Key

SECTION – I

1. A	6. D	11. A	16. C	21. C	26. C
2. B	7. B	12. D	17. D	22. B	27. B
3. A	8. C	13. C	18. B	23. D	28. A
4. B	9. D	14. A	19. D	24. D	29. B
5. A	10. A	15. A	20. B	25. C	30. A

SECTION – II

1. D	6. C	11. A	16. D	21. B	26. D
2. C	7. A	12. B	17. D	22. A	27. D
3. D	8. C	13. C	18. A	23. C	28. B
4. D	9. B	14. B	19. B	24. B	29. C
5. C	10. D	15. B	20. D	25. B	30. D

Solutions

SECTION – I

Solutions for questions 1 to 3:

1. The values of $3x + 7y$ for the integers x, y, where $0 < x < 8$ and $0 < y < 8$ are tabulated below.

x \ y	1	2	3	4	5	6	7
1	10	17	24	31	38	45	52
2	13	20	27	34	41	48	55
3	16	23	30	37	44	51	58
4	19	26	33	40	47	54	61
5	22	29	36	43	50	57	64
6	25	32	39	46	53	60	67
7	28	35	42	49	56	63	70

We see that, in any column (say the first one, 10, 13, 16 etc.,) each number leaves a different remainder when divided by 7, while all the numbers in the same row leave the same remainder. If a particular number in the first column (and the i^{th} row) has to appear in some other column, it can only be in the i^{th} row. (Numbers in other row would leave different remainders when divided by 7) But as all the numbers in the i^{th} row (for every value of i) are distinct, that number just can't appear anywhere else. Similarly, every number in the table is unique. It doesn't occur anywhere else. Thus there are 7(7) or 49 distinct values that the expression $3x + 7y$ can take.

Alternative solution:

The equation $3x + 7y = k$, will have multiple solutions (x, y) when y can assume values separated by 3 and x can assume values separated by 7. But for the given range (i.e., [1, 7]) x cannot take more than one value. Hence, all possible combinations of x, y will give distinct values of k. Hence $7 \times 7 = 49$ is the answer. Choice (A)

2. Sum of the elements of X = 31 ---------- (1)
X has 7 elements. Six-digit numbers divisible by 3 have to be formed.
∴ Only 6 elements of X have to be used i.e., 1 element has to be eliminated. The sum of the digits of each number formed must be divisible by 3.
(1) ⇒ Only possible element which can be eliminated is 1.
The six-digit numbers have the digits 0, 2, 5, 6, 8 and 9.
The number of possible digits in the first, second, third, fourth, fifth and sixth positions are 5, 5, 4, 3, 2 and 1 respectively.
∴ Number of numbers which can be formed = 5(5) (4) (3) (2) (1) = 600 Choice (B)

3. The sum of the areas of all the triangles drawn inside a rectangle, such that the sum of the bases of the triangles is same as one of the sides of the rectangle and the height of each triangle is same as the other side of the rectangle, is equal to half the area of the rectangle.

$$\therefore \text{Area of the shaded region} = \frac{1}{2}(\text{area of EBCF}) + \frac{1}{2}(\text{Area of AEKG}) + \frac{1}{2}(\text{Area of GKFD})$$

$$= \frac{1}{2}(\text{Area of rectangle ABCD}) = \frac{1}{2} \times 15 \times 10 = 75 \text{ sq.cm}$$

Alternative solution:

Each triangle in the figure can individually be imagined to be inscribed in a corresponding small (non- overlapping) rectangle. Now, the area of each triangle will be exactly half of its corresponding rectangle. Since the sum of all the smaller rectangles = Area of ABCD, the sum of the areas of all triangles $= \left(\frac{\text{Area of ABCD}}{2}\right)$. Choice (A)

Solutions for questions 4 to 6:

4. Statement I: The required percentages for different regions is

$$N - \frac{19}{13} \times \left(\frac{300}{6900}\right) \times 100 < 1.5$$

$\therefore$ As $\frac{300}{6900}\times 100$ is common for all of them, it is sufficient to compare only the other fraction.

$W - \frac{7}{17}\times\left(\frac{300}{6900}\right)\times 100 < 1$

$C - \frac{10}{12}\times\left(\frac{300}{6900}\right)\times 100 < 1$

$S - \frac{16}{14}\times\left(\frac{300}{6900}\right)\times 100 < 1.5$

$SC - \frac{13}{15}\times\left(\frac{300}{6900}\right)\times 100 < 1$

$EC - \frac{23}{21}\times\left(\frac{300}{6900}\right)\times 100 < 1.5$

$E - \frac{12}{8}\times\left(\frac{300}{6900}\right)\times 100 = 1.5$

It will be highest for E i.e. Eastern region. Statement I is not true.

Statement II: Required ratio is

$\frac{23}{8}\left(\frac{47600}{38700}\right) \equiv \frac{23}{8}\times\frac{5}{4} > 3$

Statement II is true. Choice (B)

Also, the centre of the circle $= \left(\frac{7-17}{2}, \frac{3-7}{2}\right) = (-5, -2)$

The distance between the centres of the two circles

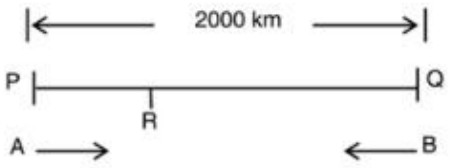
$= \sqrt{(3+5)^2+(2+8)^2} = \sqrt{8^2+6^2} = 10$ units.

Let the centres of the circles be C_1 and C_2 and the radii be R_1 and R_2.

Now, $C_1C_2 = 10$ and $R_1 + R_2 = 5 + 13 = 18$.

Since $|R_2 - R_1| < C_1C_2 < |R_2 + R_1|$, the two circles intersect each other. Hence, they will have only two common tangents. Choice (C)

9.



A travels from P to R with 25 kmph and at that moment B assumes the velocity of 25 kmph at R to reach Q.

$\therefore$ Time taken by B $= \frac{2000}{25} = 80$ hours

Similarly time taken by A $= \frac{2000}{32} = 62.5$ hours.

$\therefore$ Difference in times taken $= 80 - 62.5 = 17.5$ hours

Choice (D)

5. Statement I: The number of students selected for the course i.e. 300 is very less when compared to the number of students appeared for the exam i.e.38700 (less than 1%).
∴The required value will be least for the region with the least number of students appeared for the exam i.e. Central region.
∴Statement I is true.
Statement II: The number of students selected for the course is least (7%) from the Western region when compared to any other region.
∴Statement II is not true. Choice (A)

6. Statement I: Required ratio is

$$\left(\frac{14}{16}\right)\left(\frac{6900}{1300}\right) < \frac{14}{16} \times 6 < 6$$

∴Statement I is not true.
Statement II: The required number will be highest for East-Central region but not for Southern region.
East-Central: 21% of 6900 – 16% of 1300
Southern: 14% of 6900 – 8% of 1300
∴Statement II is not true. Choice (D)

Solutions for questions 7 to 12:

7. If a number is divisible by 30 and 35, it is divisible by LCM (30, 35) i.e., 210.
If a number is divisible by 210 but not by 140, then it is not divisible by LCM (210, 140) i.e., 420. So, the number is divisible by 210 but not by 420. The least and the greatest four digit multiples of 210 are 1050 and 9870 respectively.
∴The number of multiples of four-digit multiples of 210 are

$$\frac{9870-1050}{210}+1=\frac{8820}{210}+1=43$$

Similarly the number of four-digit multiples of 420 are

$$\frac{9660+1260}{420}+1=21$$

∴The number of multiples of 210 which are not divisible by 420 are 43 – 21 i.e., 22. Choice (B)

8. The diameter of the first circle

$$=\sqrt{(7-(-17))^2+(3-(-7))^2}=26 \text{ units}$$

Hence, radius = 13 units

10. A total of 9 digits are used in numbering all the single digit pages. A total of 180 digits are used in numbering all the two-digit pages. Hence, a total of 189 digits are used to number all the pages numbered from 1 to 99. The number of three-digit pages in the book $= \frac{501-189}{3} = 104$.
Hence there are a total of 99 + 104 = 203 pages in the book. 3, 4 and 5 are not factors of 203, while 7 is.
Choice (A)

11. The values of the variables a, b, Y change as follows after each of the 5 steps of the algorithm.

	a	b	Y
1.	a_1	b_1	$10a_1 + b_1$
2.	$a_1 + b_1$		
3.		a_1	
4.	b_1		
5.			$9(a_1 - b_1)$

∴Y is always divisible by 9. Choice (A)

12. $3x + 5$ is an increasing function and $(10 - 2x)$ is a decreasing function,
$\Rightarrow$ Max [min $(3x + 5, 10 - 2x)$] occurs when $3x + 5 = 10 - 2x \Rightarrow x = 1$
∴ Max [min$(3x + 5, 10 - 2x)$] = 3(1) + 5 = 8. Choice (D)

Solutions for questions 13 to 15:

13. In administration, even though a person aged 60 retired at the end of the third year, the average age remains the same. This is possible only if the number of employees was ten initially. Assume there are x employees in the third year. $\Rightarrow 51x - 60 = 50(x - 1) \Rightarrow x = 10$.
Similarly in the accounts department, the average age of 39 years in the third year became 35 years in the next year after a person aged 60 retires. For this to happen the number of people initially should have been 5.
In sales department, at the end of the third year the average age of should have become 47 i.e., 46 +1. But it is only 40 (i.e., 7 less). It is due to the joining of new employee and retirement of the old employee.
Hence, $46x - 60 + 25 + 5 = 40x \Rightarrow x = 5$
So total employees = 5 + 5 + 10 = 20. Choice (C)

14. The new person joined in the sales department.
Choice (A)

15. Assume the minimum number of people (5) were there in the sales department. Their total age in the second year = $46 \times 5 = 230$. Their total age next year would be $47 \times 5 = 235$. Even if a person aged 60 retires, the total age of the remaining 4 people would be $\frac{235-60}{4}=\frac{175}{4} = 43.75$.

Since average age of the persons cannot fall below 43.75 years in the third year and the given value is 40 years, the only possibility is that a person aged 25 years also must have joined the sales department in the third year.
Only then we get, in case of five people initially.

Average age in third year $= \frac{235-60+25}{5}=40$

Choice (A)

Solutions for questions 16 to 19:

16. For $0 < |\sin x| < 1$, we can use the formula for sum to infinite terms of a G.P
In this case $1 + |\sin x| + \sin^2 x + |\sin^3 x| + \ldots\ldots\infty$

$= \frac{1}{1-|\sin x|}$ since in 1st quadrant; $\sin x \geq 0$ and $|\sin x| = \sin x$

$\Rightarrow 8^{\left[\frac{1}{1-(\sin x)}\right]} = \left(2^2\right)^3 \Rightarrow \left(2^3\right)^{\left(\frac{1}{1-\sin x}\right)} = 2^6$

Comparing powers of '2' on both sides $\frac{3}{1-\sin x} = 6$

$\Rightarrow 1 - \sin x = \frac{1}{2} \Rightarrow \sin x = \frac{1}{2} \Rightarrow x = 30° = \frac{\pi}{6}$ (radians).

Choice (C)

Solutions for questions 20 to 22:

20. The sales of the different companies are

$X = \frac{25}{100}\times 1500 + \frac{25}{100}\times 800 + \frac{50}{100}\times 1200$

$= 375 + 200 + 600 = 1175$ cr

$Y = \frac{50}{100}\times 1500 + \frac{25}{100}\times 800 + \frac{25}{100}\times 1200$

$= 750 + 200 + 300 = 1250$ cr

$Z = \frac{25}{100}\times 1200 + \frac{25}{100}\times 1500 + \frac{50}{100}\times 800$

$= 300 + 375 + 400 = 1075$ cr.

The sales of Y are the maximum. Choice (B)

21. New sales of company Y

$= \frac{25}{100}\times 800 + \frac{25}{100}\times 1200 + \frac{50}{100}\times 3000$

$= 200 + 300 + 1500 = 2000$

Percentage increase $= \frac{750}{1250}\times 100 \cong 60\%$

Choice (C)

22. Sales of the new company
= 10% of 1175 + 15% of 1250 + 20% of 1075
= 117.5 + 187.5 + 215 = 520

Required percentage $= \frac{520}{3500}\times 100 = 14.86\% \cong 15\%$

Choice (B)

17. Given $\sqrt{x^2-12x+35} < x-2 \quad \rightarrow \quad (1)$

$\Rightarrow x^2 - 12x + 35 \geq 0$ (for y to be real) and $x - 2 > 0$

$(x - 7)(x - 5) \geq 0 \rightarrow x \notin (5, 7)$. Hence, options (A) and (C) can be eliminated. Also, if $x = 0$, the inequality is not satisfied. Hence, choice (B) which includes $x = 0$, is also eliminated. Hence choice (D) must be the answer.

Alternately, we could solve the inequality as follows.

$x \in (-\infty, 5] \cup [7, \infty) \rightarrow \quad (2)$

$x^2 - 12x + 35 < x^2 + 4 - 4x$ (squaring in eq (1))

$31 < 8x \Rightarrow x > 31/8 \rightarrow \quad (3)$

Combining (2) and (3), $x \in \left(\frac{31}{8}, 5\right] \cup [7, \infty)$. Choice (D)

18. $x^{1/5} > x^{1/3}$

$\Rightarrow x < -1$ or $0 < x < 1$. Now we can consider the cases for $x = 1/8$ and $x = -8$, and check for each of the options.

(I) $x^2 > x^3 \Leftrightarrow x < 1$

$\therefore$ This statement is true

(II) $x^{1/3} > x^4 \Leftrightarrow 0 < x < 1$

But this statement is not true for $x < -1$

(III) $x^{1/3} > x^{-3}$

$\Rightarrow x > 1$ or $-1 < x < 0$

Hence, this is false.

(IV) $x^{-1/3} > x^3$

$\Rightarrow x < -1$ or $0 < x < 1$

$\therefore$ this statement is true.

So, of the four statements only two are true.

Choice (B)

19. Any number when divided by 13 may leave 13 distinct remainders of 0, 1, 2, ... 12.

But cubes of natural number will leave only five distinct remainders, which can be arrived at by finding the remainder of the cubes.

$0^3, 1^3, 2^3, \ldots 12^3$, when divided by 13 leave 5 distinct remainders.

The five distinct remainders are 0, 1, 5, 8, 12.

Hence, if 143 cubes of natural numbers are present.

At least $\left[\frac{143}{5}\right] + 1$; elements will have the same remainder. $\Rightarrow 28 + 1 = 29$

Hence at least 29 elements will leave the same remainder.

Choice (D)

Solutions for questions 23 to 30:

23. If x is even, then the number of boys should be equal to the number of girls, let each be n.

$\Rightarrow x = 2n$

Then the number of arrangements $= 2 \times n! \times n!$

If one more student is added, then the number of arrangements $= n! \times (n + 1)!$

But this is 200% more than the earlier $\Rightarrow$ 3 times.

$\therefore 2 \times n! \times n! \times 3 = n!(n + 1)!$

$\Rightarrow n + 1 = 6$

$\Rightarrow n = 5 \quad \Rightarrow x = 10$

But if x is odd, then number of arrangements $= n!(n + 1)!$, where $x = 2n + 1$

When one student is included, number of arrangements $= 2(n + 1)!\ (n + 1)!$ (as the difference of girls and boys cannot be two)

$\Rightarrow 2(n + 1)!\ (n + 1)! = 3.n!\ (n + 1)!$

$\Rightarrow 2(n + 1) = 3$

Which is not possible.

Alternative Solution:

The question can also be solved by numerically checking for each option.

For example, If x = 12, then $y = 2 \times 6! \times 6!$ and after one student is added it will be 6! 7!.

And 6! 7! Is not 200% more than $6! \times 6!$ Choice (D)

24. When two of the integers are positive and the other is negative, we get the product as negative. When two of the integers are negative and the other is positive, we get the product as positive. In both the cases, the magnitude of the product can be any thing from 0 to ∞.

Ex: If the integers are 10^{10}, -10^{10} and 16, we get the product as -16×10^{20} and if the integers are -10^{10}, -10^{10} and $(16 + 2.10^{10})$, the product will be $(16 + 2 + 10^{10})\ (10^{20})$.

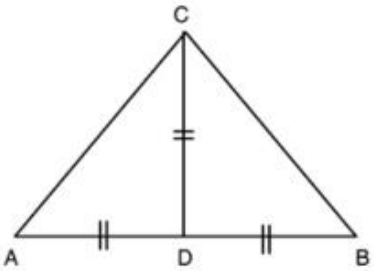
$\therefore$ The range of the product is $(-\infty, \infty)$ Choice (D)

25. Let speeds of Ajay (A), Balram (B) and Chandu (C) be a, b and c respectively.

$a = 1.2b$ (i.e. $b = 0.8333a$) and $b = 0.8325c$

$\Rightarrow c > a > b$

In the given figure, the diamond is at point D.



In a right angle ABC, AD = BD = CD
Since, all the lengths are equal, the time taken by the three reach the diamond depend on their speeds. As C is the fastest, he'll reach first. Choice (C)

26. Let 9:00 a.m. supporters be x.
Then, 7:00 a.m. supporters will be $3x/2$.
Given that $(x + 6) - (3x/2 - 6) = 3 \Rightarrow x = 18$
Number of 9:00 a.m. supporters are 18.
$\therefore$ Number of 7:00 a.m. supporters are $3/2 \times 18 = 27$
$\therefore$ Total number employees are $18 + 27 = 45$
Choice (C)

27. For an $n \times n$ grid where all the numbers present in any row or column are in arithmetic progression and n is odd, the sum of all terms in the grid is given by $n(n)$ (middle term of grid).
$\therefore$ Sum of all terms in grid = 11 (11) (22) = 2662.
Choice (B)

Difficulty level wise summary - Section I	
Level of Difficulty	Questions
Very Easy	–
Easy	9
Medium	2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 24, 25, 26, 27, 28, 29
Difficult	1, 19, 23, 30
Very Difficult	–

SECTION – II

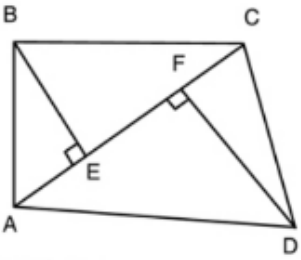
Solutions for questions 1 to 3:

Number of words and Explanatory notes for RC:

Number of words : 408

1. The first para must be read in the context of the whole passage. The question is about the same. (A) is ruled out as it looks at the first para in isolation and not in relation to the whole passage. A rhetorical question is one which does not require an answer as it is self-evident. The writer asks a question and answers it in the negative and holds that contrary to common perception, America is one of the most philosophical nations. (B) is ruled out as 'anathema' (means dislike) is incorrect. The writer does not say that America hates philosophy. (C) is an easy elimination. (D) is a balanced take on the purpose of the first paragraph. At the superficial level America seems to be a nation oblivious to philosophy. But the author goes on to explain why this perception is flawed. So Choice (D) is apt. Choice (D)

28.



Given BE : FD = 3 : 4
AE : EF : FC = 2 : 3 : 1

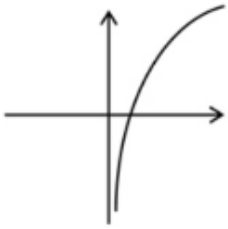
$$\frac{\text{Area of } \Delta ABC}{\text{Area of quad. } ABCD} = \frac{\frac{1}{2}(AC)(BE)}{\frac{1}{2}(AC)(BE+DF)} = \frac{3}{3+4} = \frac{3}{7}$$

Choice (A)

29. Choice (1)
$\Rightarrow \log |x|$ has to be negative for $x \in (0, 1)$.
Hence (1) is not correct.
Choice (3)
$\Rightarrow$ For $x = e$,

$$\log\left|\frac{1}{e}\right| = \log e^{-1} = -1$$

Hence choice (3) is not correct.
Consider the graph of $y = \log x$
When we consider $y = |\log|x||$, then we get the given graph.



Choice (B)

30. Given equation is $x^3 - 3x^2 + y^2 + 2x - 2y = 0$
When $y = 0$, $x^3 - 3x^2 + 2x = 0$
$\Rightarrow x(x^2 - 3x + 2) = 0 \quad \Rightarrow x(x-1)(x-2) = 0$
$\Rightarrow x = 0, 1$ and 2
$\therefore$ The curve meets the x-axis at the points (0, 0), (1, 0) and (2, 0).
Now, when $x = 0$, $y^2 - 2y = 0 \Rightarrow y = 0$ or 2
$\therefore$ The curve meets the y-axis at the points (0, 0) and (0, 2)
Hence, the required number of distinct points is 3 + 2 – 1 = 4
Choice (A)

2. (C) is correct – Refer to "America ... most philosophical culture ... history of the world ...". This is stated in the first sentence of the last para. Thus, (C) is the answer.
Choice (C)

3. "Nodded" in the context is to go with a flaw in perception which is to see America with European lenses (like other French intellectuals) and draw conclusions (which are wrong). (D) fits into this while (A) is neutral. The phrase 'traditional image' in 'B' is inapt in this context. (C) is not stated. Thus, (D) is the answer. Choice (D)

Solutions for questions 4 and 5:

4. The word 'mark' has been used incorrectly in Choice D. The phrase 'wide of the mark' means 'far from correct' or 'inaccurate'. The 'preposition' in the given phrase has been spelt incorrectly. 'Wide off the mark' is erroneous. However, the expression 'off the mark', which also means 'inaccurate', is correct. Other sentences are correct.
Choice (D)

5. When we want to suggest that someone wants to sell something, we say that he or she pitched the product and not 'pitch in' as mentioned in Choice C. The phrasal verb 'pitch in' means 'to join and help in an activity'. The expression 'pitch up' as used in choice B means turn up.
Choice (C)

Solutions for question 6:

6. The para contains a question (sentence c) which is answered in sentence e. So 'ce' link is clear. The chronological order of listing the examples puts sentences bd together. Sentence a concludes the para. So the best sequencing is 'cebda' and the answer is choice C.
Choice (C)

Solutions for questions 7 to 10:

Number of words and Explanatory notes for RC:

Number of words : 553

7. From a reading of the second half of the second para ("accomplishments of the natural sciences" as against "the impact of the humanities and of the arts" (conflict)) and the first three lines of the third paragraph, one can infer

'statement A' to be correct. (B) and (D) are incorrect. 'Science of nature' in (C) is incorrect. Thus, (A) is the answer. Choice (A)

8. The first para suggests that the composition of the 'War Requiem' was first presented at the consecration of the new Coventry Cathedral. So choice A which states '... marked the third anniversary...' is incorrect. Similarly, in para (2) the reference to epigraph can't be used to support finale. Epigraph is a quotation or saying at the beginning of something (book, music) to suggest its theme. Statement 'c' is supported by para 1. Statement 'd' is supported by the lines in para 2 that speak of the epigraph that Britten chose for his score. So the answer is choice C which includes statements (c) and (d). Choice (C)

9. Choice (A) 'Unqualified approval' and (D) 'open-minded' are easy eliminations. The writer's position is clearly with the human sciences. (C) cannot be conclusively inferred as only one line 'can seem inferior, even worthless----------' cannot lead us to conclude that the writer is 'severely critical'. The writer acknowledges the useful role of natural sciences. So choice (B) 'mildly disapproving' is apt and is a balanced take on the author's views on both schools of thought, particularly 'Naturwisenschatten'. Choice (B)

10. (B) is supported by 'blundering over-simplifications'. (A) is supported by Vico and Dithey's defense "some questions (human psychology and human social behaviour) are beyond the scope of natural scientific inquiry". (C) is supported by "natural sciences ... gold standard for human knowledge". Our reading of para (3) helps us infer the short comings of 'scientism'. Thus, (D) is the answer. Choice (D)

Solutions for questions 11 and 12:

inapt, it brings in a contradiction (the word 'besides' is given and no contrast word) and disrupts the flow. Choice (B)

Solutions for questions 15 and 16:

15. The word 'incendiary' has been spelt incorrectly in part 'a'. The possessive pronoun 'its' does not take the apostrophe in part 'e'. Parts b, c and d are free of errors, making choice B the answer. Choice (B)

16. In part b, the sentence 'she appeared younger now than she was at a distance' has a wrong verb. Here the 'was' has to be changed to 'had" to convey the intended idea that she looked younger now than when she appeared to be when she was at a distance. The omission of the indefinite article in part 'c' before improvised makes it erroneous. Inappropriate placement of the adverb clearly in sentence d makes it incorrect. The adverb should be placed right at the beginning of the sentence. Only parts a and e are correct. So the answer is Choice D. Choice (D)

Solutions for questions 17 and 18:

17. Choice D is the odd one. The para focuses on books about happiness. So, sentences A, B and C are linked. D talks about the term 'self help', which is an additional idea and can be removed. Besides, both sentences (A) and (D) seem to trace the history or origin and (D) becomes superfluous in that case. Choice (D)

18. Choice A is the odd sentence. The para begins with Hedge -fund managers being smartest investors. B which explains their skill follows and D concludes by saying this is how the industry seems to be projecting them (helping clients make smart investments). Choice A, which states that they seem to be making money for themselves is part of the theme but does not fit into the para. Choice (A)

11. The words 'distorted', 'skewed' and 'prejudiced' from the options can go into the first blank. But 'disturbed' can't go because man's sense or reasoning cannot be disturbed. Mind can be disturbed. Choice D is eliminated. Material has not plundered or taken away the sovereignty of the individual. This is a case of taking the place of or overtaking something. 'Usurped' seems to be the best choice.
Choice (A)

12. 'Punctilious' is to be meticulous and proper. The noun form of this is 'punctiliousness', which is apt to convey the manner in which we treat guests. While the other words 'respect', 'reverence' and 'propriety' are acceptable for the first blank, the combination of 'punctiliousness' and 'formality' suits this context best. Choice (A) would have worked but the adjective 'considerate' also means understanding. The sentence would have suffered from 'redundancy'. Choice (B)

Solutions for questions 13 and 14:

13. The para discusses the benefits of humour and laughter in life. The sentence before the blank refers to psychological benefit. Choice (B) which cites 'physiological' is an easy elimination. 'End up believing' in Choice (A) suggests that it is only a belief and not an actual benefit. Choice (D) is narrow in scope. Choice (C) which mentions 'emotional security' is the best conclusion. Choice (C)

14. The paragraph introduces the idea about the desire to shed a few pounds and almost ends on a pessimistic note by stating that regimens which promise swift and dramatic results are ineffective. Choice A talks about the diet industry (which has not been spoken about in the earlier line). It does not provide a reason but makes an observation (even though statement A begins with the conjunction 'because'). Choice C continuous the discussion but it cannot be a fitting end to the paragraph as it introduces a new line of thought. Choice B with its contrast word 'yet' changes the tone of the paragraph by stating that even though the regimens discussed may be ineffective, girth management is big business in America. Choice D is

Solutions for questions 19 to 21:

Number of words and Explanatory notes for RC:

Number of words : 693

19. The last line of the passage clinches the answer – "discern where the lines should be drawn between the marketable and the unmarketable, the things that have a price and those that are priceless". Thus, (B) is the answer.
Choice (B)

20. Refer to para 4, where the case is cited. Sandel mentions this example to suggest that a money value may not be wholly inappropriate, and does not stand comparison to 'selling a kidney'. Thus, (D) is the answer. Choice (D)

21. The author questions the assumption that 'different levels of resource is always unjust', and argues that there is little to object to when a person earns more on account of his/her talent and industry. Thus, (B) is the answer.
Choice (B)

Solutions for questions 22 to 24:

A is not the shortest and C is not the tallest. Further, A is shorter than C and B is shorter than D. Since, C is taller than A but not the tallest, A cannot have five floors. Similarly C, cannot have two floors. B cannot be the tallest since it is shorter than D.
$\Rightarrow$ The possibilities are
$A \rightarrow 2, 3$
$B \rightarrow 1, 2, 3, 4$
$C \rightarrow 3, 4$
$D \rightarrow 2, 3, 4, 5$
$E \rightarrow 1, 2, 3, 4, 5$
Given $A + E = C + D$
But C can take only 3 or 4 and neither A nor D can take 1.
$\therefore$ $C + D = (3 + 2)$ or $(2 + 3)$ is not possible as $A + E = 1 + 4$ in such a case and A can be neither 1 nor 4.
$C + D = 3 + 4$ is possible $\Rightarrow A + E = 2 + 5$ ..... (1)
$C + D = 4 + 3$ is possible $\Rightarrow A + E = 2 + 5$ ..... (2)
In both the cases B is the building with only one floor.

22. B is the shortest. Choice (A)

23. $C + B = 3 + 1 = 4 = (2)^2$ and $D + E = 4 + 5 = 9 = (3)^2$
Hence, for two pairs. Choice (C)

24. Statement (1) is not true as the arrangement will be as follows:

1	2	3	4	5
B	A	C	D	E

Statement (2) is true as C + A = 5 = E Choice (B)

Solutions for questions 25 to 27:

From D, we know that either TILES or FELTO should be ranked 2.

Possibility 1:
TILES is ranked 2: If we assume that MAGT is ranked 1, then REG gets rank 4 (from (a)), but this is contradicted by B, MAGT cannot be ranked 1.
As per (b), in case REG is not ranked 1, then FELTO is ranked 4, which means REG is ranked 3 and MAGT is ranked 1, which is not possible. Hence, REG has to be ranked 1.
We can have FELTO as rank 3, which means that MAGT has to be ranked 4, but this is contradicted by (e).
Hence, FELTO has to be ranked 4 and MAGT has to be ranked 3.
∴ The order will be

Rank	1	2	3	4
Exam	REG	TILES	MAGT	FELTO

Possibility 2:
FELTO is ranked 2: As seen earlier, MAGT cannot get 1st rank, as it would contradict the other given conditions. Hence REG is ranked 1.
From C, we know that TILES cannot be ranked 3 as in that case FELTO cannot be ranked 2. Hence TILES has to be ranked 4. This leaves MAGT with rank 3.
∴ The order will be

Rank	1	2	3	4
Exam	REG	FELTO	MAGT	TILES

25. In both the cases, REG has the highest number of test taker. Choice (B)

26. The exam with the least number of test takes is either FELTO or TILES. Choice (D)

27. In both the cases, MAGT is ranked 3. Choice (D)

Solutions for questions 28 to 30:

As each team plays with a different team on each day, each team plays three matches
∴ Total instances = 3 × 4 = 12
But two teams participate in each match, total number of matches = $\frac{12}{2} = 6$
⇒ Every day two matches are held
As each team plays only one match on each day, if A plays with B on day x, C plays with D on day x.
The following table represents the days on which the matches will b held

	A	B	C
B	x	-	-
C	y	z	-
D	z	y	x

28. Given x = 2
From choice (A): z = 3 and z = 1
Hence contradiction
From choice (B): y = 3, z = 1
Hence true
From choice (C): x = 3, false Choice (B)

29. Given x = y + 1
If y = 1, x = 2 ⇒ z = 3
If y = 2, x = 3 ⇒ z = 1
∴ y cannot be 3 and z cannot be 2.
From choice (A): y = 1
From choice (B): z = 3
From choice (C): z = 2, which is not possible
From choice (D), y = 1, which need not be definitely true.
Choice (C)

30. On day 1 A must have played with either B or D and on day 2 A must have played with either C or D. If A plays with D on day 1 then A must have played with C on day 2 and with B on day 3. However, if A plays with B on day 1 then A can play with either C or D day 2 ⇒ A can play with either D or C on day 3.
Hence, the team against which A plays on day 3 cannot be determined. Choice (D)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	–
Easy	–
Medium	1, 2, 15, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30
Difficult	3, 4, 6, 7, 9, 10, 11, 13, 14, 16, 17, 21
Very Difficult	5, 8, 12