CMAT-05. SOLUTION

Solution with Answerkeys

1	a	2	a	3	b	4	d	5	a	6	c	7	b	8	d	9	d	10	c
11	a	12	d	13	b	14	b	15	b	16	c	17	d	18	c	19	a	20	d
21	d	22	a	23	a	24	b	25	a	26	c	27	b	28	a	29	a	30	c
31	a	32	d	33	b	34	c	35	d	36	d	37	c	38	a	39	b	40	c
41	a	42	b	43	d	44	c	45	c	46	a	47	c	48	c	49	d	50	b
51	b	52	a	53	c	54	d	55	d	56	a	57	a	58	a	59	b	60	d
61	c	62	b	63	c	64	c	65	d	66	d	67	a	68	c	69	d	70	a
71	a	72	b	73	a	74	b	75	a	76	c	77	b	78	a	79	b	80	d
81	c	82	c	83	c	84	d	85	d	86	a	87	d	88	a	89	b	90	d
91	b	92	c	93	b	94	a	95	b	96	a	97	d	98	c	99	c	100	b

1. a The difference between CI and SI for two years is given by:

$$CI - SI = P\left[\left(1+\frac{r}{100}\right)^2 - 1 - \frac{2r}{100}\right],$$

where,
'P' is the sum invested
'r' is the rate of interest per annum.
Putting all the values, we get

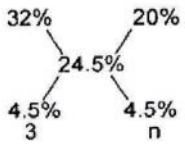
$$\Rightarrow 100 = 2500\left(\frac{r}{100}\right)^2 \Rightarrow r = 20\%.$$

2. a It is clear that 32% H_2SO_4 is mixed with 20% H_2SO_4 in the ratio of 3 : n to get a 24.5% H_2SO_4 solution.

$$\Rightarrow 3\times\frac{32}{100} + n\times\frac{20}{100} = 3\times\frac{24.5}{100} + n\times\frac{24.5}{100}$$

$$\Rightarrow 3\times 7.5 = n\times 4.5 \text{ or } n = 5.$$

Alternate solution:



$$\therefore \frac{4.5}{7.5} = \frac{3}{n}$$

$$\Rightarrow n = 5.$$

3. b Let the weights (in kg) of the father, the son and the mother be x, y and z respectively.
According to the question,
x : y = 3 : 2 and y : z = 5 : 6
Therefore, x : y : z = 15 : 10 : 12
Weight of the father = 2 × 35 = 70 kg

$$\text{Weight of the mother} = \frac{12}{15}\times 70 = 56 \text{ kg}.$$

4. d Average expenses on power consumption

$$= \frac{800 + 500 + 650 + 1100 + 1250 + 1150}{6}$$

$$= \frac{5450}{6} \approx ₹908.$$

5. a Let the MP (in ₹) of the article be x.
SP after two successive discounts
= 0.8 × 0.8 × x = ₹0.64x

$$\therefore 4 = \frac{CP - 0.64x}{CP}\times 100 \Rightarrow CP = \frac{2}{3}x$$

$$\therefore \text{CP of the article} = ₹\frac{2}{3}x$$

Hence, the maximum discount the shopkeeper can offer is ₹$\frac{1}{3}x$ or 33.33%.

6. c The man can select the two blocks in ${}^9C_2$ ways i.e. 36 ways.
Out of this, the following combinations are against his wish: (1,4); (1,9); (2,8) and (4,9).
Hence, he can place the shoes in 32 possible ways.

7. b Let the length of the train be 'L' m and speed of the train be x m/s.

$$\therefore \text{Speed of the train} = \frac{L+50}{10} = \frac{L+250}{20}$$

From the above equation, we get
L = 150 m and x = 20 m/s
∴ Time required to cross a stationary man

$$= \frac{150}{20} = 7.5 \text{ seconds}.$$

8. d **From statement I:**
x > 10; x < 0 and y = 0.
Clearly, statement I alone is not sufficient to answer the question.

From statement II:
x – y > 5 and x – y < –5.
Again, we see that this statement alone is not sufficient to answer the question.
Combining statements I and II, we get
x > 10, x < –5.

Hence, both the statements together are also not sufficient to answer the question.

9. d While working alone, Amit requires 10 days and Bob requires 25 days to complete the same work.
Suppose, Bob worked with Amit for x days. Then,

$$\frac{8}{10} + \frac{x}{25} = 1 \Rightarrow x = 5$$

Hence, Bob worked with Amit for 5 days.

10. c From 2nd to 6th innings, total number of innings is odd. Runs scored from 2nd to 6th innings are in increasing A.P., so the required average will be the middle term, i.e. the 4th innings.

11. a Let the other number be n.
LCM × HCF = Product of the two numbers
⇒ 210 × n = 42 × 630 ⇒ n = 126.

12. d The numbers from 100 to 200 that have 2 as one of its digits are 102, 112, 120, 121, 123, 124, 125, 126, 127, 128, 129, 132, 142, 152, 162, 172, 182, 192 and 200. Out of these numbers, only 128, 152, 182 and 200 leave a remainder of 2 when divided by 6, i.e., there are 4 such numbers.

13. b $$\frac{2^{41}}{127} = \frac{(2^7)^5\times 2^6}{127}$$

Remainder when $(2^7)^5$ is divided by 127 = 1
Remainder when 2^6 is divided by 127 = 64
∴ Required remainder = 1 × 64 = 64.

14. b Let the price (in ₹) of a ticket be x and that of a popcorn bucket be y.
5x + 3y = 1000 ... (i)
4x + 4y = 1000 ... (ii)
On solving (i) and (ii), we get, x = 125 and y = 125.
Hence, cost of a popcorn bucket is ₹125.

15. b Required percentage is the highest for Linked In and it is equal to $\frac{55}{75}\times 100$ i.e. 73.33%.

16. c In arithmetic progression, l = a + (n –1)d,
where,
'l' is the last term,
'a' is the first term,
'n' is the number of terms,
'd' is the common difference.

Now, 250 = a + 9d or a = d = 25 (Since, a = d)
Sum of the first 10 terms of the A.P.

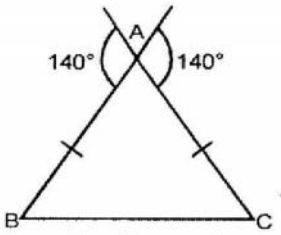
$$= (a+l)\times\frac{n}{2} = (25+250)\times\frac{10}{2} = 1375.$$

17. d Let the first term and the common difference of the A.P. be 'a' and 'd' respectively.
15th term = a + 14d ...(i)
4th term = a + 3d ...(ii)

According to the question,

$\frac{a+14d}{a+3d}=\frac{13}{6} \Rightarrow a:d=45:7.$

18. c



From the figure above, it is clear that sum of ∠B and ∠C is 140°.
Hence, ∠A = 40°.

19. a Let the length of the third side be 'x' cm.
Using Pythagoras' Theorem, we get
$x^2 + 8^2 = 17^2$ or $x = 15$ cm.
Area of the triangle = radius (r) × semi perimeter

$\left[\because r=\frac{\Delta}{s}\right]$

$\frac{1}{2}\times 8\times 15=\frac{8+15+17}{2}\times r \Rightarrow r=3\,\text{cm}.$

20. d Equivalent discount to a series of successive discounts of 20%, 30% and 50% .
= 100 – (0.8 × 0.7 × 0.5 × 100) = 72%.

21. d $n(A\cap B)=n(A)+n(B)-n(A\cup B)$
= 120 + 76 – 180 = 16.

22. a Required ratio = 5 : 15 = 1 : 3
(Since the time taken by both of them is same, distance covered will be directly proportional to their respective speeds.)

23. a Radius of incircle (r) = $\frac{\text{Area of triangle(a)}}{\text{Semi perimeter(s)}}$

From statement I:

Area of the triangle = $\frac{\sqrt{3}}{4}(5)^2=\frac{25\sqrt{3}}{4}\,\text{cm}^2$

Semi perimeter = $\frac{5\times 3}{2}=\frac{15}{2}\,\text{cm}$

Hence, the question can be answered by using the statement I alone.

From statement II:
The triangle is a right-angled triangle.

Sides of the triangle are 5 cm, $5\sqrt{3}$ cm and 10 cm.

Area = $\frac{1}{2}\times 5\times 5\sqrt{3}=\frac{25\sqrt{3}}{2}\,\text{cm}^2$

Semi perimeter = $\frac{15+5\sqrt{3}}{2}\,\text{cm}$

Hence, the question can also be answered by using the statement II alone.

24. b From the given question,

Sum of the roots = $\alpha+\beta=-\frac{b}{a}=\frac{3}{2}$

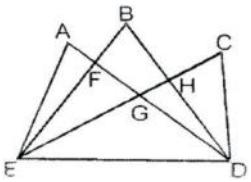
Product of the roots = $\alpha\beta=\frac{c}{a}=2$

Roots of the new equation are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$.

$\therefore$ Sum of the roots = $\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}$

$\therefore \frac{\alpha+\beta}{\alpha\beta}=\frac{3/2}{2}=\frac{3}{4}.$

38. a



There are 14 triangles in the figure and these are ΔAFE, ΔEFG, ΔEGD, ΔAEG, ΔEFD, ΔAED, ΔGHD, ΔHCD, ΔEHD, ΔCDG, ΔCED, ΔBHE, ΔBFD and ΔBDE.

39. b On reversing the order of the last 15 letters, we get the series as:
A, B, C, D, E, F, G, H, I, J, K, Z, Y, X, W, V, U, T, S, R, Q, P, O, N, M, L
Hence, the required letter is R.

40. c Let heights of Ram, Raj, Rahul, Rakesh and Ramesh be represented as R1, R2, R3, R4 and R5 respectively.
Therefore, — > — > — > R1 > R5
Hence, Ramesh is the shortest.

41. a The given conditions can be shown with the help of table below.

Ball	First	Second	Third	Fourth	Fifth	Sixth
Runs Scored	0	2	6	1	4	3

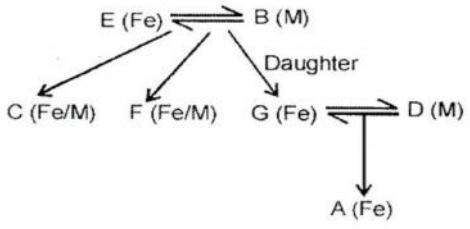
Hence, 3 runs were scored on the last ball.

42. b The three possible cases are:

Monday	Tuesday	Wednesday	Thursday	Friday
E	A	C/D	D/C	B
C	E	A	D	B
C	D	E	A	B

In all the three cases, C's birthday cannot be on Tuesday.

43. d



Note: 'Fe' represents female and 'M' represents male. E and B represent a couple and G and D represent the second couple.

Since gender of C is not known, can either be uncle or aunt of A.

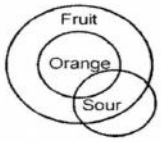
44. c The two possible arrangements are:

	First to last (left to right)				
Case I:	Mango	Guava	Mix Fruit	Orange	Litchi
Case II:	Litchi	Orange	Mix Fruit	Guava	Mango

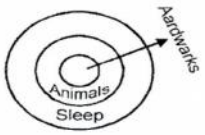
Hence, Mango juice and Litchi juice are kept at the extreme ends.

45. c The series is:
$1 - 2^2 = -3$
$3 - 4^2 = -13$
$5 - 6^2 = -31$
and so on.
Required term is $11 - 12^2 = -133$.

46. a



47. c



48. c Only assumption I is implicit because incentives are expected to motivate people. Assumption II cannot be assumed because no information has been given regarding the employees' current status.

49. d There are two stands but both are strong arguments because the working of both the bodies should be independent of each other at times and at times they need to cooperate.

50. b Argument I is not a strong argument as there can be better ways to curb mass copying. Argument II is strong because if everybody will be able to obtain good marks, it would kill the spirit of competition and would hamper the 'selection/rejection test' nature of the exam.

51. b 'E' is a contrary statement to 'A' hence, 'AE' is a mandatory pair.

52. a We start with 'A', followed by BC as it is a mandatory pair, followed by DE.

53. c The sentence begins with "When one reads", hence according to the Subject-pronoun agreement the latter part of the sentence should be "one finds a striking contrast". Hence, option (c) is the correct answer.

54. d The sentence refers to 'splashing in the pool, bathing in the ocean', in order to maintain parallelism "sun bathing on the shore" should be used. Hence, option
(d) is the correct choice.

55. d Option (a), (b) and (c) are incomplete sentences as they do not convey a full meaning of the sentence. Option (d) is both grammatically correct and conveys complete meaning. Hence, option (d) is the correct answer.

56. a "Hand in Hand" is to be followed by 'with', hence, option (b) and (d) are negated. Option (c) has a wrongly placed conjunction between 'personal initiative' and 'ambition'. Hence, option (a) is the correct answer.

57. a 'Bewilderment' means the same as 'confusion', similarly, 'fantod' means the same as 'nervousness'.

58. a 'Reminiscent' means to recollect past experience, 'overdraw' means to take out more than something contains. Only option (a) fits in the given sentence.

59. b As for poetry, 'visualizes is the best word, in the second blank 'parted' also fits properly.

60. d To 'get down to brass tacks' means to start talking about important things or basic facts of a situation e.g. Let us get down to brass tacks. Who is paying for all this?

61. c 'Ride hell for leather' means to ride with furious speed.

62. b 'Mosaic' is a pattern or picture using many small pieces of coloured stone or tiles, in the same way, 'portrait' is a representation of something using paint.

63. c D is the introductory sentence, B tells us that he may look invincible but he appears quite vulnerable as his daughter Sophie has a hole in her heart, C re-assures that it is not life threatening, and A ends by stating that Sophie might need open-heart surgery later in life.

64. c The population of goats increased in absence of predators, hence, 'thrive' fits appropriately and the vegetation was destroyed by the goats so, 'threatened' is also apt in this context. Hence, option (c) is the correct answer.

65. d The sentence tells that the good effect of medication makes the patient desirous of continuing as a subject. Hence, option (d) is the correct answer.

66. d Option (d) supports the argument by providing an example of wars that have contributed towards making human life better. (a) is incorrect because alertness of a nation does not ensure its prosperity. So it does not strengthen the argument. Options (b) and (d) are beyond the scope of the argument. Hence, (d) is correct.

67. a Option (a) completes the argument by further stating the effects of atherosclerosis on the brain. Options (b), (c) and (d) can be negated because it cannot be inferred from the argument that **only old people** are prone to atherosclerosis. The argument only talks about a high probability, but it can happen in young age as well.

68. c The argument emphasizes on the fact that more books are being published than ever. Option (c) completes the argument by stating that even though there is an increase in the number of books being published, but passion for reading is still not in the list of things that give us utmost happiness. Option (a) can be ruled out because it connects literacy rate to readership. 'Literacy' means the ability to read and write whereas reading is just a hobby for people. There exists no link between the two statements in option (a). Option (b) is also incorrect. '**Esoteric'** means intended for or understood by only a **particular group**. These esoteric groups may exist among locals as well. So, we cannot say that locals do not understand esoteric languages. Esoteric group is a subset whereas locals are a superset. Option (d) can be negated because the argument does not talk about the writing style. Hence, (c) is correct.

69. d The idea of providing needles in bulk has been proposed to check the spread of HIV infection. Hence, it can be safely assumed that provision of clean needles can check the spread of the infection.

70. a Ankylography promises of developing an accurate three dimensional model from a single two dimensional picture. The researchers doubt the accuracy of the method. Option (a) strengthens the argument of the researchers by mentioning the principle that states that such a structure cannot be accurate. (b) talks only about proteins whereas the argument focuses on the accuracy of ankylography as a method. Thus, (b) is negated.

71. a Option (a) expresses the issue effectively. (b) talks about the needs of the aborigines whereas Roma's argument does not discuss their needs. Her argument talks about advantages and disadvantages of the state's help to aborigines. (c) misses the mention of aborigines whereas the argument specifically deals with the affirmative action for aborigines. (d) deals only with the issue of reservation in colleges and fails to express the full issue. Thus, option (a) is the correct choice.

72. b 1 is the opinion of the author and not of the postmodernists. 2 is correct because postmodernists offer more than just support to the avant-garde movements so they will definitely agree that these movements should be supported.

73. a 1 can be inferred from the line 'This condition is supposed to affect us all'. 2 can be inferred from the line 'They have a distinct way of seeing the world as a whole'. The lines "They have a distinct way of seeing the world as a whole, and use a set of philosophical ideas that not only support an aesthetic but also analyze a 'late capitalist' cultural condition of postmodernity" do not imply that postmodernism is based on strong philosophical ideas. Thus, 1 and 2 are correct.

74. b The research which has been done in Germany only strengthens the idea that warming and cooling occurs at alternative times, it does not provide a definitive answer towards it. Hence options (a) and (c) cannot be taken as good summaries. Option (d) is making an unnecessary comparison which was not hinted at in the paragraph.

75. a The paragraph conveys that the injustice is done to the local community. Option (b) merely talks about the opinion of the local community and distorts the meaning. In option (c) class conflict has been given too much importance and option (d) says that local communities protest when they are given raw materials at subsidized prices which is completely contradictory to the paragraph.

76. a	77. c	78. d	79. d	80. b	81. c	82. c
83. a	84. b	85. a	86. d	87. c	88. a	89. c
90. b	91. d	92. b	93. a	94. c	95. b	96. d
97. b	98. d	99. b	100. a			