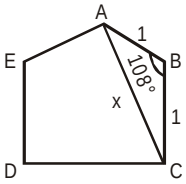
112. 9 can be formed using all the digits from 1-8, i.e. (1,8), (2,7).....(4,5). Since we have to select a minimum of 5 numbers, there will at least be two numbers which will add up to 9 (since all the digits contribute to becoming in 9, there has to be at least one of the above pairs.

113. The maximum area would be either when the height = 10 cm or when the side of the equilateral triangle = 10 cm.
Hence, the maximum area would be

$25\sqrt{3}$ or $\frac{100}{\sqrt{3}}$ sq cm respectively. The greater area is $\frac{100}{\sqrt{3}}$ sq. cm .

114. Here we have $x + 100 = k^2$ and $x + 152 = m^2$, where x is the integer and k and m are natural numbers.
We have $m^2 - k^2 = 52$
or $(m + k)(m – k) = 26 \times 2$ or 52×1 or 13×4
but only 26×2 will give us integer solution. So m = 14 and k = 12. $\therefore$ x = 44.

115. Suppose length of the diagonal AC is x.
In ΔABC, $\angle ABC = 108°$



$\cos 108 = \frac{1^2 + 1^2 - x^2}{2.1.1}$ or $\left(\frac{1-\sqrt{5}}{4}\right) = \frac{2 - x^2}{2}$.

or $x = \frac{\sqrt{5}+1}{2}$.

Short cut:
The sides of the pentagon are 1 unit each. Even if the angle is 90°. The third side is $\sqrt{2}$ (Pythagoras theorem). The angle is more than 90°; hence, the side has to be more than $\sqrt{2}$. Only choice (a) has the value more than $\sqrt{2}$.

116. Consider a cuboid (or a cube) of unit length
$d = \sqrt{3}$, $a = b = c = \sqrt{2}$.
So the right option should satisfy it and there is only one such option (a).

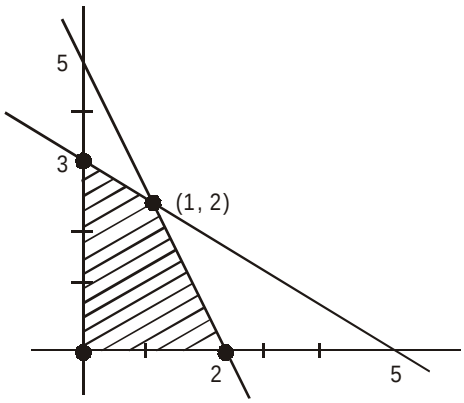
117. 1 – (probability of not selecting the right number in the two trials) = $1 - \left(\frac{9}{10}\right) \times \left(\frac{8}{9}\right)$.
(choose all 9 incorrect out of the total ten available = $\frac{9}{10}$ and choose all 8 incorrect out of 9 available in the second trial = $\frac{8}{9}$).

118. $a = d^3$, $b = d^3$, $c = d^{\frac{6}{5}}$

$\therefore \log_d abc = \log_d d^{3+3+\frac{6}{5}} = 7.2$

119. The answer ${}^8C_3 - {}^4C_1 \times 6$ can be reasoned out as ${}^8C_3$ = all the cases wherein out of 8 people any 3 are chosen. Now choosing any three out of eight will include within it cases where even a married couple is chosen. So, we will subtract all those cases wherein married couples are chosen. The total number of arrangements of married couples will be ${}^4C_1 \times 6$. This is because out of 4 available, we can choose any one married couple. Now along with this married couple the third person chosen will be any of the 6 remaining people. Thus ${}^4C_1 \times 6$ number of different possibilities need to be subtracted from ${}^8C_3$.

120. Unit's digit of X should be 1, 5 or 6. Ten's digit can be 4 or 6. So the values of X can be 41, 45 and 61. In case of 46, 65 and 66 the square of the reverse will exceed 3000.

121.


Is this always correct?
Any one of the 4 corners could be the answer in certain situtations.
If we want to maximize 3x + 10y, y should be the maximum as coefficient of y is 10. From given inequalities, maximum value of y is 3 and then the value of x will be zero.
So maximum of 3x + 10y = 3(0) + 10(3) = 30.

122. Check with the choices.

123. Out of 3000 books, 500 are given free and from the balance 2500, for every 24 books one book is given free. Hence, 2400 books are sold at 75% of 3.25.
Thus, SP = 2400 x 3.25 x 0.75, CP = 2400.
Gain percentage = 143.75.

124. In the first case, Mayank's one day's work = $\frac{1}{2}$ and Kulmohan's one day's work = $\frac{1}{3}$. In the second case, Kulmohan can do $\frac{1}{4}$ of the work in one day and Vijay can do $\frac{1}{5}$ of the work in one day.
Therefore, the ratio of the work they did together in one day will be 15 : 10 : 8 = Mayank : Kulmohan : Vijay.
Since they do the work together in 20 days, Kulmohan will do all the work in
$\frac{15+10+8}{10} \times 20 = 66$ days.

125. Use choices.

126. $(x + y)^2 = 17$ or $x^2 + y^2 + 2xy = 17$.
or $x^2 + y^2 + 2 \times 5 = 17$ or $x^2 + y^2 = 7$.
$x^4 + y^4 = (x^2 + y^2)^2 - 2x^2y^2 = 7^2 - 2 \times 5^2 = -1$.
Do not get surprised, it is nowhere written that x and y are real and so $x^4 + y^4$ need not be positive. Many of you must have answered (a).

127. If the diameter of the outer sphere is 1, the length of the diagonal of the cube will also be 1. Hence, the side of the cube which is also the diameter of the inner sphere will be $\frac{1}{\sqrt{3}}$ or the ratio of diameters = $\sqrt{3}$: 1.
Hence, the ratio of the surface areas = 3 : 1.

128. In the first 3 min, the first jar will also have 2 amoebas and then after it will take 3 hours to fill up. So total time is 3 hours 3 min.

129. In 10 min, 44 l of A will vaporize. Final ratio of A : B = 2 : 7 or 10 : 35. Initial ratio = 21 : 35 .
Hence, the original volume = $\left(\frac{44}{11}\right) \times 56 = 224$ l.

130. Take numbers and check.

131. $40 \times 0.17 + 60 \times x = 23$
$\therefore x = 0.27$
Hence, the market share of TVS Suzuki in the rest of the two-wheeler market is 27%.

132. The ratio of motorcycles to the two-wheeler category = $\frac{28}{50} = 0.56$.
Hence, motorcycles are 56%.

133. The common error is to consider the data as of volume basis. The actual data is on value basis.

134. None of the above choices satisfies the required question.

135. The ratio of the revenue turnover of motorcycle to rest of the two-wheelers = $3 \times 7 : 7 \times 4 = 3 : 4$.
Hence, the percentage of turnover for Hero Honda from its motorcycle sales = $\frac{0.5 \times 3}{0.28 \times 7} \times 100 = 76.5$.

136. We do not know how many of each category were sold and whether the average price in India is same every month.

137. $(0.4 \times 9896) - (\frac{2}{9} \times 457.5) = \$3856.7$ billion.

138. The total GDP of all the countries given is 21386.1. Hence, the percentage share of Germany of the world GDP = $\frac{1878.1}{21386.1} \times 0.9 = 7.9$.

139. SP is Rs. 8,000.
Total cost of producing x items = 1000000 + 5000 x
Hence, of break-even production 8000x
= 1000000 + 5000x or x = 333.33 or 334 units.

140. Total production = 1000 units. TVs sold = 800.
Hence, total revenue = 800 × 8000 = Rs. 64 lakhs
Total production cost = (10 + 50) = Rs. 60 lakhs
Total holding cost = 200 × 500 = Rs. 1 lakh
Profit = Rs. 3 lakh.

141. Obviously, since the profit per TV reduces the break-even, production goes up.

142. $6400x = 1000000 + 5500x \Rightarrow x = 1112$ units.

143. Data insufficient because we do not have any information on the selling price.

144. Profit in 2000-2001 is 20% for a profit index of 95. Hence, profit percentage in 1997-98 (profit index = 100) = $\frac{20}{0.95} = 21.05$.
In 1997-98 SP is Rs. 200 and profit is 21.05.
Hence, CP = $\frac{200}{1.21}$ = Rs. 168.
Short cut:
Since 95% profit index is equivalent to 20% profit, 100% profit index is slightly more than 20%. Even if we proceed by taking it as 20%, then 120% of cost price = Rs. 200, cost price < $\frac{200}{1.2}$ (= Rs. 166).

145. Cost price in 1990-91 = Rs. 400; profit percentage = 25. Hence, cost price in 2000-2001 = 1.75 × 400 = Rs. 700. Profit percentage in 2000-01 = 0.95 × 25 = 23.75.
Hence, profit in 2000-2001 = 23.75% of 700
= Rs. 166.25.

146. Let SP and CP for 2000-2001 be S and C respectively, then SP and CP for 2001-02 will be 1.2S and 0.8C respectively.
Profit percentage for 2000-2001 = 20, thus, $\frac{S}{C} = 1.2$
For 2001-02, profit percentage = $\frac{1.2S}{0.8C} - 1 = 0.8$ or 80.
Profit of 20% = Index of 95, thus, profit of 80% = Index of 380.

147. Let the profit percentage in the base year be x.
$CP_{01} - CP_{97} = 1.75\,CP_{97} - CP_{97} = 300$.
The cost price in the base year = $\frac{300}{0.75} \Rightarrow$ Rs. 400.
$\therefore \left(1 + \frac{0.95}{120}x\right) 700 - \left(1 + \frac{x}{100}\right) 400 =$ Rs. 500
$\therefore x = 75.47\%$

148. It may look so complex and time consuming! All the options here are different in terms of their respective unit's place digit. So, add the unit's place digits of all the numbers in the column for year '99 and it ends in 8. There is only one choice, i.e. (d) that satisfies this requirement.

149. Brand 'B' registered the maximum growth.

$$\frac{314-207}{207}\times 100 = 51.6\%.$$

150. Compare the values of $\frac{\text{Sales}_{99}}{\text{Sales}_{98}}\times\frac{(\text{Market Share})_{98}}{(\text{Market Share})_{99}}$

The ratio for others = 1.38
for A = 1.17
D = 0.98.

151. Average unit price is Re. 1. So, volume is also 3073 cr units because total revenue is Rs. 3,073 cr. Hence, average unit price for brand 'Others'

$$= \frac{\text{Total value}}{\text{Total volume}} = \frac{602}{3073\times 0.25} = 0.78.$$

152. From statement I, the two brands which could not register a growth in 1999 were brands A and C in the south region of A and east and south regions of C. Statement II shows an increase of

$\frac{314-77}{77}\times 100 \approx 308\%$, which is false as per the question, and in statement III, the market of the west did not show more growth rate than south.
Therefore only statement I is true.

153. Choice (a), (b) and (d) cannot be supported on the basis of the data given and they are definite statements while choice (c) offers only a possibility and hence is the correct option.

154. Growth in rupees terms

$$= \frac{(\text{Exports})_{2000-2001} - (\text{Exports})_{99-2000}}{(\text{Exports})_{99-2000}}\times 100$$

$$\frac{1020.51-911.86}{911.86}\times 100 = 11.9\%$$

155. Effective growth in dollar terms

$$= \left[\frac{1020.51\times 0.9 - 911.86}{911.86}\right]\times 100 \approx 0.7\%$$

156. We cannot conclude anything as year x may or may not be a leap year as century years (100, 200, 300), etc. are not leap years. A century year is a leap year if and only it is divisible by 400 and not by 4 only.

157. We know that the roots of a quadratic equation will be equal if $b^2 - 4ac = 0$.

$b^2 - 4ac = (b - 2\sqrt{ac})(b + 2\sqrt{ac})$, if $b - 2\sqrt{ac} = 0$.
$b^2 - 4ac = 0$ and hence only one root.
If b = c = 0, then also we shall have only one root that is zero.

158. 1, 1, 30 is the only option which satisfies the condition given by statement I. Hence statement I alone is sufficient to give the answer. From statement II alone we can not get the value a + b + c.

159. We know that $AB^2 + AC^2 = 2(AD^2 + BD^2)$ and BC = 2BD.
$\therefore$ Using both the statements, we can get the value of BC.

160. From both statements independently we can get the answer.

161. Vijay and Sujit are both in the same year but in which month we do not know. Hence, it cannot be solved.

162. From statement I we get the sides of the triangle as 3,4 and 5. Hence area can be determined.

163. Put the values and check. We will find that none of the statements answers the question.

164. From statement I, we can say OA = 4, AT = 3 and hence OT = 5.
So we can get $\angle OAB$ and hence AB.

165. From statement I, we have $\frac{S+G}{2} = 2[S - G]$

or 2[G – S]
Hence, we get different values.
Even if we put S = 20, we cannot reach any conclusion.