

Mock CAT – 6

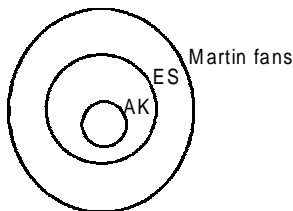
Answers and Explanations

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

Scoring table

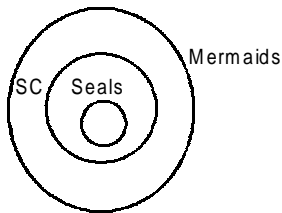
Section	Question number	Total questions	Total attempted	Total correct	Total wrong	Net score	Time taken
EU + VL	1 to 40	40					
RC	41 to 80	40					
QA	81 to 125	45					
DI + DS + AR	126 to 170	45					
Total		170					

1. a (a) is the answer. Remember that the second condition is that "he does not go to the museum". So, DA cannot be the answer as one of the two conditions has to occur.
2. d (d) is the answer. The question is not talking of real life situations. Please do not confuse the question with real life possibilities.
3. d (d) is the answer. If India does not bat first Sehwag can still bat first.
4. c (c) is the answer. Little Red Riding Hood can eat the wolf even if it attacks her.
5. b (b) is the answer. Vivek can marry Ash even if Salman marries Ash. Please remember that we are not talking about real life situations here.
6. d Deductive Logic

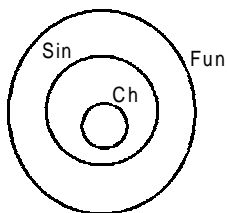


Statement A includes the possibility that Akshat is not a Martin fan. But this possibility does not exist.

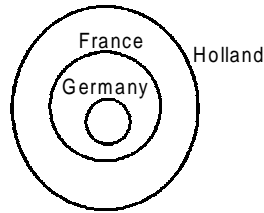
7. c Deductive Reasoning



8. b Clear Deductive Logic



9. a Deductive Reasoning. No other answer possible.



10. a All cats are plants and all plants shed leaves. Therefore, every cat will shed leaves.
11. d Sentence B begins with the writer's reaction to coming to Sydney and sentence C talks more about the feeling of being there. She ends the sentence by talking about plane spotting; sentence D mentions her view on plane spotting and airports in general. Sentence A then finishes the paragraph with her experience at the Sydney airport specifically. This makes choice (d) correct.
12. a Sentence C talks about the profit-sharing packages, which are provided to the employees; sentence B mentions the impact of the same on the mindset of the employees. Sentence D then mentions how the mindset affects the performance and sentence A then qualifies this with instances of the same. This makes choice (a) correct.
13. b Sentence B begins by introducing the concept of the "intravenous" level of permission marketing and sentence C gives an instance of the same; sentence A explains in detail and sentence D mentions yet another variation of this level of permission marketing. This makes choice (b) correct.
14. a Sentence D introduces a key scene in a movie, which is set in a parlour. Sentence B makes a remark about the parlour setting and sentence C describes the various props in greater detail. Sentence A ends by commenting upon how all of this contributes to the movie. This makes choice (a) correct.
15. b Sentence B broaches the question and sentence D says that a simplistic answer cannot be given for this. Sentence C, then elaborates on this "limitation". CA is a mandatory pair as they both talk about "values". This makes choice (b) correct.
16. c The opening sentence mentions Ventura's fascination with electrogravitics and sentence C mentions an instance, which demonstrates this. Sentence E talks about how "it" (which could only be the hover-board kit), did not work. Sentence D is a quote about his prototypes and sentence B is a continuation of the quote where he mentions "they" (prototypes). Sentence F ends the comment on the prototypes. Thus choice (c) is correct.

17. a The first sentence introduces Thomas Townsend Brown. Sentence D mentions his family background and talks about his early experiments. This is followed by statement C which talks about his University years. Sentence E mentions an odd thing he noticed which is further described in sentence B. The paragraph ends with statement F. This makes choice (a) correct.
18. b The first sentence talks about a skein running through the Athens games, sentence D goes on to mention specifically what is to be expected this time. Sentence C talks about the ambiguity in the situation and sentence E uses the instance of the tennis players to corroborate this point. Sentence B ends by stating the verdict on Greg's case. This makes choice (b) correct.
19. d The first sentence introduces the theory and sentence B mentions a part of this theory. Sentence D adds another variable ('In Addition') and sentence C talks about Steinberger and his colleagues who have worked on this and this is the second last sentence as the last sentence mentions "their work". CF is a mandatory pair. This makes choice (d) correct.
20. a The first sentence begins by talking about the fact that computer glitches are seen to be very offensive, and sentence C talks about the inference derived from this. Sentence D explicates upon this and sentence B mentions one of the researchers who is working on these lines, his work is further mentioned in sentence E, finally concluding with sentence F. This makes choice (a) correct.
21. a Lassitude means apathy, coldness, disregard or passiveness. Alacrity means promptness in response. It is an antonym for lassitude. Lackadaisical means careless and apathetic. Lachrymose means over-emotional, mushy, depressed or distressing. A laurel is an honour.
22. c Obstreperous means deafening, blatant, boisterous or mischievous. Clamorous is used to describe something marked by din or noise. Subtle can be used to describe colours, sounds, behaviour or implied meanings. It is the opposite of obstreperous. It means quiet, implied, not direct, loud or harsh. An obstinate person is adamant, uncooperative or stubborn.
23. a Flagrant means conspicuously offensive, so obviously inconsistent with what is right or proper as to appear to be a flouting of law or morality. In contrast, covert means clandestine, hidden, disguised or done in secrecy. Obscure can be used to describe something that is not clear, is shrouded in darkness or is hidden. Slapstick is usually used to refer to entertainment or a farce. A slapstick comedy is nonsensical.
24. a Vapid means dull, uninteresting, arid, banal or commonplace. A cliché is a statement or theme that has become commonplace by overuse. A vivacious person is keen, alert, vibrant and high-spirited. It is an antonym for vapid. A versatile person is an all-rounder, is flexible, can adjust to different situations and perform multiple tasks. Insipid means tasteless, bland or dull. It is a synonym for vapid.
25. a Option (a), per se, is not irrational. One can always crave for an icecream while suffering from flu. But (b) is definitely irrational, as it could lead to detrimental consequences. Choices (c) and (d) too are heavily irrational perceptions.
26. d Option (a) is perfectly rational and human, but choices (b) and (c) would imply being irrational to an extreme degree.
27. b The question demands that we resolve the paradox of 'fewer hours — busy day'. Why? Option (a) is possible under either circumstance. Option (c) is a close call, but this is possible even on an easy day. Option (b) explains that the taxi drivers decide when to call it a day. Instead of trying to maximise their earnings, the taxi-drivers are simply trying to avoid losses.
28. b Only in option (b) does a conclusion follow from premises. Option (a) is more of a justification; (c) is an observation and (d) is what the writer will call a 'heated argument'.
29. c Option (b) does not state a valid reason to support cloning; it only states what may already be happening. Option (a) is out of context. Option (c) is the answer. Refer to 'solidify into a backlash against many of the other efforts of biologists. That would be a pity....' If the other efforts of biologists are already bringing benefits, then the author's argument gains strength.
30. d That causal relationships are a matter of the views one holds is more obvious in (d) than (a), (b) or (c). Specifically remember Hume's statement 'our belief in a necessary relation between cause and effect is based on custom and habit'. We presuppose those instances, of which we have had no experience, must resemble those, of which we have had experience, and that the course of nature continues always in a uniform manner.
31. c Statement II does not contain a fallacy. All true communists are atheists. Hence, they don't believe in God. Statements I and III are, of course, obviously illogical. Statement IV erroneously assumes that all those who experiment with soft drugs get addicted to hard drugs.
32. b Options (a) and (c) are nice things to do, but they don't address our concern directly. (b) sounds reassuring and would naturally be the conclusion the writer is arriving at.
33. c (c) is the answer. (a) is wrong as the superlative degree 'greatest' must be used. (b) is wrong because 'is' singular verb cannot be used for 'watches'. (d) is wrong for improper use of preposition 'at'.
34. b (b) is the answer. (a) is wrong because 'ignorance' should take a singular verb 'is'. (c) is wrong because of improper use of the conjunction 'between' as there are no distinct subjects here. (d) is wrong for improper use of word 'its' as it should read 'it is'.

35. a (a) is the answer. (b) is wrong because 'a' is inappropriate article for 'unmitigated' - a word that begins with a vowel. (c) is wrong because the verb 'portray' should be in Simple Past Tense. (d) is wrong because the conjunction 'as' cannot be dispensed with.
36. d (d) is the answer. (a) is wrong because 'team are' lacks subject-verb agreement. For the same reason, (b) is also wrong. (c) is wrong because the article 'a' cannot be dispensed with lest the sentence sounds colloquial.
37. a (a) is the answer. The sentence should have appropriate parallelism as evident in (a). (c) is wrong because it inadvertently changes the meaning of the sentence. (d) is wrong because there is no such word as 'modernly'.
38. d (d) is the answer. The conjunctions 'and', 'so' and 'or' do not bring out the point of inflexion that is necessary to contrast the two opinions.
39. c (c) is the answer. (a) is wrong because the subject is 'motorists', hence the verb should be 'are'. (b) is wrong because 'travellers' will face 'hazards'. (d) is wrong because of inappropriate use of the preposition 'in'.
40. b (b) is the answer. Go by the diction of the sentence. (a) is wrong because the city is resting 'on' the water surface, not 'in(side)' it. (c) is wrong because it does not sound right to use 'water'; imagine the waves. (d) is wrong because the city is still alive.
41. b The first Para mentions this - "Some of the ... Movement". Further in the second para - "The tactics...." This indicates that choice (b) is correct and the rest of the options are not corroborated by the passage.
42. b The author states these figures in the second para and mentions - "When treatment.....these treatments". The author, after stating the figures mentions "An estimated.....to their price". This makes choice (b) the correct one.
43. c The third para delves into the claim of the drug companies that the reason for the prohibitive costs is the R & D investment. The author mentions "But this is aof sales". This corroborates statements (a) and (b). Further, "The R & D costs.....trial processes". This means choice (d) is also correct. The author mentions royalty but the correct figure stated is "as little as 1.5 %". This makes choice (c) false and hence the correct one.
44. d The fourth para deals with this question. "For example.....of sales". The author states that "The Pharmaceutical.....20 percent of sales". This makes choice d false since it mentions R & D costs as 20 percent of profits. This makes choice (d) correct.
45. b The author is exploring the issue of the fact that a high percentage of HIV patients are in the third world countries whereas the new developments in the treatment are expensive and the justification used by the drug companies of high investments are also false. This attitude is critical and this makes choice (b) correct.
46. a The author's stand vis-à-vis the WTO and GATT is mentioned in the second para. He mentions the impact of the regime change - "But under today's.....and welfare". "Global.....some cases". He further mentions the specific cases where the US has used clauses to benefit it in some cases. This makes choice (a) correct. Choice (b) is incorrect as the passage mentions the drug companies being more aggressive under the WTO. Choice (c) and (d) is not borne out by the content of the passage.
47. d Fourteen acronyms are used in the passage.
48. d (a) is unlikely because the US exerts clout over the organizations. (b) and (c) are impossible situations (d) is within the scope of the passage.
49. c The author opens the passage with the question about the shelf life of an idea. The rest of the passage talks about how the idea of the American empire has been prevalent for some time and ends the para saying "...but the ideas...too much in it". He then goes on to mention the vested interests. This is most in agreement with option (c) and is correct. The rest of the choices are not corroborated by the passage.
50. c The third Para in the passage talks about "while...and turn to more pacific pursuits". This means the Western allies are not on the same wavelength when it comes to use of technological prowess for military purposes. Hence, choice (c) is correct.
51. b The latter part of the fifth para mentions this - "*The President's instincts.... entanglements*" and further "*September 11th.....strong states*". This makes choice (b) correct.
52. d The answer lies towards the end of the sixth para where the author talks about Mr. Ignatieff. "Many like...of the West". Further while talking about Mr. Ferguson "What the British.... ruling power". This rules out choice (d), which is not mentioned and is the correct answer.
53. d The sixth passage mentions the views of Mr. Ignatieff, Mr. Cooper and Mr. Ferguson. Mr. Rumsfeld has been mentioned as a covert supporter of imperialism but his statement "We're not imperialistic", means choice (d) is the answer.
54. d Para seven mentions points choices (a) and (b). Choice (c) is inferred from the statement "If Mr. Bush...embarrassment". This means choice (d) is the answer.
55. d The views presented in (a), (b) and (c) are not the author's.

56. c The author mentions this in the first para – “The judges.... And “There is no ban.... testimony”. Choice (d) is not mentioned in the para. This makes choice (c) correct.
57. b The author talks about this in para two – “But it allows.... thing”. This shows his critical attitude and makes choice (b) correct.
58. d This comment is evaluated in the third Para and the author mentions all of these except choice (d) because the conviction of the General is not established. This makes choice (d) correct.
59. c The author mentions in the fourth para “ In principle, should not.... the court”. This makes choice (c) correct.
60. a This issue is raised in the fifth para and the author mentions “The appeals chamber.... of justice”. This makes choice (a) as the most appropriate.
61. a (a) is the correct answer as mentioned clearly in the first paragraph, , beginning from the third line “*The point...*”
62. c Clearly mentioned in the third paragraph where he first mentions this statement about Microsoft and follows it up by saying “*...but infotech...*”
63. b Fourth paragraph, third last line mentions “ In the past 22 years,”
64. c You will have to use elimination to arrive at the answer here – the sixth paragraph mentions “*Result...price of steel....allocation*”. Seventh paragraph mentions choice (b). Again (d). is mentioned in the second last line of the sixth paragraph. Rubber is not mentioned in the context and is therefore the correct answer.
65. a The opening line of the last paragraph mentions this clearly.
66. d (d) is correct, since it captures the essence of the passage.
67. c Choice (a) is incorrect since the cinemas were corporate controlled rather than government controlled. Choice (b) is wrong since the Ghazals are mentioned as the “first wave of successful challenge” and not the first released. Choice (d) is clearly incorrect as the author goes on to mention other societies where this was not the case. This means choice (c) is the answer.
68. b Para 1 mentions “at the risk.... devotional music”. Choices (c) and (d) are correct since – “The secularization. ...Mass media”. This means choice (b) is correct which is corroborated by the statement “Due to the forms....mass media”.
69. c The author talks about this in the third para and out of the options, the third option does not mention the sacred and the secular strains. It mentions sacred music being televised live and is therefore an inappropriate example of the point he is making. This makes choice (c) correct.
70. b This topic is broached in the third para. “In generals,knowledge”. This makes choice (b) the correct one.
71. c The author is describing as phenomenon that occurred in history and therefore (c) is the best option.
72. b (b) is correct, given verbatim in paragraph 2, the author discusses this view held by the religious orthodoxy.
73. c The opening paragraph talks about the emergence of varieties of commercially marketed music.
74. b The first para introduces us to the Ruskin's ideology about what constitutes art – “Ruskin saw the best.....usefulness”. The aspects of the artist truly wanting to create this and the work of art being of some benefit to the society are dominant and out of the options present, choice (b) is correct as it best exemplifies it.
75. b The liaison between the two entities is mentioned in the second para – “There were strong links.....and new dress”. This makes choice (b) correct.
76. b This belief is mentioned in the fourth para – “ This purist viewand life”. This makes choice (b) correct.
77. b The fifth para mentions Lethaby and the peasant arts revival mentioned is done in the context of the nineteenth century, thereby making choice (b) false and hence correct.
78. b The author is talking about a specific time period in history and mentions many people who left a lasting impression and influenced trends. Choice (a) introduces morality which is not mentioned as an overwhelming aspect, choice (c) talks about communism which is mentioned in the context of one of these people and is narrow. Choice (d), then talks about another political movement and capitalism, a link not mentioned in the passage. Choice (b) is a wide and appropriate option.
79. d (d) is the correct answer. (a), (b) and (c) reflect his attitude.
80. d ‘Delineated’ means to figuratively describe in words, or to sketch out details. (a) would be objective, (b) would be vague in the context and (c) is too simplistic.
81. c Check the choices.
Since $f(h(x)) = f(g(f(x)))$,
If $f(x) = t$, then the choice (c) is $f(g(t)) = h(t) = h(f(x))$
82. c Each state can have at most 999 officers with all these parameters identical. So, we need at least 8 states for accommodating 7300 officers.
83. a Let us look at the number of alternatives for each block of letters in the number.
I. Only 1 i.e. ‘A’ since it is given as civil service.
II. There are a total of 12 possible ranks for the officers, irrespective of their year of joining.

III. There can be at most 35 valid years, since others would have retired by now.

IV. 31, equal to the no. of states, not 99

V. 999

So the maximum number of civil servants
 $= 12 \times 35 \times 31 \times 999$

84. d Total length of the path
 $= \text{length of } (AB + BC + CD + DA)$
 $= 100\pi + 150\pi + 100\pi + 300 = (350\pi + 300) \text{ m.}$
Distance covered in 100 s = $200\pi \text{ m.}$
Remaining distance = $(150\pi + 300) \text{ m}$
Relative speed = $3\pi \text{ m/sec}$

$$\text{Time taken} = \frac{50\pi + 100}{\pi} \text{ sec or } 150 \left(\frac{1}{3} + \frac{2}{3\pi} \right) \text{ sec}$$

85. d The distance covered by Krishna is $50\pi + 100$ which is less than 300 m. So, they will meet on the tangent DA. Since they won't be traveling on the bridge at the same instant, that condition won't cause any trouble.

86. c The question has no other trick than to find the second digit of 96×4 which is 8.

87. d Volume of solid cylinder = $\pi r^2 H$

$$\Rightarrow \pi r^2 H = \pi \left(R^2 - \frac{R^2}{4} \right) h \Rightarrow h = \frac{4}{3} H$$

So, percentage increase in h is $\frac{1}{3} \times 100$, i.e. 33.3%.

88. a Additional surface area = $8\pi \left(R^2 - \left[\frac{R}{2} \right]^2 \right)$

Original surface area

$$= 2\pi \left(R^2 - \left[\frac{R}{2} \right]^2 \right) + 2\pi R h + 2\pi \left(\frac{R}{2} \right) h$$

$$\therefore 6\pi \left(R^2 - \left[\frac{R}{2} \right]^2 \right) = 3\pi R h \Rightarrow 6\pi \times \frac{3}{4} R^2 = 3\pi R h$$

$$\Rightarrow \frac{3}{2} R = h$$

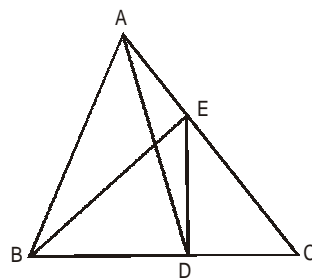
89. b If the original number is XY. This number is divisible by 8. The number formed by reversing the digits is YX. This is divisible by 4 but not by 8. The difference between these numbers is $9(x - y)$ or $9(y \times x)$. This difference must be divisible by 4 as well. Hence the number $9(x - y)$ or $9(y - x)$ must be divisible by 36 or 72. So the difference of the digits is 4 or 8. This is possible only for two cases, i.e. if XY is 48 or 91. Since XY is divisible by 8 the number must be 48. So the product is 32.

90. b Number of exchanges within a family = $15 \times 4 \times 3$
 $= 180$

Number of exchanges between families = 15×14
 $= 210$

Total number of bouquets = 390

91. c



Let the side of the equilateral triangle $\triangle ABC$ be 3 units. Clearly, $BD = 2$, $CD = 1$ and $CE = 2$.

$$\frac{CD}{CE} = \frac{1}{2}, \text{ so } \angle DEC = 30^\circ$$

Hence, $\triangle CDE$ is a right angled triangle.

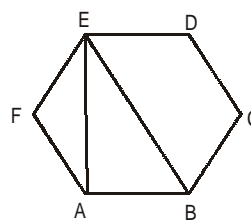
Similarly, $\triangle BDE$ is also a right angled triangle.

$$BE = \sqrt{7} \text{ and } ED = \sqrt{3} \text{ hence } BE : ED = \sqrt{7} : \sqrt{3}$$

92. d No where is it mentioned that they are all on the same vertical plane. They can actually stand anywhere on their respective circles, centred vertically below their

kites and radii $\frac{50}{\sqrt{3}} \text{ m}$ and $50\sqrt{3} \text{ m}$.

93. d



If $AB = 1 \text{ cm}$, $BE = 2 \text{ cm}$ and $AE = \sqrt{3} \text{ cm}$.

Area of $\triangle ABE = \frac{\sqrt{3}}{2} \text{ sq. cm}$ while area of hexagon is

$$\frac{3\sqrt{3}}{2} \text{ sq. cm.}$$

Hence, area of hexagon = $3 \times \text{Area of } \triangle ABE$
 $= 300 \text{ sq. cm.}$

94. d The roots of $x^2 + 4x - C = 0$ are rational if $16 + 4C$ is a perfect square. This is possible if $4C$ is equal to 0 (or) or any other value which makes the sum a perfect square. The only condition for $x^2 + 4x + C = 0$ to have rational roots is that $16 - 4C$ is a perfect square. This is valid for $4C = 0$ or any other valid which would make it a perfect square. The common value in each case is 0.

95. b $x^2 + 3x = 4x + 12$
 $x^2 - x - 12 = 0$
 $x = -3$ or 4 .
 But $x = -3$ is invalid since LHS is undefined for $-3 \leq x \leq 0$
96. c Taking sets of four consecutive natural numbers at a time (1-4, 5-8...), we find that each quartet makes raises the difference between 'a' and 'b' by 2 ($3 - 1 = 7 - 5 = \dots = 2$).
 There are 18 such quartets up to 72. 73 and 75 yield a further difference of 2. Thus the difference is 38.
97. c From I, we get a, d are coprime to each other and b, c are of the type $3p_1, 3p_2$ since the HCF is 3. p_1, p_2 here are prime numbers.
 From II, $\text{HCF}(a, c) = 2$ and $\text{LCM}(b, d) = 105$. Since b is a multiple of 3 and the values of b must be either 15 or 105. In which case the values of d must be 35 or 105. Since we also know that the HCF of b, d is 5, the two values of b, d must be 15 and 35 in that order.
 From III, LCM of c, d is 210. Hence c must be 6 since d is 35. So if c is 6 then a must be 4 from II which says that $\text{HCF}(a, b)$ is 2 and $\text{LCM}(a, b)$ is 12.
 Hence the values of a, b, c and d are 4, 15, 6, 35 respectively. So $a + b + c + d = 60$.
98. a Ratio of areas = 6 : 5
 Area of elder son = $\frac{5}{11} \times 1100 = 500$ sq. m
 Side of square = $10\sqrt{5}$ m.
99. c Length of diagonal of square = radius of circle
 $= 10\sqrt{2}$ m.
 Area of square = $\frac{D^2}{2} = 100$ sq. m
100. d Taking 2 terms at a time, the value of the pair is $\log_3 \frac{1}{3} = -1$.
 The sum of 2n such pairs is '-n'.
101. d The cheapest alternative is to deliver $1 \times 1000 + 3 \times 100 + 1 \times 50 + 3 \times 10$ packs.
 The total cost is $1380 + 8 \times 8 = \text{Rs. } 1444$
102. c If neither of the balls at the ends are yellow, they must necessarily be blue. So the number of ways of arranging is $\frac{5!}{3!2!}$. The total number of ways of arranging these 7 balls is $\frac{7!}{3!4!}$. So the probability is $\frac{2}{7}$.
103. b $4^n, 3^n$ and 7^n are given reminders 4, 3, 1 respectively when divides by 6 whatever value of n we take, so which are independent of n.
 Hence only 5^n is dependent of n.
104. b A decrease of 4 in x can accommodate an increase of 3 in y. Which gives us the closest points. So, the minimum distance is $\sqrt{3^2 + 4^2} = 5$.
105. b If N has to be a multiple of 729 then $a + b$ must be greater than or equal to 6. This is equivalent to solving a problems of dice when the sum of the numbers on the two dice is greater than or equal to 6. The number of sets of (a, b) when the sum is less than or equal to 5 are (1, 1) to (1, 4); (2, 1) to (2, 3); (3, 1) to (3, 2) and (4, 1). So the total number of cases are $4 + 3 + 2 + 1$. i.e. 10 cases. Hence the probability of the sum being greater than or equal to 6 is $\frac{36 - 10}{36}$ i.e. $\frac{13}{18}$.
106. d Clearly, (d) is the maximum value from each of the choices (a), (b) or (c).
107. a Start with multiples of 111, and 11. Add 111 to the result. Since 111 is divisible by 11, this number leaves a reminder 1. Hence the number is 1332.
108. a Assume radius = r and use the result $1 \times (2r + 1) = 5 \times 5$, to get $r = 12$.
109. c The alternate terms form two infinite geometric progressions, each with a common ratio of $\frac{1}{14}$.

$$S_1 = \frac{1}{1 - \frac{1}{14}} = \frac{14}{13}$$

$$S_2 = \frac{\frac{1}{2}}{1 - \frac{1}{14}} = \frac{7}{13}$$

$$S_1 + S_2 = \frac{21}{13}$$
110. a Substituting values for 'a' and counting the number of feasible values of b, the number of pairs we have is $0 + 0 + 2 + 2 + 2 + 5 = 11$.
111. b It is obvious that $X + Y = 20$, since the total number of coins is 20.
 Initially both X, Y are even. When one coin is flipped both the values of X, Y would now be odd. When the second coin is flipped both X, Y would now become even....so on. So since the coins are flipped 25 times the final X, Y values have to be both odd.
112. b Since the smallest set of people watching is 60% for TEN Sports, the maximum intersection of all the sets that is possible is 60%.

113. b Minimum number of people who could have watched all the four sports channels $(80 + 90 + 60 + 75) - 300 = 5\%$.
114. b $m = x^2 + x^{-2} - 1$, the minimum value is 1.
115. b Since the demand is same from all the places the only consideration that we need to see to solve this is the distances to service them is minimum. Hence he can set up the shop anywhere from B to C.
116. c The ratio of the speeds of the first and the second guy is 1 : 2 and that of the third and the fourth guy is also 1 : 2. So the distance where the second guy will catch up with the first guy from his place of start is the same as the distance at which the fourth guy would catch up with the third guy. These points are not the same. Thereafter each of these pairs would meet at that point only. Hence there is no point where they would all be at the same point simultaneously.
117. c Only choice (c) is free of exceptions, the other first two choices are violated at least at point in the interval.
118. a The areas they can level are in the ratio of 9 : 4 so the radii must be in the ratio 3 : 2. The radius of the circular plot which A can level in the same time is 75 ft.
119. b The time taken by each car to come back to the junction is 12 mins and 8 min. They meet after 24 mins.
120. c Increasing the length of the side from '2s' to '2s + t' causes the volume to raise by 25% i.e. $\frac{5}{4}$ times the original. The side must be increased to $\left(\frac{5}{4}\right)^{\frac{1}{3}}$ times.
- $$t = 2s \left(\left(\frac{5}{4} \right)^{\frac{1}{3}} - 1 \right) \text{ or } \frac{t}{2s} = \left(\left(\frac{5}{4} \right)^{\frac{1}{3}} - 1 \right).$$
121. b Since there are at least 2 even numbers, there can't be more than 2 primes. Further, we find that for $p = 3$, there are two primes.
122. b The LCM is 2592. So, a can't be less than this.
123. c If today I trade with a sum X and make it 2X, this sum must be greater than Rs. 2000 so that I make a profit after making the donation. Otherwise, my wealth will decrease every day.
124. a From the table we see that the value of $R(1, y) = y$ is same for $R^2(1, y)$, $R^3(1, y)$ and so on... Hence $x = 1$.
125. b $BE : ED = 1 : 2$. Hence $AB : AD = 1 : 2$.
Similarly $BD : DC$ is 3 : 4.
So $AB : AC$ is 3 : 4.
Hence $AD : AC = 3 : 4$
126. b Summing all the rings, necklaces and watches we get 103 as the answer.
127. a Day wise sum indicates that Friday had the greatest sale of 24 articles while Saturday had second largest sale of 23 articles.
128. b Number of necklaces and watches sold on Friday and Saturday
 $= 9 + 7 + 10 + 6$
 $= 32$
129. b New detergent market $= \frac{1.3}{16} \times 3200$
 $= 2600$ Cr Rs.
Sales of P and G in 97 = $(3\% + 5\%)$ of 3200
 $= 256$ Cr.
Sales of P and G in 98 = $(3\% + 5\% + 2\% + 1\%)$ of 2600
 $= 286$ Cr.
 $\therefore \% \text{ change} = \frac{30}{256} \times 100$
 $= 11.7\%$
130. a Market share of Hindustan Lever = 32%
Market share of P & G = 8%
 \therefore Difference in market share = 24%
 $= \frac{24}{100} \times 3200$ Cr
 $= 768$ Cr.
131. a Increase w.r.t previous year, Henko stain champion = 15%
Sales value in this year, Henko Stain champion = 2% of 3200
 $= 64$ Cr
Sales value (previous year) $= 64 \times \frac{1}{1.15} = 55.6$ Cr.
 \therefore change in sales value = 8.4 Cr.
For white giant, wrt previous year, there is 100% increase.
This year its sales value = 1% of 3200 = 32 Cr.
Sales value (previous year) $= \frac{32}{2} = 16$ Cr
Change in sales value = 16 Cr.
 \therefore Total change comes to be $(16 + 8.4) = 24.4$ Cr.
132. a Wheel Green market share, this year = 17%
Sales value in 1997 = 17% of 3200 = 544 Cr.
So sales value in 1998 (Reduction of 5.3%)
 $= \text{Rs. } 28 \text{ cr. } (544 - 28) = \text{Rs. } 516 \text{ cr}$
 $= 544 \times \frac{1}{1.053} = 516.6$ Cr.
Wheel Blue market share, this year = 3.5%
Sales value in 1997 = 3.5% of 3200 = 112 Cr.

So sales value in 1998 (increase of 36% = 40.5)
 = 112 + 40.5 = 152.5
 So combined sales value = (516 + 152.5)
 = Rs. 668.5 cr.

133. b If we follow a particular route to go from P to U, the activities other than on the route will take place simultaneously, and will be completed before (P – R) as their duration is less. So, if we consider the longest route from P to U, all other activities will be completed before the activities on the route are completed. As (P – Q – R – T – U) is the longest route for two wheeler with a total duration of 44 hours the two time taken to overhaul a truck is 132 hours.

134. c The sum of the duration of all activities for a two wheeler is 110 hours. So, the sum of the duration of all activities for a three wheeler is 220. The normal cost of overhauling a three wheeler is Rs 22,000. As the time required for each activity is reduced by an hour, the sum of the duration of all activities will be 211 hours and the normal cost associated with this duration will be Rs 21,100. The extra cost involved, depending upon whether the activity starts from P, Q or S, can be calculated as follows.
 The total extra cost is Rs. 2020. The total cost of overhauling a three wheeler is now Rs 23,120. So, the extra charge incurred in order to obtain the overhauled three wheeler earlier is Rs 1120.

135. a This question is independent of the previous one. There is a reduction of 3 hours for two of the activities, and there is an increase of 2 hours for two other activities. Thus the total time is reduced by 2 hours. Thus there will be a $[2 \times 100] = \text{Rs } 200$ decrease in revenue.

136. a Average production for India

$$= \frac{(11374 + 9707)}{2} = 10540.5$$

One tenth of this = 1054 of the given choices Vietnam is the best answer.

137. a Required value of representative years are (5236 + 2817 + 1252 + 1082) and (4527 + 2358 + 1202 + 731) = 10387 and 8818.

Average annual percentage increase

$$= \frac{1}{2} \times \frac{(10387 - 8818)}{8818} \times 100\% = 8.89\%$$

138. b

$$Z = \frac{\text{per capita production}}{\text{productivity of land}} = \frac{\text{production / population}}{\text{production / (R} \times \text{total area)}}$$

(R = constant, since cultivable area \propto total land area and $R \leq 1$ as cultivable area \leq total land area).

$$Z = \frac{R \times \text{total area}}{\text{population}} = \frac{R}{\text{population density}} = \frac{R}{d} \quad (\text{where } d \text{ is population density})$$

$Z \propto \frac{1}{d} \Rightarrow$ (III) is not correct (as Z is defined for India only).

(II) is not correct as it says Z is directly proportional to population density for any state in India.

$$\text{Also, } Z = \frac{R \times 88752}{67.98} \text{ for W.B}$$

$$= R \times 1305.5 \frac{\text{m}^2}{\text{lakh persons}} = R \times 0.013 \frac{\text{m}^2}{\text{person}}$$

as $R \leq 1$, $Z < 0.013$, so (I) is correct.

Shortcut:

Since (II) and (III) both are not correct (I) must be correct.

$$139. \text{ b Earnings in } \$ = \frac{60\% \text{ of production} \times \text{price}}{32.2}$$

$$= \frac{3}{5} \times \frac{(11374 \times 3)}{32.2} = 635.8 \text{ million}$$

$$= 0.64 \text{ billion (approx)}$$

For questions 140 to 143:

The figure is best understood in the tabular form as follows.

Year 2003				
	% income	Income	% Expenditure	Expenditure
A	15	90000	15	67500
B	10	60000	15	67500
C	5	30000	10	45000
D	20	120000	15	67500
E	25	150000	35	157500
F	15	90000	5	22500
G	10	60000	5	22500

Year 2002				
	% income	Income	% Expenditure	Expenditure
A	15	67500	20	60000
B	5	22500	10	30000
C	10	45000	15	45000
D	15	67500	10	30000
E	5	22500	30	90000
F	20	90000	10	30000
G	30	135000	5	15000

140. b From the table above expenditure is more than income for B, E.

141. c Employee C has his income equal to his expenditure in the year 2002. Hence no saving.

142. c Total saving by D = $(67500 - 30000) + (120000 - 67500) = 90000$
 Total saving by F = $(90000 - 30000) + (90000 - 22500) = 127500$
 Total saving by G = $(135000 - 15000) + (60000 - 22500) = 157500$
 Total savings by A = $(67500 - 60000) + (90000 - 67500) = 30000$
 Therefore saving by G is maximum.

143. d D, F, G all have their saving in the year 2003 more than their expenditure in 2002.

144. c

Year	Strike rate of JMS
1999	$\frac{79}{122} \times 100 = 64.75\%$
2000	$\frac{77}{117} \times 100 = 65.81\%$
2001	$\frac{68}{121} \times 100 = 56.19\%$
2002	$\frac{75}{112} \times 100 = 66.96\%$
2003	$\frac{76}{114} \times 100 = 66.66\%$

So in the year 2002 the strike rate was maximum.

145. b

Year	Strike rate of JMS	Strike rate of PMS
1999	64.75%	56.88%
2000	65.81%	68.06%
2001	56.19%	53.48%
2002	66.96%	69.6%
2003	66.66%	58.87%

So from the above table it is evident that twice, i.e. in year 2000 and 2002 the strike rate of PMS was better than the strike rate of JMS.

146.d

Year	Total number of students who got 3 or less than 3 calls and converted their calls			Total
	JMS		PMS	
1999	11	+	15	26
2000	14	+	19	33
2001	15	+	17	32
2002	13	+	13	26
2003	15	+	14	29

So, in the year 2000 the total number of students who got 3 or less than 3 calls and converted their calls is maximum.

- 147.c The total number of students of JMS in 5 years is 25980 and average number of students per year is 5196. Again the total number of students of PMS in 5 years is 25690 and the average number of students per year is 5138. So the difference is 58.

148. d If we look at the graph then BST and RKD have two such rallies where an initial decrease in the number of audience is followed by an increase in the number of audience.
 For BST the rallies are the 5th followed by the 6th and the 7th followed by the 8th.
 For RKD the rallies are the 3rd followed by the 4th and the 7th followed by the 8th.
 For CMG there is only one such case where the 3rd rally followed by the 4th.

149. c If we look at the graph and try to find out the approximate values then for the 5th rally of CMG the number of audience is 6,700 and for the 3rd rally of BST the number of audience is 5,700.
 Therefore, the approximate difference = 1,000.

150. c Just looking at the graph it is evident that the steep changes have happened in the 2nd and 8th rally of BST and in the 8th rally of RKD. Out of these, the steepest change is clearly in the 2nd rally of BST.
 For the option (d) it is the decrease in percentage and not an increase.

151. a Since $\angle QRS$ and angle $\angle PQR$ are alternate interior angles. If statement I is true then PQ is parallel to SR. So statement I alone is sufficient.
 Statement II alone is not sufficient since it does not conclude anything about line PQ and RS.

152. d Statement I does not give the distance between P and T, though it gives the speed.
 Statement II does not give the distance between P and T, since the order of P, Q, R, S is not known.

153. a Because it is always the case that $(q - 2)^2 \geq 0$ and $(s - 4)^4 \geq 0$, the question hinges on whether or not $p - 1 \geq 0$ and $(r - 3)^3 \geq 0$.
 From statement I alone is not sufficient, since it gives information about q and s only.
 From statement II, $p - 1 > 0$ and $r - 3 > 0$ so that $(r - 3)^3 > 0$ and the product is greater than or equal to 0.
 Thus statement II alone is sufficient.

154. c From statement I, $\left(\frac{P}{2} + \frac{Q}{2}\right)^2 = \text{Integer or}$

$$\frac{P^2}{4} + \frac{Q^2}{4} + \frac{P \times Q}{2} = \text{Integer} . \text{ So, we cannot decide whether } P \times Q \text{ is an integer or not.}$$

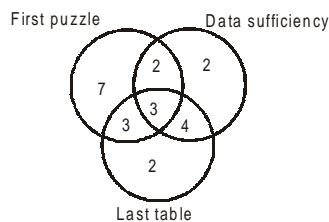
$$\text{From statement II, } \left(\frac{P}{2} - \frac{Q}{2}\right)^2 = \text{Integer or}$$

$$\frac{P^2}{4} + \frac{Q^2}{4} - \frac{P \times Q}{2} = \text{Integer} . \text{ Also we cannot decide}$$

whether $P \times Q$ is an integer or not.
Combining both statement I and II, $P \times Q = \text{integer}$.

155. c From statement I, Physics expert can be A, or D.
So, we cannot decide.
From statement II only, Physics expert can be A, B or E. Also, we cannot decide.
Combining both statement I and II, A is an expert in Physics.
156. c Check the choices.
(a) 'The Mediterranean' represents 16.
(b) 'Fifteen and another one' represents $3 \times 32 = 96$
(c) 'Sixteen or much more' represents $3 + 12 = 15$
157. d Check the choices.
(a) 'Just do it' represents 111.
(b) 'Too good to resist' represents 2212.
(c) 'Faster, higher, stronger' represents 222.
(d) 'For you, with you, always' represents 12122.
158. a (a) 'and' represents $0 \times 0 = 0$. So, it is true.
(b) Every number in first natural number can be represented in 25 words. So, it is false.
(c) 51 can be coded by multiplication but 97 can only be coded by addition. So for 97 we need more vowels than 51. So it is false.

For questions 159 and 160: From the given information we can draw the following diagram.



159. b From Venn diagram the number of students who attempted questions from these three sets = 23.
So the number of students who left out from these three sets = $25 - 23 = 2$.
160. b Average of number of questions attempted by 25 students = $\frac{15 \times 4 + 11 \times 5 + 12 \times 3}{25} = \frac{151}{25} = 6.04$.

For questions 161 and 162:

The following depicts the amount of money with each person at different stages of the game. The best way is to work backwards and fill up the table.

Game lost	Name of the person	Initial	And the end of game			
			1	2	3	4
1st	Vijay	66	4	8	16	32
2nd	Srinidhi	34	68	8	16	32
3rd	Nirmal	18	36	72	16	32
4th	Ashwin	10	20	40	80	32

161. d

162. b

For questions 163 to 166

If all female athletes are from AP. Then all athletes from Karnataka and TN are male.

If only athletes from Karnataka have qualified for "Weight Lifting" competition. Then no athlete from AP or TN have qualified for "Weight Lifting" competition

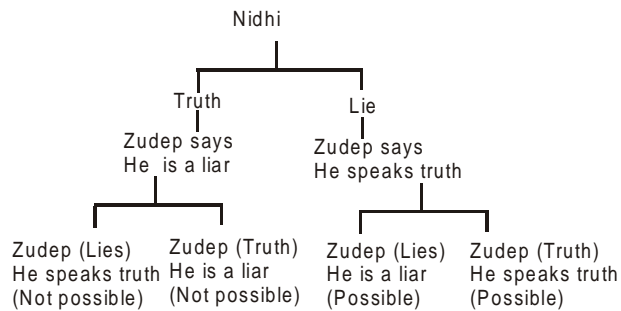
Competition	S	S	W	W	S/W
State			K	K	K
Gender			m	m	m

Here Weight Lifting — Karnataka, Andhra Pradesh — All females and Karnataka and Tamil Nadu — All males.

- 163.a At least 3 athletes are from Karnataka, all of whom are male. At least one athlete must be from TN and all athletes from TN are male. Thus, at least 4 athletes must be male and so it is not possible for there to be more females than males in the group.
164. c All athletes except from Karnataka have qualified for "Shooting" but not for "Weight Lifting". However it is possible for an athlete from Karnataka to have qualified for "Shooting" but not "Weight Lifting". Hence nothing can be said for sure for "All Athletes from Karnataka".
165. d Since all females must be from AP, athletes from Karnataka & TN must be all male. There must be at least one athlete from each state, so one athlete must be from TN and 3 athletes must be from Karnataka. The remaining 4 must be from AP. Thus statements a, b and c must be true.

166. c At least 3 athlete must be from Karnataka. Since each region is represented at least once, one of the athlete must be from AP and remaining 4 must be from TN. One of the 3 athlete from Karnataka (all of whom are male) has qualified for "Shooting". All 4 from TN are male and at least one from TN has qualified for "Shooting". For minimum number of males, the females athlete from AP will have qualified for "Shooting" (As one of the two who qualified for "Shooting" but not for the Weight Lifting). Thus, a minimum of 2 male athletes have qualified for "Shooting".

167.b



For questions 168 and 169: Check the choices for the questions 168 and 169. We get $X = 7$ and $Y = 8$.

168.d

169. a

170. a Rekha entered with 8 flowers in the first temple. When she exit from 1st temple then she had 12 flowers. Similarly for 2nd temple. So when she entered in the 3rd temple, then she had 40 flowers.