Proctored Mock CAT-6 2012
Answers and Explanations

1	d	**2**	a	**3**	b	**4**	b	**5**	c	**6**	b	**7**	b	**8**	d	**9**	b	**10**	c
11	a	**12**	c	**13**	c	**14**	b	**15**	d	**16**	c	**17**	b	**18**	d	**19**	a	**20**	c
21	b	**22**	a	**23**	c	**24**	c	**25**	d	**26**	a	**27**	a	**28**	d	**29**	c	**30**	a
31	a	**32**	d	**33**	d	**34**	d	**35**	a	**36**	b	**37**	d	**38**	c	**39**	b	**40**	b
41	c	**42**	a	**43**	a	**44**	a	**45**	d	**46**	a	**47**	b	**48**	c	**49**	b	**50**	b
51	b	**52**	a	**53**	d	**54**	d	**55**	d	**56**	d	**57**	b	**58**	a	**59**	a	**60**	a

1. d $216 < 251 \Rightarrow 216^{1/3} < 251^{1/3}$

Therefore, $\left[251^{1/3}\right] = 6$

Similarly, $\left[252^{1/3}\right] = 6, \ldots, \left[342^{1/3}\right] = 6$

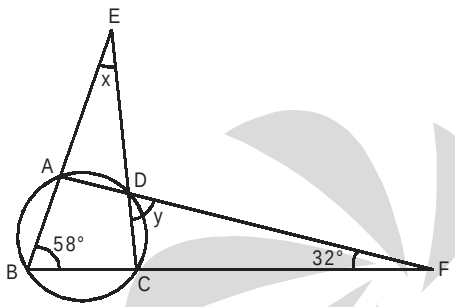
Also, $343 = 7^3$

Therefore, $\left[343^{1/3}\right] = \left[344^{1/3}\right] = \ldots = \left[350^{1/3}\right] = 7$

Hence, $\left[251^{1/3}\right] + \left[252^{1/3}\right] + \left[253^{1/3}\right] + \ldots + \left[350^{1/3}\right]$

$= 6 \times 92 + 7 \times 8 = 608.$

2. a



$\angle ADC = 180° - 58° = 122°$ (Since the sum of the opposite angles of a cyclic quadrilateral is 180°.)
Therefore, $y = 180° - 122° = 58°$
and $\angle DCF = 180° - 58° - 32° = 90°$.
By the External Angle Property of Triangles,
$\angle DCF = \angle BEC + \angle EBC$.

$\Rightarrow 90^o = x + 58^o \Rightarrow x = 32^o$
Hence, $y - x = 26^{\circ}$.

3. b Let the distance between A and B and that between B and C be 2x and 3x respectively. Let Rancho's average speed between A and B and that between B and C be 5y and 4y respectively.

$$\Rightarrow \frac{5x}{\frac{2x}{5y} + \frac{3x}{4y}} = 40 \Rightarrow 5y = 46$$

$$\left[\text{Average Speed} = \frac{\text{Total Distance}}{\text{Total Time}}\right]$$

Hence, Rancho's average speed between A and B = 5y = 46 km/hr.

4. b The m × n rectangular sheet will give mn sheets of size 1 × 1. By breaking any rectangular sheet once, the total number of sheets is increased by one.
Hence, the number of steps required to get mn sheets from one rectangular sheet = mn – 1.

Alternate Method:
If we start with a 1 × 1 sheet, 0 steps are required to divide this sheet into 1 × 1 pieces.
Putting m = 1 and n = 1 in all the options, we can see that only (mn – 1) gives 0.

5. c The last two digits of $2^{10} = 24$.
Any number with the last two digits as 24 when raised to any odd power gives the last two digits as 24 and when raised to any even power gives the last two digits as 76.
$(32)^{222} = (32^2)^{111} = (1024)^{111}$
1024 raised to any odd power will have the last two digits as 24.
Hence, $(32)^{222}$ will have the last two digits as 24.

Alternate Method:
The last two digits of a number are same as the remainder when the number is divided by 100.

$$\text{Rem}\left[\frac{32^{222}}{100}\right] = \text{Rem}\left[\frac{2^{1110}}{100}\right]$$

$$= 4 \times \text{Rem}\left[\frac{2^{1108}}{25}\right] = 4 \times \text{Rem}\left[\frac{\left(2^7\right)^{158} \times 2^2}{25}\right]$$

$$= 4 \times \text{Rem}\left[\frac{(128)^{158} \times 2^2}{25}\right] = 4 \times \text{Rem}\left[\frac{3^{158} \times 2^2}{25}\right]$$

$$= 4 \times \text{Rem}\left[\frac{\left(3^3\right)^{52} \times 3^2 \times 2^2}{25}\right] = 4 \times \text{Rem}\left[\frac{2^{54} \times 3^2}{25}\right]$$

$$= 4 \times \text{Rem}\left[\frac{\left(2^7\right)^7 \times 2^5 \times 3^2}{25}\right] = 4 \times \text{Rem}\left[\frac{(128)^7 \times 2^5 \times 3^2}{25}\right]$$

$$= 4 \times \text{Rem}\left[\frac{3^9 \times 2^5}{25}\right] = 4 \times \text{Rem}\left[\frac{\left(3^3\right)^3 \times 32}{25}\right]$$

$= 4 \times 6 = 24.$

6. b $\dfrac{2Z_6 - 10Z_4}{Z_5} = \dfrac{2a^6 - 2b^6 - 10a^4 + 10b^4}{a^5 - b^5}$

$= \dfrac{a^4(2a^2 - 10) - b^4(2b^2 - 10)}{a^5 - b^5}$ ...(i)

As 'a' and 'b' are the roots of the equation
$2x^2 - 7x - 10 = 0$, therefore,
$2a^2 - 7a - 10 = 0$
$\Rightarrow 2a^2 - 10 = 7a$ ...(ii)
and $2b^2 - 7b - 10 = 0$
$\Rightarrow 2b^2 - 10 = 7b$ ...(iii)
From equations (i), (ii) and (iii), we get

$\dfrac{2Z_6 - 10Z_4}{Z_5} = \dfrac{7a \times a^4 - 7b \times b^4}{a^5 - b^5} = 7 \times \dfrac{(a^5 - b^5)}{(a^5 - b^5)} = 7.$

7. b Let there be 'n' persons in Ram's family and the total amount (in litres) of milk consumed by the family be 'x'. As per the given information,

$\dfrac{x}{4} + \dfrac{(7n - x)}{6} = 7$

$\Rightarrow x + 14n = 84$

'n' is an integer and $0 < x < 7n$.

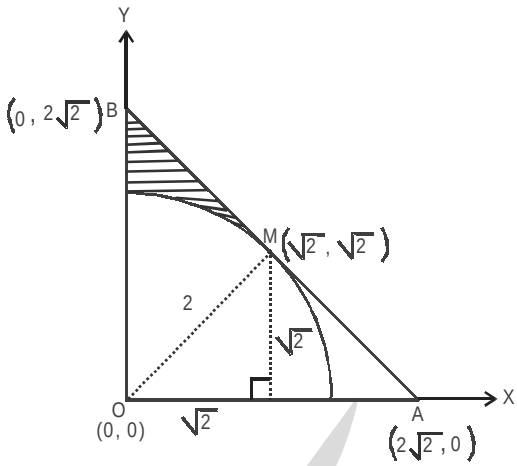
$\Rightarrow 0 < 84 - 14n < 7n$

$\Rightarrow 4 < n < 6$

$\Rightarrow n = 5$ and $x = 14$

Hence, the ratio = 3.5 : 3.5 = 1 : 1.

8. d



Area of $\Delta OAB = \dfrac{1}{2} \times 2\sqrt{2} \times 2\sqrt{2} = 4$ sq. units

Area of the quadrant of the circle

$= \dfrac{\pi \times (2)^2}{4} = \pi$ sq. units

Hence, the area of the shaded region

$= \dfrac{4 - \pi}{2} = (2 - \dfrac{\pi}{2})$ sq. units.

9. b The number of students admitted in Class 8th from 2008-09 to 2011-12
= (96 – 16) + (82 – 8) + (72 – 11) + (94 – 7)
= 80 + 74 + 61 + 87 = 302.

For questions 10 and 11:

For 2007- 08:
Number of passed students in Class 8th
= Total number of students in Class 8th – Number of failed students in Class 8th = 130 – 16 = 114
Number of failed students in Class 9th
= Total number of students in Class 9th in 2008-09 – Number of passed students in Class 8th in 2007-08 = 132 – 114 = 18
Number of passed students in Class 9th
= Total number of students in Class 9th in 2007-08 – Number of failed students in Class 9th in 2007-08 = 134 – 18 = 116

Similarly, number of passed and failed students for rest of the classes and years can be calculated as follows:

	2007-08		2008-09		2009-10		2010-11	
Class	**Passed**	**Failed**	**Passed**	**Failed**	**Passed**	**Failed**	**Passed**	**Failed**
8th	130 –16 = 114	16	96 – 8 = 88	8	82 – 11 = 71	11	72 – 7 = 65	7
9th	134 – 18 = 116	132 – 114 = 18	132 – 11 = 121	99 – 88 = 11	99 – 8 = 91	79 – 71 = 8	79 – 6 = 73	71 – 65 = 6
10th	121 – 13 = 108	129 – 116 = 13	129 – 4 = 125	125 – 121 = 4	125 – 18 = 107	109 –91 = 18	109 – 15 = 94	88 – 73 = 15
11th	103 – 7 = 96	115 – 108 = 7	115 – 4 = 111	129 – 125 = 4	129 – 7 = 122	114 – 107 = 7	114 – 8 = 106	102 – 94 = 8
12th	101 – 20 = 81	116 – 96 = 20	116 – 22 = 94	133 – 111 = 22	133 – 14 = 119	136 – 122 = 14	136 – 12 = 124	118 – 106 = 12
Total	**515**		**539**		**510**		**462**	

10. c In 2009-10, more than 10% students failed in three classes – 8th, 10th and 12th. The percentages were:

$$8\text{th} = \frac{11}{82}\times 100 \approx 13.41\%$$

$$10\text{th} = \frac{18}{125}\times 100 = 14.4\%$$

$$12\text{th} = \frac{14}{133}\times 100 \approx 10.53\%\ .$$

11. a The difference = 539 – 462 = 77.

12. c Let $\frac{x^2+x+1}{x^2-x+1} = m$

$$\Rightarrow x^2+x+1 = m\left(x^2-x+1\right)$$

$$\Rightarrow (1-m)x^2+(1+m)x+(1-m) = 0$$

For real x, discriminant $D \geq 0$.

$$\Rightarrow (1+m)^2 - 4(1-m)(1-m) \geq 0$$

$$\Rightarrow 1+m^2+2m-4\left(1+m^2-2m\right) \geq 0$$

$$\Rightarrow -3m^2+10m-3 \geq 0$$

$$\Rightarrow 3m^2-10m+3 \leq 0$$

$$\Rightarrow (m-3)(3m-1) \leq 0$$

$$\therefore \frac{1}{3} \leq m \leq 3$$

Hence, the minimum value of the given expression is $\frac{1}{3}$.

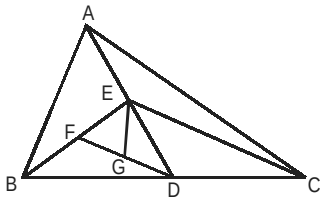
13. c Let the cost price of the car in the year 2009 be ₹x. Then the selling price of the car in 2009 = ₹1.1x

Year	C.P.(in ₹)	S.P.(in ₹)
2009	x	1.1x
2010	1.1x	1.1 × 1.1x
2011	0.9 × 1.1x = 0.99x	1.1 × 1.1 × 1.1x = 1.331x

Profit percentage in 2011

$$= \frac{1.331x - 0.99x}{0.99x}\times 100 \approx 34.44\%.$$

14. b



A median divides a triangle into two triangles of equal areas.

$$\text{Area of } \Delta EGD = \frac{1}{2}(\Delta EFD) = \frac{1}{2^2}(\Delta BED)$$

$$= \frac{1}{2^3}(\Delta ABD) = \frac{1}{2^4}(\Delta ABC)$$

$$\text{Area of } \Delta AEC = \frac{1}{2}(\Delta ADC) = \frac{1}{2^2}(\Delta ABC)$$

Hence, Area of ΔEGD : Area of $\Delta AEC = 1 : 4$.

15. d $375 = 3 \times 5^3$

If a number is divisible by 125, then the last three digits of the number should be divisible by 125. Since the number consists only 0's and 1's, the last three digits of the number will be 000. As the number is divisible by 3, the sum of digits of the number should be divisible by 3. Therefore, there should be at least three 1's in the number.

Hence, the smallest such number = 111000.

16. c Let's break the amount borrowed into 5 parts – P_1, P_2, P_3, P_4 and P_5.

$\Rightarrow P_1 + P_2 + ... + P_5 = A^2$

As an amount of ₹A is paid at the end of each year,

$$A = P_1\left(1+\frac{r}{100}\right) = P_2\left(1+\frac{r}{100}\right)^2 = ... = P_5\left(1+\frac{r}{100}\right)^5$$

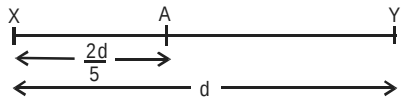
$$\Rightarrow \frac{A}{\left(1+\frac{r}{100}\right)} + \frac{A}{\left(1+\frac{r}{100}\right)^2} + ... + \frac{A}{\left(1+\frac{r}{100}\right)^5} = A^2$$

$$\Rightarrow \frac{A}{\left(1+\frac{r}{100}\right)}\left[1 + \frac{1}{\left(1+\frac{r}{100}\right)} + ... + \frac{1}{\left(1+\frac{r}{100}\right)^4}\right] = A^2$$

$$\Rightarrow \frac{A}{\left(1+\frac{r}{100}\right)}\left[\frac{1-\frac{1}{\left(1+\frac{r}{100}\right)^5}}{1-\frac{1}{\left(1+\frac{r}{100}\right)}}\right] = A^2$$

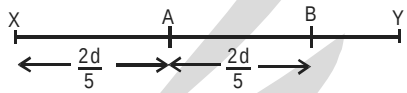
$$\Rightarrow A = \frac{100}{r}\left\{1 - \frac{1}{\left(1+\frac{r}{100}\right)^5}\right\}.$$

17. b Let XY be the tunnel and 'd' km be its length.



Let the current position of the man be A. If he runs towards X, he would reach X at the same time as the train reaches X.

However, if he runs towards the other end Y, he would reach point B at the same time when the train reaches X. Hence, point B would be at a distance of $\frac{2d}{5}$ km from A.



As the man and the train would reach Y simultaneously, the man would cover the rest $\frac{d}{5}$ km distance in the same time that the train takes to cover the whole tunnel i.e. d km.

Hence, the speed of the train
= 5 × the speed of the man = 50 km/hr.

18. d As the shopkeeper is left with the same number of fruits of each type, 2721, 3081 and 3501 when divided by x should leave the same remainder i.e. p.
The maximum possible value of x
= HCF (3081 – 2721, 3501 – 3081)
= HCF (360, 420) = 60.

19. a Let 'N' be the total number of vehicles that crossed the Toll Plaza on the mentioned date.
As per the given information,

$$\frac{N}{4} \times 63 = 18900$$

$$\Rightarrow N = 1200$$

Hence, the total amount collected from Mini Buses and Buses

$$= 1200 \times \frac{11}{100} \times 45 + 1200 \times \frac{21}{100} \times 63 = ₹21,816.$$

20. c Let 'N' be the total number of vehicles that crossed the Toll Plaza on the mentioned date.
Toll charges paid by Light Commercial Vehicles = ₹2.7N
Toll charges paid by Cars = ₹3.6N
Toll charges paid by Two Wheelers = ₹2.1N
Hence, the correct order is
Cars > Light Commercial Vehicles > Two Wheelers.

21. b Let 'N' be the total number of vehicles that crossed the Toll Plaza on the mentioned date.
Hence, the answer

$$= \frac{21N \times 63 - 18N \times 20}{18N \times 20} = 267.50\%.$$

22. a Let r (in cm) be the radius of the base of the cylindrical reservoir.

Then, $2\pi r = 880 \Rightarrow r = 140$
So the height (h) of the reservoir = r + 0.5r = 210 cm
Therefore, the capacity of the cylindrical reservoir

$$= \pi r^2 h = \frac{22}{7} \times (140)^2 \times 210$$

$= 12936000\ cm^3 = 12936$ liters
(Since 1000 cm^3 = 1 litre)

Hence, the cost of filling the reservoir completely with water = 0.3 × 12936 = ₹3,880.80.

23. c An even number greater than 40,00,000 will have either 4 or 5 at the first place and will end with 0, 2 or 4.
Case I: 4 is at the first place.
As odd digits will occupy three out of five places in the middle, those places can be chosen in $^5C_3$ ways.
The odd digits can be arranged among themselves in $\frac{3!}{2!}$ ways and the remaining even digits can be arranged in 3! ways.
Total number of such arrangements

$$= {}^5C_3 \times \frac{3!}{2!} \times 3! = 180$$

Case II: 5 is at the first place.
The remaining odd digits will occupy two out of five places in the middle which can be chosen in $^5C_2$ ways.
The odd digits can be arranged among themselves in $\frac{2!}{2!}$ ways and the even digits can be arranged in $\frac{4!}{2!}$ ways.
Total number of such arrangements

$$= {}^5C_2 \times \frac{2!}{2!} \times \frac{4!}{2!} = 120$$

Hence, the answer = 180 + 120 = 300.

24. c Let the number of people who participated in exactly 0, 1, 2 and 3 games be N, I, II and III respectively.
Therefore, II + III = 1.42 I …(i)
and N + I + II + III = 380.
$\Rightarrow$ N + 2.42 I = 380 [Using (i)]

$$\Rightarrow I = \frac{50}{121}(380 - N)$$

Since N is minimum possible, (380 – N) must be the largest possible multiple of 121.
$\Rightarrow$ 380 – N = 363 $\Rightarrow$ N = 17
$\Rightarrow$ I = 50 × 3 = 150
From (i), II + III = 1.42 × 150 = 213
Hence, the maximum possible value of II = 213 – 1 = 212.

25. d $a_1 = 0, a_2 = 1, a_3 = 1, a_4 = 2, a_5 = 2, a_6 = 3, \ldots$
Given, $a_2 \times a_3 + a_4 \times a_5 + \ldots + a_{k-1} \times a_k = 650$

$\Rightarrow 1^2 + 2^2 + \ldots + n^2 = 650$ (where n is the number of terms in the arithmetic progression 1, 2, 3, …)

$$\Rightarrow \frac{n(n+1)(2n+1)}{6} = 650$$

$$\Rightarrow n(n+1)(2n+1) = 12 \times 13 \times 25$$

$\Rightarrow$ n = 12
Hence, k = 1 + 2 × 12 = 25.

26. a $(a + b - c - d)^n - (a^n + b^n - c^n - d^n)$
$= (a + b - c - d)^n - a - b + c + d + a + b - c - d - (a^n + b^n - c^n - d^n)$
$= (a + b - c - d)^n - (a + b - c - d) - (a^n - a) - (b^n - b) + (c^n - c) + (d^n - d)$

According to Fermat's Little Theorem,
If 'x' is an integer and 'p' is a prime number, $x^p - x$ is always divisible by 'p'.
Hence, 'n' is always a factor of the given expression.

Alternate Method:
For a = 1, b = 2, c = 0, d = 0 and n = 2, among the given options, only n and (n + 2) divide the given expression.
For a = 1, b = 1, c = 0, d = 0 and n = 2, between n and (n + 2), only n divides the given expression.

27. a Let the initial amount (in ₹) contributed by each of the six friends be 'p' (> 100) and number of people (including Rohan) who went to Goa be 'n'.
Total travelling expenses (in ₹) including the repair amount = 410 × n
Initial amount (in ₹) contributed by the six friends = 6p.
As per the given information,
410n – 6p = 250

$$\Rightarrow p = \frac{410n - 250}{6}$$

Since p > 100 and 0 < n < 6,
n = 5 and p = 300.
Hence, the initial amount contributed by the six friends = 6 × 300 = ₹1,800.

For questions 28 to 30:
The given data can be tabulated as shown below.

Person	Stage 1	Stage 2	Stage 3
Ajanta	30 < p < 50	9 < r < 41	125
Harish	120	9 < s < 41	60
Indira	30 < q < 50	74	40
Karan	70	46	9 < t < 16
Larry	50	80	9 < u < 16
Top 3 scorers	**240**	**200**	**225**
Total score	**320**	**250**	**250**

p + q = 320 – 240 = 80
r + s = 250 – 200 = 50
t + u = 250 – 225 = 25

28. d The Mean Index can be calculated for Harish (60), Karan (46) and Larry (50).

29. c The HL Index of Indira was 34; it implies that 40 was her lowest score. So she must have scored between 40 and 50 in Stage 1.
The maximum possible score of Indira in Stage 1 was 49. Therefore, the minimum possible score of Ajanta in Stage 1 = 80 – 49 = 31.
In Stage 2, the minimum possible score of Ajanta = 10.
Hence, the minimum possible score of Ajanta in the test = 31 + 10 + 125 = 166.

30. a Clearly, Harish did not score the lowest.
Let us check the minimum possible scores of the other four persons in the test.
Ajanta: 31 + 10 + 125 = 166
Indira: 31 + 74 + 40 = 145
Karan: 70 + 46 + 10 = 126
Larry: 50 + 80 + 10 = 140
Their maximum possible scores were:
Ajanta: 49 + 40 + 125 = 214
Indira: 49 + 74 + 40 = 163
Karan: 70 + 46 + 15 = 131
Larry: 50 + 80 + 15 = 145
Karan must have scored the lowest in the test as his maximum possible score was less than the minimum possible scores of the other four persons.

31. a E, 'Nonverbal communication', introduces the topic. DB forms a mandatory pair (keyword: also). Similarly, C logically follows A as both talk about nonverbal elements in speech and written text respectively. Hence option (a) is the correct answer.

32. d B clearly starts the passage followed by A explaining what the author means by 'everything'. 'This is an ambitious goal' in C refers to the aim talked about in E, hence C follows E. D concludes the passage. This makes option (d) the best choice.

33. d B introduces the topic so it forms the head. A explains the issue of definition a bit further hence follows B. C questions the difficulty of defining terrorism by the writers hence it follows A. E answers that question and D completes E. Hence D comes after E. So option (d) is the correct answer.

34. d Sentence 1 is incorrect because the phrase is not "reigning in" but "reining in" which means to control. "Reign" means to rule over whereas "rein" means to check, guide or control. Sentence 2 is incorrect because of the tense error. The previous sentence is in the present perfect continuous tense and hence sentence 2 cannot be in the simple present tense when it refers to the same time frame. The correction is "have increased production". Sentence 4 is incorrect because the pronoun "it" is ambiguous. It is unsure if the pronoun refers to Greece or to the absolute mess. Logic dictates that it is the absolute mess or the situation that Greece finds itself in that is translating into a weaker euro. Hence, the replacement should be "this is" instead of "it's". Option (d) is the answer.

35. a Sentence 1 is correct. Sentence 2 is incorrect because the correct preposition to be used with tied would be in. "Tied up" means to keep occupied or engaged whereas the phrasal verb "tie in" means to bring into or have a close or effective relation. Sentence 3 is incorrect because of the unnecessary usage of the preposition "to". The sentence should read "A second term for Mr. Gadkari is also likely to be opposed by other senior party leaders." Sentence 4 is correct and hence the answer is option (a).

36. b Sentence 1 is incorrect because of a misplaced modifier. The film has been produced by Minority Rights Group International and not the story. The correct sentence should be "Produced with Minority Rights Group International, the film is about a community ...". Sentence 2 is correct. Sentence 3 is incorrect because the figurative expression is "as _____ as" and not "as ____ and". The correction is "... as important to them for its culture as its steady income." Sentence 4 is correct.

37. d Let 1 to 7 represent the position numbers of the seven people starting from the front.
Since Farrar is standing immediately in front of Chitta, Chitta must be the last person in the queue.
Bukka is not the first person in the queue, he is standing immediately in front of Ganesh, and Ganesh is not standing immediately in front of Farrar. Therefore, two cases are possible.

Case I: Bukka and Ganesh are at position numbers 2 and 3 respectively.

1	2	3	4	5	6	7
	Bukka	Ganesh			Farrar	Chitta

Aadi is standing immediately in front of neither Bukka nor Farrar. Also, Ganesh is not standing immediately in front of Aadi. Hence, Aadi cannot occupy position number 1, 4 or 5. Hence, this case is not possible.

Case II: Bukka and Ganesh are at position numbers 3 and 4 respectively. Now, Aadi can occupy position number 1.

The final arrangement will look like:

1	2	3	4	5	6	7
Aadi	Deven/ Emman	Bukka	Ganesh	Emman/ Deven	Farrar	Chitta

So we can say that either Aadi or Ganesh is standing immediately in front of Emaan.

38. c Option (a) is true but it is not the central theme of the passage. The passage is not about what the purpose of archaeology of thought is, but how it determines people's thinking. Option (c) explains the process of thinking in people with respect to constraints. Option (b) is too narrow in scope to be the central theme since it talks about only one application of studying archaeology of thought. Option (d) is only a conclusion that the author makes on the basis of Foucault's idea of archaeology of thought and so is incorrect.

39. b Option (a) is incorrect as the passage does not provide enough evidence to support this inference. It is mentioned that in any given period there are laws but it does not mean that the laws have to be different for every period. Moreover, the length of time frame is a subjective matter. So, we can't say what length of time constitutes the past. Option (c) is a close option but it is not possible to infer that it is just these constraints that determine how people think. There may be other things that may cause a difference in thinking even when the constraints remain the same. Although the passage says there is a close relation between archaeology of thought and literary idea, it still doesn't mean that their reasoning is same. Thus option (d) is negated. Option (b) is correct. Since we now know that heavenly bodies can move in paths other than circles, so those constraints in the past that had led people to think otherwise no longer hold good.

40. b The passage aims to explain Faucault's idea of archeology of thought. The tone is expository as the author intended to explain or describe this idea. The author is not worried about small details or rules of the theory. Hence, the tone is not pedantic. The passage is not purely descriptive as the author brings in his own views in the passage.

For questions 41 to 43:
The minimum possible score is 0 and the maximum possible score is 10. Nobody can score exactly 8 points as it would mean that he/she could unlock exactly four of the five locks, which is not possible.
Hence, the five scores must be 0, 2, 4, 6 and 10.
Now, assuming that Amy is the one who gets 10 points, we get the scores of the rest four people as:
Biny = 0 + 0 + 2 + 0 + 2 = 4
Chiny = 0 + 0 + 0 + 0 + 0 = 0
Dina = 2 + 2 + 2 + 0 + 0 = 6
Finn = 0 + 0 + 2 + 0 + 0 = 2

The scores given above provide one of the possible solutions. Similarly, we will check the possibility of the rest of the people getting 10 points and calculate others' scores accordingly. Finn is found to be the only other person who could score 10 points.

The two cases are tabulated below.

	Amy	Biny	Chiny	Dina	Finn
Case I	10	4	0	6	2
Case II	2	6	0	4	10

41. c The least possible score of Dina is 4.

42. a The minimum possible absolute difference between the scores of Amy and Dina = 4 – 2 = 2.

43. a As Finn scores less than Biny, we will consider Case I. The sum of the scores of Amy and Dina = 10 + 6 = 16.

44. a The first paragraph states that God is perfect and doesn't deceive us. He has bestowed us with perfect intellectual faculties. The concluding paragraph states that God has bestowed us with distinct faculties of understanding and will that help us to judge everything in the world, and prevent us from making mistakes/ errors. The main theme correlates the 1st and last paragraph by raising the question. "Why do we make mistakes?" This makes option (d) a close option. But, the author is not discussing his own views. He is merely describing Descartes take on this issues. (b) is incorrect because the passage has the **analysis** of human cognition and **not the explanation** of it. (c) is a premise which helps in supporting (a).

45. d Descartes argues that deception is a product of imperfection and states that God doesn't deceive us. Thus, we can infer that since God is perfect, therefore he doesn't deceive us. (a) is incorrect because it is vague, we don't know what right control is. (b) is incorrect because to infer this we first have to assume that all faculties bestowed by God can have no limitations. In (c), the meaning of mistake can differ for different people. Also, one considers it as a mistake because it is beyond one's understanding.

46. a *Because we cannot believe to know beyond what we cannot comprehend and by doing so we commit a mistake.* Option (a) is completely contradictory because it states that nothing is beyond my comprehension, hence I cannot make a mistake. Therefore it weakens the main argument. (b) is incorrect because it is an explanation of the argument itself. (c) is incorrect because it is not doing anything to the argument. (d) is incorrect because moral failing has no relation with deliberate or unintentional error.

For questions 47 and 48:
Y, a doctor, is married to S, an engineer. Since no female in the family is either an engineer or a manager, Y is a female and S is a male. No male in the family is a lecturer, therefore, R is a female and P is a male. Neither Q nor X is a lecturer, therefore, T is a lecturer.

The data can be tabulated as shown below.

Member	Profession	Gender
P	Doctor	Male
Q	Manager/Lawyer	Male
R	Lecturer	Female
S	Engineer	Male
T	Lecturer	Female
X	Lawyer/Manager	Male
Y	Doctor	Female

47. b There are 3 female members in the family.

48. c 'X – Lawyer' can be a correct combination.

49. b Refer to the last line of the paragraph- "*To be sure, it is not the fruits of scientific research that elevate a man and enrich his nature, but the urge to understand, the intellectual work, creative or receptive.* "The passage suggests that the true value of a human being can be understood by the process that he adopts rather than the result of his quest. Option (b) takes this forward by the help of the example of the Talmud which is a collection of ancient writings on Jewish law and traditions. Options (a) and (c) are out of the scope of discussion of the paragraph. Option (d) states the value of the discovery and not of the process of discovery, which is quite the opposite of what the author has said.

50. b The paragraph talks about how the love for sports is expressed in terms of war codes rather than the general and more prevalent ways of expression of love. Option (b) takes this forward by saying that this happens for reasons unknown. Option (a) is incorrect as the paragraph does not aim to compare watching sport live to watching it on television. Option (c), although not irrelevant to the discussion, does not fit with the paragraph semantically. Option (d) is incorrect as, according to the paragraph, the love for sports in general is described in war codes irrespective of its combative nature.

51. b The author talks about the work of a journalist and what makes a good story/piece of writing. Option (a) is incorrect as it talks not about journalistic story but about bestselling books. The author in the paragraph says that the brilliant stories that he is talking about are not timeless but were dependent on the novelty factor for their success. Option (b) takes this forward by explaining that a good reportorial story should be interesting and pertinent in the context of the time it is presented and then may die.

52. a Q had 1 ticket and the Blue envelope had 2 tickets. R, the Green envelope, could not have 5 tickets and so it must have had 3 tickets only. This implies that Q was the Yellow envelope. T, the Orange envelope, had 5 tickets.
The results can be tabulated as shown below.

Envelope	No. of Ticket(s)	Colour
T	5	Orange
P/S	4	Purple
R	3	Green
S/P	2	Blue
Q	1	Yellow

The Orange envelope was tagged as T.

53. d The passage starts by explaining what is imagination and then explains the term in the context of memory, experience and dreams. This makes option d the correct choice. Options (a), (b) and (c) are narrow in scope and hence not correct.

54. d Option (b) cannot be inferred as something the author will believe in. Refer to the lines , "and hence for the most part, when we consider that in dreams we do not often nor ….that we do on waking …..",in the last paragraph. Option (a) can be negated by the first line of the last paragraph –"The imaginations during sleep are what we call dreams." Option (c) is also incorrect. Refer to the lines- "nor remember so long a train of coherent thoughts dreaming as at other times; and because waking we often observe the absurdity of dreams." It is not possible to decide which thoughts are more absurd. Option (d) is correct . Refer to the lines "necessary organs of sense, are so benumbed in sleep as not easily to be moved by the action of external objects."

55. d Refer to the lines – "And because in sense, the brain and nerves, which are the necessary organs of sense, are so benumbed in sleep as not easily to be moved by the action of external objects, there can happen in sleep no imagination," This makes option (d) correct. Option (c) is incorrect. The passage does not comments on this. All we know is that there is no imagination in dreams.

56. d Since each team played all others exactly twice, the total number of matches played in the preliminary stage

$= 2 \times {}^{9}C_{2} = 72$

Another 4 matches were played in the play-off stage of the tournament.
Hence, the total number of matches that were played in the tournament = 72 + 4 = 76.

57. b Let A, B and C be the teams ranked 1, 2 and 3 after the preliminary stage. The total number of matches played by A, B and C = 16 + 14 + 12 = 42. The remaining (72 – 42) = 30 matches must have been played by the rest six teams among themselves. If none of A, B or C loses a match against any of the rest six teams, then all the wins of the rest six teams would come in these 30 matches only. If the rest six teams win an equal number of matches i.e. $\frac{30}{6} = 5$ matches each, then the team ranked 4 would be decided on the basis of their net run rates. Hence, the minimum number of matches that a team had to win to reach the final of the tournament = 5 + 1 + 1 = 7. (The team ranked 4 would have to win the Eliminator and Qualifier-2 during the play-off stage to reach the final.)

58. a Let A, B, C, D and E be the top five teams after the preliminary stage. The total number of matches played by A, B, C, D and E = 16 + 14 + 12 + 10 + 8 = 60. The remaining (72 – 60) = 12 matches must have been played by the bottom four teams among themselves. If none of A, B, C, D or E loses a match against any of the bottom four teams, then the total number of wins of A, B, C, D and E would be 60. If they win an equal number of matches i.e. $\frac{60}{5} = 12$ matches each, then the team ranked 5 would be decided on the basis of their net run rates. Hence, one of the teams would fail to qualify for the play-off stage despite winning 12 matches in the preliminary stage.

59. a Refer to the first words of option (b) and (c). They do not fit the first blank contextually. Option (d) can be eliminated as 'disperse' is wrong for the second blank. Also integrate would fit in the second blank as executives make actions a part of the thinking process. Option (a); Tactical means ' characterized by adroit maneuvering'. Option (b): Prudent means 'careful'.

60. a Options (b), (c) and (d) are contextually and grammatically incorrect fits for the first blank. Hence can be eliminated. Option (a) is the best option. Option (b): bezoar means ' an antidote to poison found in animal intestine'. Option (c) : Repress means 'to renew'. Option (d): Ceriferous means 'producing wax'.