

## **Answer Key Classic MoCAT 2:**

### **Section I:**

1-1	2-1	3-1	4-1	5-1	6-1	7-2	8-3	9-2	10-2
11-3	12-3	13-2	14-1	15-2	16-2	17-3	18-4	19-3	20-2
21-1	22-2	23-3	24-1	25-2	26-1	27-1	28-3	29-4	30-4
31-2	32-3	33-2	34-2	35-3	36-4	37-2	38-1	39-3	40-3
41-4	42-1	43-3	44-2	45-3	46-2	47-1	48-4	49-2	50-2

### **Section II:**

51-3	52-2	53-1	54-3	55-3	56-1	57-3	58-4	59-4	60-1
61-3	62-2	63-4	64-3	65-2	66-4	67-2	68-3	69-4	70-2
71-1	72-2	73-1	74-1	75-3	76-2	77-4	78-2	79-2	80-3
81-4	82-3	83-2	84-3	85-2	86-3	87-3	88-1	89-2	90-2
91-4	92-3	93-4	94-2	95-1	96-2	97-3	98-3	99-3	100-1

### **Section III:**

101-2	102-1	103-3	104-2	105-2	106-3	107-3	108-2	109-1	110-4
111-3	112-4	113-4	114-4	115-3	116-4	117-1	118-2	119-1	120-4
121-2	122-2	123-1	124-4	125-1	126-3	127-4	128-2	129-4	130-4
131-1	132-3	133-2	134-2	135-4	136-1	137-3	138-2	139-3	140-4
141-4	142-4	143-4	144-2	145-3	146-3	147-1	148-2	149-2	150-2

## Explanatory Answers

- The sides of the square are 8 c.m. Area of triangle ACE = Area of square = 64 sq. c.m.  
Alternately, area =  $\frac{1}{2}$  base  $\times$  height =  $\frac{1}{2} \times 8 \times 16 = 64$  sq. c.m.
- Required area =  $\pi R^2 - \pi r^2 = \pi 8^2 - \pi 4^2 = 48\pi = \text{Approx } 154 \text{ sq. mts}$
- Between A, B, C and D, the maximum points are of A with 14 points. As B, C and D are less than him, there are three possibilities. (a) Both E and F score 14 points in which case the answer would be 3 possible winners, or (b) atleast one of E or F score 14 points, making two possible winners, or (d) both E and F scoring an equal number of points but higher than A making again 2 possible winners,  
For (a) to happen, E and F would have (2 wins, 2 draws and 1 loss). This is not possible as overall number of wins must be equal to overall number of draws. However only (b) can happen. For (b), E or F = (2,2,1) and F or E respectively = (1,2,2). For (c), the situation is (0,5,0) and (0,5,0). But this is not possible as B has only one draw. Maximum possible winners = 2. Hence [1]
- Aim is to maximize score of C.  
In situation 1, C can score 99. A and B > 30% is possible.  
In situation 2, minimize D and E = 45 + 45 (30% marks of 150). Hence  $65 \times 3 - 90 = 105$ .  
Total C = 105 + 99 = 204, and average = 102.
- The points scores by team A are 11,12,13,14,15 and 16. From team B, the points scored are 19,18,17,16,15 and 14. To calculate faster, cancel 14, 15 and 16. Maximum difference =  $6 \times 3 = 18$  points. Hence [1]
- $x + a$  is the HCF of  $P(x) = x^2 + px + q$  and  $G(x) = x^2 + kx + m$   
 $\Rightarrow x + a$  is a factor  $P(x)$  and  $G(x)$   
 $\Rightarrow P(-a) = G(-a) = 0$   
 $\therefore (-a)^2 + p(-a) + q = (-a)^2 + k(-a) + m$   
 $\therefore a^2 - pa + q = a^2 - ka + m$   
 $\Rightarrow q - m = a(p - k)$  i.e.  $\frac{q - m}{p - k} = a$ . Hence the answer is [1]
- Given  $f(x) = \frac{x-1}{x+1}$ ,  $x > 0$   
$$y = f\left(\frac{1}{x}\right) = \frac{\frac{1}{x} - 1}{\frac{1}{x} + 1} = \frac{1 - x}{1 + x}$$
  
Clearly as  $x$  increases the denominator  $x + 1$  increases and hence  $y$  decreases.  
Hence the answer is [2]
- $3|x| - |x - 3| \geq 0$   
for  $x \geq 3 \Rightarrow 3x - (x - 3) \geq 0$  or  $2x + 3 \geq 0$  is true.  
for  $0 \leq x \leq 3 \Rightarrow 3x - \{-(x - 3)\} \geq 0$   
OR  $3x + x - 3 \geq 0$  OR  $4x - 3 > 0 \Rightarrow x \geq \frac{3}{4}$   
If  $x \leq 0 \Rightarrow -3x + (x - 3) \geq 0$   
OR  $-3x + x - 3 \geq 0$  OR  $-2x - 3 \geq 0 \Rightarrow x \leq -\frac{3}{2}$   
 $x \leq -\frac{3}{2}$  and  $x \geq \frac{3}{4}$ . Answer is [3].

9. 5 totally clear days and 15 half and half. In the 15 half and half days: 7  $\leq$  12 of the clear mornings were followed by rain, 8  $\leq$  13 of the clear afternoons were preceded by rain. 20 days of the vacation in all for Ghosh Babu.

10. Let radius of circle I be 'r' and that of circle II be R.

$$\text{Given } \frac{60}{360} \times 2\pi r = \frac{45}{360} \times 2\pi R. \quad \therefore \frac{r}{R} = \frac{3}{4}$$

$$\frac{A_1}{A_2} = \frac{\pi r^2}{\pi R^2} = \left(\frac{3}{4}\right)^2 = \frac{9}{16}. \quad \text{Hence, [2].}$$

11. You can choose or reject each vegetable.

$\therefore$  Two choices for each

$\rightarrow$  Total number of choices =  $2^4$ .

This includes one case where no vegetable is selected.

$\therefore$  Answer =  $2^4 - 1 = 15$ .

Hence, [3].

12. **Round 1**

$$\text{Blue hits} = \frac{135,000}{3} = 45,000 \text{ Green dead.}$$

$$\text{Green hits} = \frac{90,000}{3} = 30,000 \text{ Blue dead.}$$

Now, Blue = 105,000. Green = 45,000.

**Round 2**

$$\text{Blue hits} = \frac{105,000}{3} = 35,000 \text{ Green dead.}$$

$$\text{Green hits} = \frac{45,000}{3} = 15,000 \text{ Blue dead.}$$

Now, Blue = 90,000. Green = 10,000. B : G = 9 : 1.

Hence, [3].

13. Area of triangle ABD =  $\frac{1}{2} \times BD \times AX = \frac{1}{2} \times 10 \times 4 = 20 \text{ sq. cms.}$

Area of parallelogram =  $2 \times \text{area of triangle ABD} = 2 \times 20 = 40 \text{ sq.cms.}$  . This is the only valid combination.

14. Let side of original cube be 100 units. Then, side of the smallest cube is 25 units.

$$\text{Surface area of the largest cube} = 6(100)^2.$$

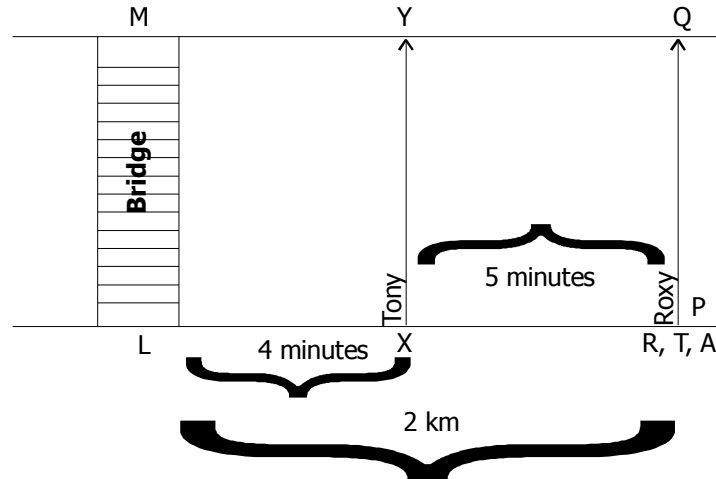
$$\text{Surface area of the smallest cube} = 6(25)^2.$$

$$\therefore \text{Ratio of this surface areas is } \frac{25^2}{100^2} = \frac{1}{16}.$$

15. Length of arc AB =  $\frac{\pi r}{3} = \frac{4\pi}{3}$ .  $\therefore r = 4$   
Area of ACBP =  $2 \times \frac{1}{2} \times AC \times AP = 4 \times \frac{4}{\sqrt{3}} = \frac{16}{\sqrt{3}}$   
Hence, [2].
16. Number of questions in the test taken by team A = 270.  
Let team A answer x number of questions for y hours.  
Then  $xy = 270$ .  
Team B answers x + 7 questions for y - 3 hours.  
Hence,  $(x + 7)(y - 3) = 300$ .  
 $\therefore x = 18$  and  $y = 15$  or team A answers 18 questions per hour.
17. If we take two opposite sides and start from one corner, then 11 posts each can be put. On the remaining two sides, as the corners already have posts, only 9 posts are required.  
Total =  $11 \times 2 + 9 \times 2 = 40$ .
18. The discount is highest when the product  $\frac{100 - x}{100} \times \frac{100 - y}{100}$  is lowest.  
Above product is highest when  $x = y$  and lowest when x or y is at the limits.  
 $\Rightarrow x = k; y = 0$  or  $y = k, x = 0$ .
19.  $3800 + (8 \times 25) + (10 \times 25) + (12 \times 15) = 4430$ .  
Hence, books sold =  $25 + 25 + 15 = 65$  books.
20. For  $n < 50$   $\left[ \frac{1}{2} + \frac{n}{100} \right] = 0$  and for  $n \geq 50$  and  $n \leq 99$ ,  $\left[ \frac{1}{2} + \frac{n}{100} \right] = 1$ .  
 $\therefore$  The value of the given sum = 50.  
Hence, [2].
21. Since a and b are positive real numbers, we have  $a + b \geq 2\sqrt{ab}$ .  
 $\Rightarrow 2\sqrt{ab} \leq a + b = 1 \Rightarrow \frac{1}{ab} \geq 4$   
 $\therefore \sqrt{12 + \frac{1}{a^2}} + \sqrt{12 + \frac{1}{b^2}} \geq 2\sqrt{\sqrt{12 + \frac{1}{a^2}}\sqrt{12 + \frac{1}{b^2}}}$   
 $\geq 2 \left[ 144 + 12 \left( \frac{1}{a^2} + \frac{1}{b^2} \right) + \left( \frac{1}{a^2} \cdot \frac{1}{b^2} \right) \right]^{\frac{1}{4}}$   
 $\geq 2[144 + 96 + 16]^{\frac{1}{4}}$   
 $\geq 2.4 \geq 8$   
Hence, [1].
22. 40% funds come from  $60 + 10 = 70\%$  donors.  $\therefore$  the rest 30% pay 60% or double of the average. i.e. 100 % more than the average. Hence [2]

23. Using no incorrect answers, there are 12 ways, with scores of 1 to 12. Using 4 incorrect answers, there are 7 ways, i.e. 2 to 8 correct. Note that 1 correct is not possible as the net score would be 0. Similarly, with 8 incorrect, 2 ways are possible i.e. 3 and 4 correct. Hence total number of ways =  $12 + 7 + 2 = 21$  ways. Hence [3]
24.  $6t + 4w = 1600$ ;  $2w + 5b = 1700$ ;  $6m + b = 6300$ .  
Adding, we get  $6t + 6w + 6b + 6m = 9600$ .  
 $\therefore 5t + 5w + 5b + 5m = 8000$ .  
Hence [1]

For answers to questions 25 to 27, use the following diagram



25. Initially, distance between PXL MYQ is 20 minutes. When Tony swims from X to Y, distance XL MYQ showed to be 15 minutes or X... should take 10 minutes. But as it has taken Appu 10 minutes, Tony must have rested for 5 minutes. From the question, the distance PXL MYQ can be covered in 20 minutes. However, Appu takes an unaccounted 5 minutes break. The distance will be covered in 25 minutes.
26. P to L and M to Q are equal and require 9 minutes each to walk. If PXL MYQ can be covered in 20 minutes, then LM will require 2 minutes.
27. In 9 minute Appu walks 2 km.  
Hence, in 20 minutes Appu would have walked  $\frac{40}{9} = 4.44$  km.
28.  $AA^1 = 16$ ,  $BB^1 = 12$ ,  $CC^1 = 8$  and  $DD^1 = 4$ . Total = 40
29. The milkman sells Rs.  $\frac{600}{10} = 60$  litres of the product per day.  
In 60 litres, milk = 48 and water = 12.  
If he sells for Rs.560, then he has sold 56 litres of the product.  
In 56 litres, milk = 48 and water = 8 litres.  
Hence, proportion of water in milk =  $\frac{8}{48} \times 100 = 16.66\%$ .
30. Area of TUVW =  $\frac{1}{2}$  Area of PQR =  $\frac{1}{4}$  Area of PQRS
31. The shopkeeper has lost Rs.100 only. The entire transaction can also be viewed as the shopkeeper getting a counterfeit Rs.100 note against which he has given goods worth Rs.60 and change worth Rs.40.

32. Let striking workers : working employees =  $x : y$ .  
 $0.04x$  move to work and  $0.06y$  join the strike. As there will be no difference in value of  $x$  and  $y$  after this exchange.  
 $0.4x = 0.06y$  or  $x : y = 6 : 4$  or  $3 : 2$ .  
 $\therefore$  Number of striking workers =  $\frac{3}{5} \times 1500 = 900$ .
33. Initial money with Sona =  $s$  and Tina =  $t$ .  
Purchases made by them 250%.  
Tina's purchases  $\frac{60}{100} \times 250 = 150\%$ .  
Sona's purchases = 100%.  
Money with them at the end ( $s - 100$ ) and ( $t = 150$ ).  
But  $s = 2t$  .... (i) and  $(s - 100) = 3(t - 150)$  .... (ii).  
 $\therefore 2t - 100 = 3t - 450 \quad \therefore 350 = 3t - 2t \quad \therefore 350 = t$
34. Initial amount with A =  $x$ .  
Earning at the beginning  $\left(\frac{5}{100}x\right)$  p.a. Amount invested in another stock ( $x - 500$ ).  
New earning =  $\left[\frac{6}{100} \times (x - 500)\right]$  p.a.  
Difference between earnings =  $\frac{6}{100}(x - 500) - \frac{5}{100}x = 175 \times 12$   
 $6x - 3000 - 5x = 2100 \times 100$   
 $x = 210,000 + 3000 \quad \therefore x = 213,000$
35. Let  $AD = BC = x$   
 $\therefore AM = x$  (radii of the same circle)  
 $EM \parallel AD$  and  $EM = AD$   
 $\therefore AO = x + 2$ ,  $OM = EM - OE = x - 2$   
 $\Delta AMO$  is right angled at M.  
 $\therefore AO^2 = AM^2 + OM^2$  (Pythagoras theorem)  
 $\Rightarrow (x + 2)^2 = x^2 + (x - 2)^2$ , i.e.  $x(x - 8) = 0$ , i.e.  $x = 8$  cm  
Hence, [3].
36.  $48^4 \times 5^{12} = 3^4 \times 2^{16} \times 5^{12} = 81 \times 2^4 \times 10^{12} = 81 \times 16 \times 10^{12}$   
 $= 1296 \times 10^{12}$  i.e. it has 16 digits. Hence, [4].

**For 37 to 41:**

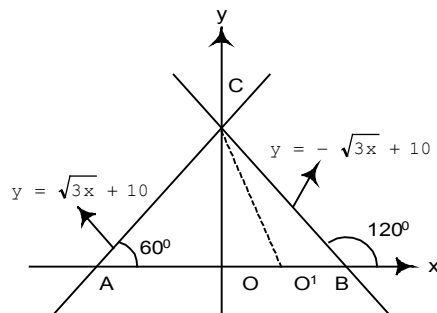
Sum	Points	Sum	Points	Sum	Points
2	$2 + 15 = 17$	4	$4 + 10 = 14$	8	$8 + 5 = 13$
3	$3 + 15 = 18$	5	$5 + 10 = 15$	9	$9 + 5 = 14$
		6	$6 + 10 = 16$	10	$10 + 5 = 15$
		7	$7 + 10 = 17$	11	$11 + 5 = 16$

12 points for a sum of 12.

37. Maximum points at the end of two throws =  $18 + 17 = 35$   
(sum of 3 + sum of 7). Answer is [2].

38. 41 points can be scored in following two ways.  
 Sum of 5, 6, and 12 =  $15 + 16 + 12 - 2$  (Penalty for two consecutive throws in the same bonus categories) = 41.  
 And sum of 4, 7 and 12 =  $14 + 17 + 12 - 2 = 41$ .  
 In anyone of the throws sum cannot be 3. Answer is [1].
39. Minimum possible score is  $13 + 13 + 14 - 2 - 2 = 36$   
 Penalty for 2 consecutive sums of 8 and penalty for 2 consecutive sums in the same bonus category – sums of 8 and 9. Answer is [3].
40. Maximum possible score in two throws =  $35 (A - 18)$ .  
 maximum possible score in four throws = 70.  
 maximum possible score in five throws = 88 (sums of 3, 7, 3, 7, 3). Answer is [3].
41. Maximum possible score =  $18 + 17 + 18 + 17 = 70 (A - 21)$ .  
 Minimum score =  $13 + 12 + 13 + 12 = 50$  (sums of 8, 12, 8, 12).  
 difference = 20. Answer is [4].
42. Units place can be filled by either 0 or 5.  
 When 0 is in the units place, each of the other places can be filled by  $6 \times 5 \times 4 = 120$  ways.  
 When 5 is in the units place, 0 cannot be in the thousandth place. Hence, each of the three places can be filled by  $5 \times 5 \times 4$  ways = 100 ways.  
 Total ways = 220.  
 (Note: be careful and alert, there are 7 digits and not 6)

43.



For the line  $y = -\sqrt{3}x + 10 = \angle CBX = 120^\circ$

For the line  $y = \sqrt{3}x + 10 = \angle CAB = 60^\circ$

$\therefore \angle ACB = 60^\circ$  and  $\angle O'CB = 30^\circ$

$\therefore \angle CO'B = 120 - 30 = 90^\circ$

$\therefore$  slope is  $\tan 90 \rightarrow$  infinite.  $\therefore$  Answer is [3].

#### ALTERNATIVE:

Find the intersection point. (To find that we have to solve the two equations.

$$y = -\sqrt{3}x + 10; \quad y = \sqrt{3}x + 10$$

$$-\sqrt{3}x + 10 = \sqrt{3}x + 10$$

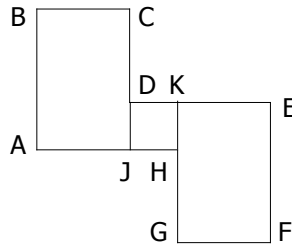
We get  $x = 0$ . Can't we now say the slope is infinite. Because slope =  $y / x$

44. Driving time =  $\frac{160}{60} = 2\frac{2}{3}$  hours = 160 minutes.

You need to decide whether or not the truck must stop for petrol. At a speed of 60 mph, the truck will use 30% more fuel, so it will need 1.3 gallons to travel 20 miles. Thus, x (amount of oil needed to travel 160 miles) must satisfy  $\frac{160}{20} = \frac{x}{1.3}$  or  $x = 10.4$  gallons.

So, if the truck is driven at 60 mph, it will have to stop for petrol, since it has only 10 gallons.  $\therefore$  The total time needed =  $160 + 20 = 180$  minutes.

45. Since angle  $B = 90^\circ$ ,  $B = (1, 5)$   
So,  $AB = 3$  and  $BC = 1$ . To find the area, break the figure into 3 smaller figures by extending  $CD$  to meet  $AH$  at  $J$  and extending  $GH$  to meet  $DE$  at  $K$ .



$\therefore$  Area required = Areas of  $(ABCJ + JDKH + KEFG)$

$$ABCJ = 3 \times 1 = 3$$

$$J = (2, 2), D = (2, 4), K = (4, 4) \text{ and } H = (4, 2)$$

$$\therefore JDKH = 2 \times 2 = 4$$

$$\text{Since } EF = AB = 3 \text{ and } KE = 1, EFGH = 3 \times 1 = 3$$

$$\therefore \text{Area of } ABCDEFGH = 3 + 4 + 3 = 10.$$

46. The series is  $2^{\frac{1}{4}} \times 4^{\frac{1}{8}} \times 8^{\frac{1}{16}} \times 16^{\frac{1}{32}}$

$$= 2^{\frac{1}{4}}, 2^{\frac{2}{8}}, 2^{\frac{3}{16}}, \dots$$

$$= 2^{\frac{1}{4} + \frac{2}{8} + \frac{3}{16} + \dots}$$

$$\text{Let } S = \frac{1}{4} + \frac{2}{8} + \frac{3}{16} + \dots$$

$$\frac{1}{2} S = \frac{1}{8} + \frac{2}{16} + \dots$$

By subtraction,

$$\frac{1}{2} S = \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} + \dots = \frac{\frac{1}{4}}{1 - \frac{1}{2}} = \frac{1}{4} \times 2 = \frac{1}{2}$$

$$\therefore \frac{1}{2} S \infty = \frac{1}{2} \Rightarrow S \infty = 1.$$

$$\text{the given series} = 2^1 = 2.$$

Hence the answer is [2]

47.  $f(x) = x + 2$ ,  $g(x) = 2x^2 + 5$   
 $\text{fog}(x) = f[g(x)] = f[2x^2 + 5] = 2x^2 + 5 + 2 = 2x^2 + 7$   
Hence the answer is [1]



48. We have  $c = 2s - (a + b) = (s - a) + (s - b)$   
 $\therefore (s - a)^3 + (s - b)^3 + 3(s - a)(s - b)c$   
 $= (s - a)^3 + (s - b)^3 + 3(s - a)(s - b)\{(s - a) + (s - b)\}$   
 $= \{(s - a) + (s - b)\}^3 = c^3$   
Hence the answer is [4]

49.  $\frac{x^2 - 1}{x} = 5$ , cubing we get  $x^6 - 3x^4 + 3x^2 - 1 = 125x^3$  or  $x^6 - 1 - 3x^2(x^2 - 1) = 125x^3$

Substituting,  $x^6 - 1 - 3x^2(5x) = 125x^3$

$$\frac{x^6 - 1}{x^3} = 140.$$

Hence, [2].

ALTERNATIVE

$$(x^2 - 1) / x = 5; (x^6 - 1) / x^3 = ?$$

$$x - 1/x = 5; x^3 - 1/x^3 = ?$$

$$a - b = 5; a^3 - b^3 = ?$$

$$a^3 - b^3 = (a - b)^3 + 3ab(a - b)$$

$$x^3 - 1/x^3 = 5^3 + 3(1)(5)$$

$$= 125 + 15$$

$$= 140.$$

50. The equation is  $x^2 - 10x + 16 = 0$

$$\therefore a + b = -(-10) = 10; ab = 16 \Rightarrow b = \frac{16}{a}$$

$$\therefore (1 - a)(1 - b) = 1 - (a + b) + ab = 1 - 10 + 16 = 7$$

Hence the answer is [2]

**Alternately**

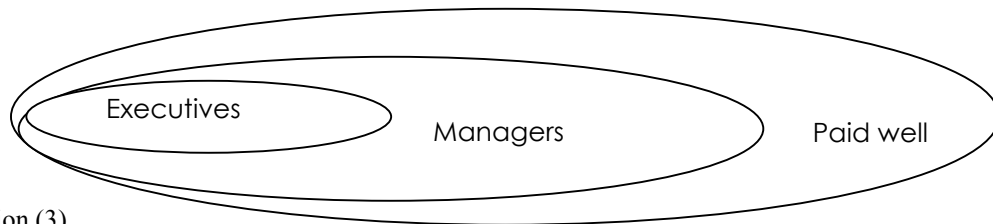
As a and b are roots of  $x^2 - 10x + 16 = 0$ ,  $(x - a)(x - b) = x^2 - 10x + 16$

For  $x = 1$ ,  $(1 - a)(1 - b) = 1^2 - 10 + 16 = 7$

## Explanatory Answers: Section 2

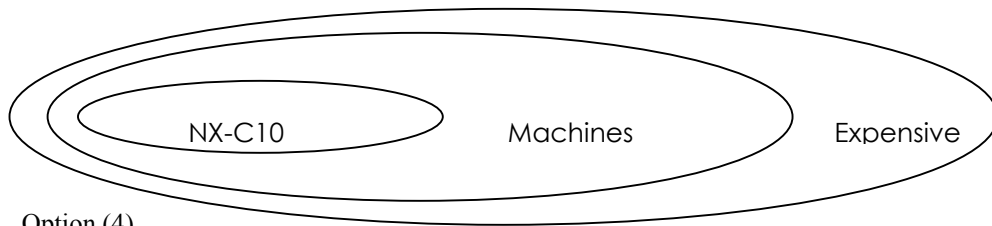
51. Option (3)  
*Rewritten: An ideal way to increase your command of words.....*
52. Option (2)  
*Rewritten: One feels impelled to have a closer look of the incredibly high Himalayas viewed from the Tiger Tops.*
53. Option (1)  
*Rewritten: An immense increase in the output of food is the result of application of machinery and science to agriculture.*
54. Option (3)  
*Rewritten: Research must be utilized in order to have a sound basis for curriculum improvement.*
55. Option (3)  
*Rewritten: The enthusiasm that inspired the Italians and Germans also inspired the Balkans for unity and freedom in the nineteenth century.*

56. Option (1)

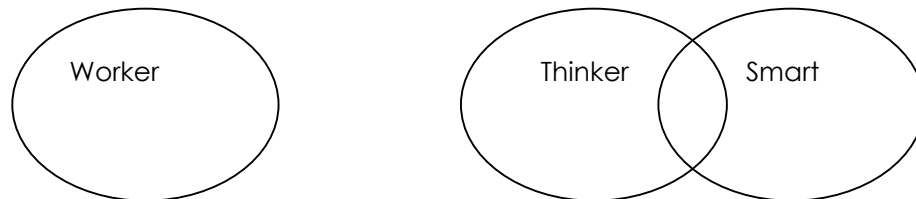


57. Option (3)

58. Option (4)



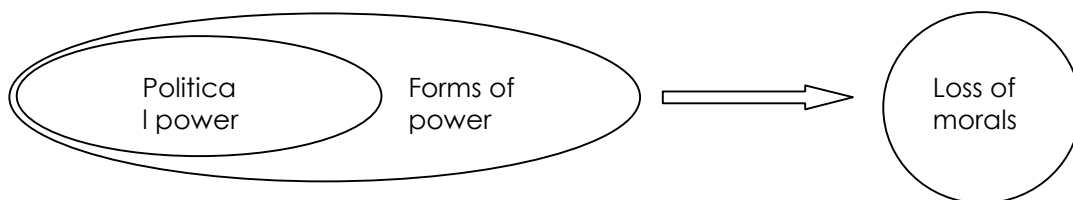
59. Option (4)



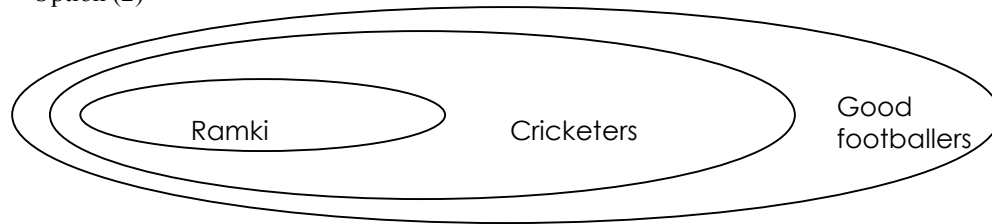
- 60.

- Option (1)

61. Option (3)



62. Option (2)



63. Option (4)  
1B are logically in sequence (*Options*, some investors groan, *are available only for a handful of bluechips*. *And even with a bluechip* portfolio, buying assorted options for individual scrips is rather too expensive.)  
AE are in sequence
64. Option (3)  
1C are logically in sequence (Okay, so *it'll be some time yet before protein-enriched potatoes can actually plug India's nutrition deficit*. *Or before DNA-group-specific medicines and diet targeted food brands hit the market*.)  
A follows C  
B cannot precede E or D.
65. Option (2)  
BA are in sequence (*A wise parent will reassure the child* through explanation and ensure that he *grows through each new experience*. *But if* a child is made to feel inadequate in some way, *this natural feeling can crystalise* into a sense of not being good enough, clever enough, or able enough and years later surface as a sense of inferiority.)  
D follows A
66. Option (4)
67. Option (2)
68. Option (3)
69. Option (4)  
DE are in sequence  
ECB are also in sequence
70. Option (2)  
1DE are in sequence
71. Option (1)
72. Option (2)
73. Option (1)
74. Option (1)
75. Option (3)

#### Passage I

76. Option (2)
77. Option (4) – Refer 2<sup>nd</sup> para - Biologists usually define a species in terms of an interbreeding population.
78. Option (2) – Refer 3<sup>rd</sup> para
79. Option (2)
80. Option (3)
81. Option (4)
82. Option (3)

#### Passage II

83. Option (2) – Refer 1<sup>st</sup> para
84. Option (3) – Refer 8<sup>th</sup> para
85. Option (2) – Refer 3<sup>rd</sup> para
86. Option (4) – Refer 5<sup>th</sup> para

87. Option (3) – Refer 6<sup>th</sup> para  
 88. Option (1) – Refer 6<sup>th</sup> para

**Passage III**

89. Option (2)  
 90. Option (2) – Refer 5<sup>th</sup> para last line.  
 91. Option (4)  
 92. Option (3)  
 93. Option (4)  
 94. Option (2)

**Passage IV**

95. Option (1) – Refer 3<sup>rd</sup> para  
 96. Option (2) – Refer 6<sup>th</sup> and 7<sup>th</sup> para  
 97. Option (3)  
 98. Option (3) – Refer 7<sup>th</sup> para  
 99. Option (3)  
 100. Option (1)

**Explanatory Answers Section 3:**

101. A pays:  $400\{500 + (200 \times 2)\} = 900 \times 400$   
 B pays:  $450 \times 2.5 = 1125 \times 700$   
 D pays:  $400\{400 + (200 \times 2.5)\} = 400 \times 900$   
 E pays:  $625\{500 + (2 \times 200)\} = 625 \times 900$   
 Obviously B pays highest rentals. Hence [2]
102. A pays  $1000 \times 12 \times 400 \times 1 = 48$  lakhs.  
 B pays  $1000 \times 0.75 \times 700 \times 12 = 63$  lakhs.  
 Total =  $48 + 63 = \text{Rs. } 111$  lakhs. Hence [1]
103. Using Shergil, they pay :  $\{500 + (100 \times 2) + 200\} = 900$  per employee  
 Using Hootch, they pay :  $(350 \times 2.5) + (0.75 \times 200) = 875 + 150$  per employee  
 Using Baba,  $500(100 \times 2.5) + (0.5 \times 200) = 850$  per employee  
 Alliance is obviously more expensive than Shergil.  
 Hence [3]
104. Total Bill =  $625\{500 + (200 \times 1.5)\} = 625 \times 800 = \text{Rs. } 500000$ .  
 Hence [2]
105. Revenue of Baba from D =  $400\{400 + (100 \times 2.5) + (100 \times 0.5)\} = 400 \times 700 = \text{Rs. } 280000$   
 Revenue of Mice from C =  $250\{300 + (350 \times 3)\} = 250 \times 1350 = \text{Rs. } 337500$ .  
 Hence Revenue of Mice exceeds that of Baba by approx 20%  
 Hence [2]
106. The only difference in Alliance and Shergil rental plan is the charges of SMS, which is 50 paise more for Alliance. Hence savings =  $0.50 \times 200 \times 625 = \text{Rs. } 62500$ . Hence [3]

**For 107 to 112, make a column with prices of C for all years:**

1995 :  $2500 \times 3 - (3000 + 2500) = \text{Rs. } 2000$   
 For 1996:  $7500 - 5750 = \text{Rs. } 1750$   
 For 1997:  $9000 - 5500 = \text{Rs. } 3500$   
 For 1998:  $6000 - 5500 = \text{Rs. } 500$

107. Option [3]  
 108.  $2000:1750 = 8:7$ . Hence [2]

109.  $(3500-1750) / 1750 = 100\%$ . Hence [1]  
 110. Here find the total cost of 500 kgs each of A, B and C (which is 3 x average cost).  
 1995:7500 ; 1996: 7500 ; 1997: 9000 1998: 6000.  
 Hence price is least in 1998. Hence [4]  
 111. Cost of 1000 kg of A in 1996 = 8000  
 Cost of 2000 kg of B in 1996 = 7000 and  
 Cost of 3000 kg of C in 1996 = 10500.  
 Hence cost of 6000 kgs of D in 1996 is Rs. 25500. Hence [3]  
 112. C which carries the highest weightage (3) as well as B which carries a weightage of 2 is least expensive in 1998. Hence price of B is least in 1998. Hence [4]  
 113. Note that for some cities the cost of transferring within the city was 0. It is likely that the least total cost is from among these cities. Least total cost in I and J is Rs. 1000 only. Hence [4]  
 114. Cost from producer in A to E is Rs. 2000, within E it is 0, which is lower than from any other place. Hence [4]  
 115. Total number of ways =  $10 \times 10 \times 10 = 1000$ . Hence [3]

116.

	A	B	C	D	E	F	G	H	I	J
Wholesalers' Cost to retailer in C	9	11	-	8	15	8	16	14	12	16
Least cost from any producer to respective city	5	3	-	2	2	0	5	2	1	0
Total cost	14	14	-	10	17	8	21	16	13	16

Hence least cost is from D, F, I.. Total = 31000. Hence [4]

117. Transport from producer in H to wholesaler in H, who in turn will sell to retailer in I. Hence total transport cost = Rs. 4000. Hence [1]  
 118. From producer in D to wholesaler in E to retailer in H = Rs. 38000. Hence [2]  
 119. Highest marks in least time are obtained from PS section. Thus, in 10 minutes, 6 questions from PS and 1 DI question can be solved. Hence 13 is the highest score. Hence [1]  
 120.  $30+60+25+30+60 = 3$  hrs and 25 mins. Hence [4]  
 121.  $30+80+25+30+60 = 225$ . Hence [2]  
 122. The 100 correct questions can be 50 from VA (which gets me 25 marks), 40 from RC, (which fetches 30 marks) and 10 from DI (which scores 10 marks). Hence gross score =  $25+30+10 = 65$  and net score is  $65-25 = 40$ . Hence [2]  
 123.  $(3600/90) 2 = 80$ . Hence [1]  
 124. Overall 50% of the questions answered are incorrect. As we do not know which section, they belong to, we cannot compute the difference. (note that if maximum of minimum difference was asked, we could solve it). Hence [4]  
 125. Only in 2001 there is an increase in sales relative to previous year. Hence [1]

126. In 2002, turnover in Men's section to total turnover is  $37.4/134.8$ , which is less than 30%. Hence [1] is incorrect. In 2001, ratio is  $41.2/130.6$ , which is more than 30%. Hence [2] is eliminated. In 2000, ratio is  $35.6/121.7$ , which is less than 30%. Hence [3]
127. From 1999 to 2000, % increase in sales =  $17.6/104.1$  This is higher than increase in any other year. Hence [4]
128. Sales in Women's section in Shopper's Top have steadily increased. Hence [1] is untrue. Women's section in Eastside accounts for highest sales in all years except in 2001. Even in this year, it is obviously higher than average sales. Hence [2]
129. Option [4]
130. Option [4]
131. Bisleri is purer than Kinley does not mean that Kinley is purer than Aquafina. Hence the question cannot be answered. Hence [1]
132. The question asked is how many sons does Dashrath have. From the two statements we can find out the number of children he has, not the number of sons. Hence [3]
133. No where has it been stated that CAT is the admission criteria of the IIM's. Hence [2]
134. From the first statement various possibilities are available. No conclusion can be drawn. From the second statement, it can be inferred that the last digit has to be 8 and the first three have to be 1, 2, 3. As sum of these three digits have to be found, order is irrelevant. Hence [2]
135.  $C = B + 5$  and  $C/2 = A$ . Hence we have one equation,  $2A = B + 5$ . Hence [4]
136. If the speed and time travelled are known, distance can be found. Hence [1]
137. In a rectangular room, unless the length and breadth are integral numbers, an integral number of square tiles cannot be found. Hence the question cannot be answered. Hence [3]
138. The second statement only states that increase is more than 5%. As exact increase is not known, the question cannot be answered. Hence [2]
139. From the two statements, we can only infer that  $m+n>0$ . Hence [3]
140. In a rhombus opposite sides are equal. From the two statements we can infer that ABCD may be a square or a rectangle. Hence [4]
141. Option [4]
142. As information given is that each forward scored ATLEAST 1 goal, we cannot infer who won the match. Hence [4]
143. X and Z got the two Ayn Rand's books, but who received the other two cannot be inferred. Hence [4]
144. Only statement 99 is true, as all statements except 99 are false. Hence [2]
145. There are a total of 10 votes, of which exactly 3 go to Alien and Jerry McGuire together. The remaining 7 are distributed between Matrix and Mummy. Maximum votes that Matrix can get is 4 and maximum votes that Mummy can get are 3. Hence [3]

146.  $3^5=243$ . Upto 243 balls can be checked within 5 weighings. Hence [3]
147. The ant in  $H_{10}$  will go to  $H_9$ . That is  $A_1$ . Hence [1]
148. Let the four switches be A, B, C, D. Let the two switches that are switched on first be A and B. In the second round, if he switches on say B and C, then he can identify which light stands for B, A, C and D. Hence he scores 4 points. Hence [2]
149. Option [2]. Option 1 is not correct, as there is a 'or' case.
150. At the end of one round of operations, it is found that only contents of B and X are exchanged. Similarly at the end of 2 round, contents of B and C will be exchanged and again at the end of the third round, B has z and C has y. Hence [2]