T.I.M.E.
Triumphant Institute of Management Education Pvt. Ltd

Ref: AIMCAT1505N

INSTRUCTIONS

1. Read the instructions given at the beginning/end of each section or at the beginning of a group of questions very carefully.
2. This test has two sections with a total of 100 questions – 50 questions each in section I and section II. The total time available for the test is **170 minutes**. You can allot this time across the sections as you wish. However, you are expected to show your competence in both the sections.
3. All questions carry three marks each. Each wrong answer will attract a penalty of one mark.

SECTION – I
Number of Questions = 50

DIRECTIONS *for questions 1 to 7:* Answer the questions independently of each other.

1. If $f(x) = \frac{25^x}{25^x + 5}$, then find the value of $f(\frac{1}{99}) + f(\frac{2}{99}) + \text{------} + f(\frac{98}{99})$.
(A) 49 (B) 48 (C) 99 (D) 1

2. In a school, 20 students play cricket, 30 play basketball and 50 play hockey. If the number of students who play exactly one game is 30 and the number of students who play exactly two games is 20, find the number of students who play all the three games.
(A) 15
(B) 10
(C) 16
(D) Cannot be determined

3. If x and y are positive real numbers such that $6xy + 10x + 15y = 39$, find the minimum value of $2x + 3y$.
(A) 6 (B) $6\frac{1}{7}$ (C) $5\frac{6}{7}$ (D) $7\frac{4}{5}$

4. A trapezium DECB is formed by folding triangle ABC such that vertex A lies on side BC and the fold line is DE. If BC = $10\sqrt{5}$ and area of the trapezium DEBC is 45 square units, find the area of triangle ABC.
(A) $135\sqrt{5}$ (B) $75\sqrt{5}$ (C) 90 (D) 60

5. There are two pipes P_1 and P_2, through which water flows into a tank at speeds of 2 m/s and 6 m/s respectively. If the cross-sectional areas of the pipes are 15 cm^2 and 25 cm^2 respectively, and it takes 40 minutes to fill the tank, then find the capacity of the tank (in kilolitres).
(A) 28.8 (B) 32.4 (C) 86.4 (D) 43.2

6. Find the remainder when 2^{1783} is divided by 73.
(A) 7 (B) 9 (C) 4 (D) 2

7. If the expressions $a_1 - 2a_2$, $2a_2 - 3a_3$, $3a_3 - 4a_4$ and $4a_4 - a_1$ are in arithmetic progression, what is the ratio of a_1 and a_2?
(A) 2 : 1 (B) 4 : 1
(C) 8 : 1 (D) Cannot be determined

DIRECTIONS *for questions 8 to 12:* Answer the questions on the basis of the information given below.

The following table provides the profile of the batch of students in a certain business school, in the year 2013.

Gender						
Male	Female	Total				
147	33	180				
Age (in years)						
19-23	24-26	>26	Total			
115	60	5	180			
Qualification						
Arts	Commerce	Science	Engineering (Non IIT)	Engineering (IIT)	Total	
27	43	27	52	31	180	
Work - Experience (in months)						
0	< 12	12-23	24-35	36-48	> 48	Total
88	23	21	33	13	2	180

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8. If all but nine girls have no work experience, then the boys with no work experience form what percentage of the total students?
(A) 35.5% (B) 38.6%
(C) 12.2% (D) 43.3%

9. If all the commerce and the arts graduates in the batch take finance as their specialization, then what percentage of the batch comprises of students who opt for specialization in finance?
(A) 38.88%
(B) 38.5%
(C) 33.33%
(D) Cannot be determined

10. If all the students with an experience of 3 years or more are engineering graduates and more than 24 years of age and all of them except 4 are from the IITs, then what is the ratio of the number of engineering graduates who are IITians to engineering graduates who are non IITians among the students with less than 3 years of work experience?
(A) 11 : 4
(B) 5 : 12
(C) 11 : 24
(D) Cannot be determined

11. If all those with a non-engineering background are less than 24 years of age, then what percentage of those who are less than 24 years of age are engineers?
(A) 21.6% (B) 15.6%
(C) 18.4% (D) 10%

12. The batch of 2014 has 21.2% more girls than the previous batch and 10% of the girls of this batch are with an Engineering (IIT) background, while 20% of the total girls of this batch are with an Enginerring (non IIT) background. What is the ratio of the number of girls who are non engineers to the total strength of the batch?
(A) 15.5%
(B) 13.3%
(C) 17.2%
(D) Cannot be determined

DIRECTIONS *for questions 13 and 14:* Answer the questions independently of each other.

13. Consider the sequence of numbers μ_1, μ_2, μ_3 ..... where $\mu_1 = -62.33$ and $\mu_2 = 27$. Find the sum of the first 9008 terms of this sequence, if $\mu_k = \mu_{k-1} - \mu_{k-2}$, for every $k \geq 3$.
(A) 89·33 (B) –35·33
(C) –81·33 (D) 70·66

14. The sides of a regular decagon are extended to form a star. Find the measure of the internal angle at each point of the star.
(A) 72° (B) 108° (C) 144° (D) 45°

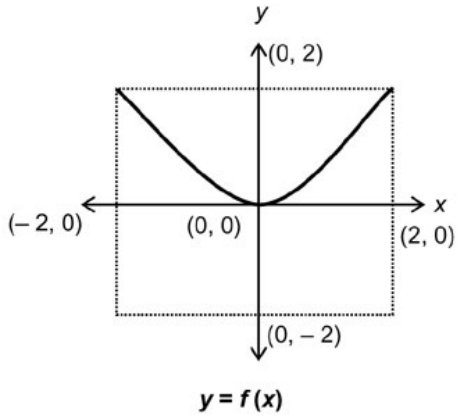
DIRECTIONS *for questions 15 and 16:* Answer the questions on the basis of the information given below.

In each of the questions two graphs $y = f(x)$ and $y = F(x)$ are shown. In each question, one or more of the following relations could hold between $f(x)$ and $F(x)$:

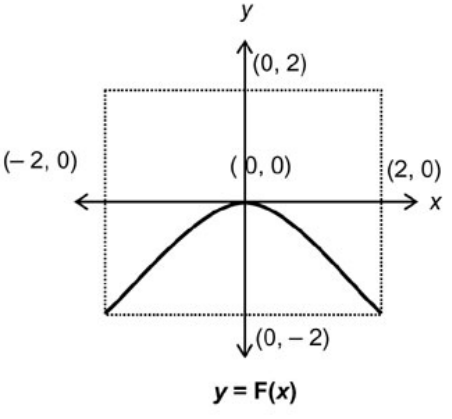
(i) $f(x) = F(-x)$
(ii) $f(x) = -F(x)$
(iii) $f(x) = -F(-x)$
(iv) $f(x) = |F(x)|$
(v) $f(x) = -|F(x)|$

Identify, in each case, the number of relations that the pair of graphs satisfy.

15.



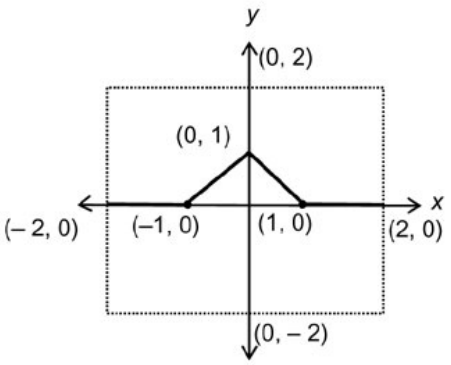
y = f (x)



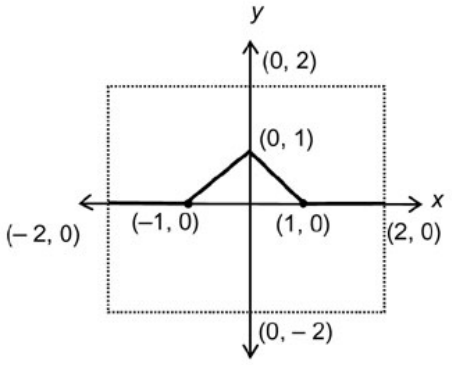
y = F(x)

(A) 1 (B) 2 (C) 3 (D) 4

16.



$y = f(x)$



$y = F(x)$

(A) 1 (B) 2 (C) 3 (D) 4

DIRECTIONS *for question 17:* Select the correct alternative from the given choices.

17. At the farewell party of a certain class, having n students, if each student of the class gave one gift each to exactly k other students of the class, the number of students in the class who received at least one gift each cannot be less than
(A) k. (B) $k + 1$. (C) $n - k$. (D) $n - 1$.

DIRECTIONS *for question 18:* The question contains a question statement and two statements, I and II, giving some information. You have to select the correct answer from (A) to (D) depending on the sufficiency of the data given in the statements to answer the question. Mark your answer as

Choice (A) if the question can be answered by using one of the statements alone but cannot be answered by using the other statement alone.
Choice (B) if the question can be answered by using either statement alone.
Choice (C) if the question can be answered by using both the statements together but cannot be answered by using either statement alone.
Choice (D) if the question cannot be answered even by using both the statements together.

18. Among 100 people who attended the office today, 12 persons who left on time came either early or on time. How many people came late but left on time?
I. 65 people came either late or early and 60 left late.
II. 20 people came late and 20 left early.

DIRECTIONS *for questions 19 to 21:* Answer the questions independently of each other.

19. A change dispensing machine contains 1 rupee, 2 rupee and 5 rupee coins. The total number of coins in the machine is 200. The total amount in the machine adds up to ₹450. If the number of 1 rupee and 2 rupee coins are interchanged, the total amount comes down to ₹325. The number of 5 rupee coins in the machine is
(A) 25 (B) 20 (C) 30 (D) 15

20. The sum of two natural numbers when added to their LCM, gives a total of 143. How many such pairs of numbers exist?
(A) 6 (B) 8 (C) 9 (D) 12

21. Consider a triangle of area 1 sq. unit with sides of lengths a, b and c, such that $a \geq b \geq c$. Which of the following is definitely true?
(A) The minimum value that can be attained by a is $\sqrt{2}$.
(B) The triangle is equilateral.
(C) The minimum value that can be attained by b is $\sqrt{2}$.
(D) None of the above

DIRECTIONS *for questions 22 to 26:* Answer the questions on the basis of the information given below.

The data contained in the chart given below indicates the part movement, i.e., the number of parts moved, between any pair of machines, from among six machines that are involved in a manufacturing process. The machines are numbered 1, 2, 3, 4, 5 and 6 and are arranged in a row, from left to right, not necessarily in the same order. The distance between any two adjacent machines is 10 units.

Part Movement Between Machines

Number of parts moved from machine	to machine					
	1	2	3	4	5	6
1	0	5	0	0	10	0
2	30	0	0	15	5	0
3	10	40	0	0	5	5
4	10	0	0	0	20	0
5	20	15	10	20	0	0
6	10	0	15	0	10	0

Note : All part movements mentioned are direct part movements. For example, according to the above table, 30 parts move directly from machine 2 to machine 1, without passing through any intermediate machine/s.

Total part movement between any two machines, say machine i and machine $j = p_{ij} + p_{ji}$, where $1 \le i \le 6$; $1 \le j \le 6$.

For example, between machine 1 and machine 2
p_{12} = Number of parts moved from machine 1 to machine 2 = 5
p_{21} = Number of parts moved from machine 2 to machine 1 = 30
$\therefore$ Total part movement between the two machines = $p_{12} + p_{21} = 35$

Total part-travel distance = Sum of the distances travelled by all the parts put together.

Machines are arranged in such a way that the total part-travel distance is the minimum possible.

22. Which two machines are placed the farthest from each other?
(A) 1 and 2 (B) 4 and 6
(C) 3 and 4 (D) 1 and 4

23. What is the sum of the part movements between all the pairs of adjacent machines put together?
(A) 125 (B) 145 (C) 165 (D) 175

24. What is the total part-travel distance?
(A) 3200 units (B) 4600 units
(C) 3600 units (D) 4050 units

25. What is the sum of the distances travelled by all the parts moved between machines 5 and 3?
(A) 150 units (B) 300 units
(C) 450 units (D) 600 units

26. What is the total part-travel distance covered by all the parts involving machine 5?
(A) 1550 units (B) 1850 units
(C) 1900 units (D) 1950 units

DIRECTIONS *for questions 27 to 37:* Answer the questions independently of each other.

27. A circular pizza is cut into four identical pieces (or quadrants) with two diametrical cuts made perpendicular to each other. Each piece can be topped with any one of five available toppings but no two adjacent pieces have the same topping. In how many ways can the four pieces be topped?
(A) 260 (B) 160 (C) 70 (D) 240

28. The average age of a family of seven members, including Bunti and Babli, aged 70 years and 63 years respectively, on January 1st 1986 was 33 years. N years later, Bunti died on his birthday and Mona was born on the same day. A few years after that, Babli died on her birthday and Rohan was born on the same day. N more years after that, on January 1st 2007, Raj was born. What was the average age of the family of eight members on January 1st 2008?
(A) 28 years (B) 32 years
(C) 33 years (D) 29 years

29. If x, y and z are single-digit whole numbers, for how many ordered triplets (x, y, z) is the number $x246y8189z$ divisible by 8, 9 and 11?
(A) 8 (B) 9
(C) 6 (D) None of the above

30. The number of common roots for the equations $y = x^3 + 5x^2 + 6x + 8$ and $y = x^3 + 4x^2 + 10x + 4$ is
(A) 0 (B) 1 (C) 2 (D) 3

31. If $\log_2(x^y + y^4 - 41) = 8$, where x and y are positive integers, then the value xy^3 can be
(A) 216 (B) 162
(C) 192 (D) None of the above

32. A drum contains 9 litres of water. Two buckets with respective capacities of 3 litres and 4 litres are provided. Neither the drum nor any of the two buckets is calibrated. Any of the following activities qualifies as an *operation:*

(i) Drawing water from the drum with a bucket.
(ii) Pouring water from either bucket into the drum
(iii) Pouring water out from one bucket into the other bucket.

If it is required to have exactly 3 litres of water in each bucket, the minimum number of *operations* to be performed is
(A) 3 (B) 4 (C) 5 (D) 6

33. P, Q and R are distinct natural numbers. If $V = \frac{P(Q^2 + R^2) + Q(P^2 + R^2) + R(P^2 + Q^2)}{PQR}$, then V must be
(A) greater than or equal to 16 but less than 64.
(B) greater than 6.
(C) greater than 24 but less than 87.
(D) greater than 16.

34. In a network, there are 20 cities with every city being connected with every other city by distinct routes. How many paths exist from city 3 to city 17 each of which passes through exactly 7 cities including cities 5, 8 and 12 but excluding cities 7 and 9?
(A) 495 (B) 715
(C) 1716 (D) $715 \times 7!$

35. In a race A beats B by 40 m and C by 60 m. If B's speed is 40% higher than that of C, then find the distance over which the race was run (in metres)?
(A) 90 (B) 110 (C) 140 (D) 220

36. I. $5! + 6! + 7! + 8! + \ldots..+230!$ is a perfect square.
II. $2(1! + 2! + 3! + 4! + \ldots+125!)$ is a perfect cube
(A) I is true but II is false
(B) II is true but I is false
(C) Both I and II are true
(D) Both I and II are false

37. There is a 5×5 square grid, with each of its cells having a distinct identity. In how many ways can three identical coins be placed in the grid (with at most one coin in each cell) such that no two coins are placed either in the same row or in the same column?
(A) 1200 (B) 1800 (C) 600 (D) 900

DIRECTIONS *for questions 38 to 42:* Answer the questions on the basis of the information given below.

The following two tables give details of the number of employees in company X over the five years, 2009 to 2013.

Number of employees on the basis of their designations

Year	Managers	Assistant Managers	Senior Executives	Junior Executives	Trainees
2009	40	98	92	112	78
2010	42	102	87	110	81
2011	39	105	90	110	83
2012	40	99	87	111	85
2013	45	89	85	120	87

Number of employees on the basis of their salaries

Year	Number of employees with salary more than				
	₹1,00,000	₹50,000	₹30,000	₹20,000	₹10,000
2009	52	140	230	350	408
2010	52	145	231	350	408
2011	40	150	235	350	420
2012	40	145	240	350	418
2013	46	135	218	350	420

The values in each row show the number of employees in the company, in that year, who had a salary more than the value in the top most cell of the corresponding column. For example, in 2009, 52 employees in the company had a salary more than ₹1,00,000, while 140 employees had a salary more than ₹50,000.

It is also known that,

(i) the level of Manager is the highest level in the company and an employee at any level gets promoted only to the next highest level, i.e., from Assistant Manager to Manager, from Senior Executive to Assistant Manager, from Junior Executive to Senior Executive and from Trainee to Junior Executive.
(ii) at any level, the salary an employee draws is lower than the lowest salary drawn by any employee at the next highest level.
(iii) the level of Trainee is the lowest level in the company.
(iv) no employee has a reduction in his salary from one year to the next and does not leave the company until he retires.

38. In each of the years from 2010 to 2013, the number of employees recruited by the company was the minimum possible. Find the total number of employees recruited by the company in this period, assuming that all employees recruited in the period 2009-10 were recruited in 2010.
(A) 27. (B) 45.
(C) 49. (D) None of these

39. If the total number of recruitments in the given period was the minimum possible, then in which year did the least number of employees retire?
(A) 2010-2011 (B) 2011-2012
(C) 2012-2013 (D) 2009-2010

40. In the year 2013, the number of employees who got promoted was the maximum possible and no employee gets promoted more than once every three years. Find the maximum possible number of people recruited by the company in the year 2013, if it is known that employees who are promoted or recruited by the company cannot leave for the next one year.
(A) 128 (B) 124
(C) 95 (D) None of these

41. If the number of employees who retired in each of the given years was the minimum possible, then what is the total number of employees who retired from the company during the given period?
(A) 35 (B) 39 (C) 43 (D) 47

42. Which of the following must be false regarding the given period?
(A) All the Managers have a salary more than ₹1,00,000 in each of the given years.
(B) All the Assistant Managers have a salary more than ₹50,000 in each of the given years.
(C) All the Senior Executives have a salary more than ₹30,000 in each of the given years.
(D) All the Junior Executives have a salary more than ₹20,000 in each of the given years.

DIRECTIONS *for question 43:* Select the correct alternative from the given choices.

43. If $x = \frac{10^{18} - 8^{18}}{10^{13} - 8^{13}}$, then which of the following is true?
(A) $10^3 < x < 10^4$
(B) $10^4 < x < 8^5$
(C) $8^5 < x < 10^5$
(D) $x > 10^5$

DIRECTIONS *for question 44:* This question is followed by two statements, I and II, giving certain data. You have to mark the correct answer depending on the sufficiency of the data given in the statements to answer the question.

Mark (A) if the question can be answered by using one of the statements alone but cannot be answered by using the other statement alone.
Mark (B) if the question can be answered by using either statement alone.
Mark (C) if the question can be answered by using both the statements together but cannot be answered by using either statement alone.
Mark (D) if the question cannot be answered even by using both the statements together.

44. If m and n are positive integers, is $m > n$?
I. $4m + 5n = 87$
II. $m^3 > 52n^2$

DIRECTIONS *for questions 45 to 48:* Answer the questions independently of each other.

45. If a, b and c are in arithmetic progression, then the equation $ax + by + c = 0$
(A) represents a family of straight lines, each of which is at a distance of 5 units from the origin.
(B) represents a family of straight lines, all of which intersect at a point P, which is at a distance of 5 units from the origin.
(C) represents a family of straight lines, each of which is at a distance of $\sqrt{5}$ units from the origin.
(D) represents a family of straight lines, all of which intersect at a point P, which is at a distance of $\sqrt{5}$ units from the origin.

46. The units digit of each of X and Y when expressed to the base n is a. If the units digit of $\left(\frac{X+Y}{2}\right)$ when expressed to the base n is either 2 or 5, find n.
(A) 8 (B) 6 (C) 10 (D) 12

47. If $x = -0.2$, which of the following is the largest?
(A) $-\left(x^{-1/x}\right)$ (B) $250x^2$
(C) $\frac{10}{\left(\sqrt{-x}\right)^3}$ (D) $5^{\frac{-1}{2x}}$

48. Several unit cubes are used to construct a larger cube. The large cube is now cut perpendicular to one of its faces along both the diagonals of that face. If K is a natural number, then is the side of the cube an odd integer?

Which of the following two statements can be used to answer the above the question?

I. The total number of unit cubes cut is $2K^2 + 3K + 1$
II. The total number of unit cubes cut is $72K^2$
(A) Only I (B) Only II
(C) Either I or II (D) Neither I nor II

DIRECTIONS *for questions 49 and 50:* Answer the questions on the basis of the information given below.

A certain university conducted an entrance test for its prestigious postgraduate course. When the results of the test were declared, each candidate who had appeared for the test was also given a percentile score, which was calculated as

$$\text{Percentile score of a candidate} = \frac{\text{Number of candidates in the test who scored less than him}}{\text{Total number of candidates who appeared for the test}} \times 100$$

Each candidate got his percentile score in the PQ·RST format, where T was a natural number for at least one candidate. Further, it is known that no approximations were made while determining the percentile score of any candidate.

49. The number of candidates who appeared for the test is at least
(A) 100,000
(B) 10,000
(C) 64
(D) 32

50. If the number of candidates who appeared for the test is not more than 87,654 and no two candidates got the same percentile score, then the number of candidates who appeared for the test is at most
(A) 80,000 (B) 64,000
(C) 50,000 (D) 32,000

SECTION – II
Number of Questions = 50

DIRECTIONS *for question 51:* The following question has six statements labelled (a), (b), (c), (d), (e) and (f). Classify the given statements into:

(I) Assertion: if the statement is a point of view (the answer option indicates such a statement with an 'A').
(II) Supporting reason: if the statement justifies or strengthens an assertion (the answer option indicates such a statement with an 'S').
(III) Counter-argument: if the statement contains logic opposing an assertion (the answer option indicates such a statement with a 'C').
(IV) Irrelevant: if the statement is neither an assertion nor contextually related in any way to the remaining sentences or assertion(s) (the answer option indicates such a statement with an 'I').

Some statements may be independent while some statements may be contextually related as supporting reasons or contradictions etc. and there might be one or more related contexts discussed through these sentences Contextually related sentences may not be in sequential order.

51. (a) Suffering, to my mind, is a sort of mental starch, which ought to be endured as frequently as possible.
(b) 'One little white lie' to save somebody pain – is that a truth or a lie?
(c) The dividing line between safety and disaster is very thin.
(d) One wrong move can mean a lot of pain – sometimes even death.
(e) The dividing line between honesty and dishonesty is very thin.
(f) When have you encountered a habitual liar and how was it destructive to your relationship?

(A) I, S, C, S, A, C (B) A, S, A, S, A, I (C) A, C, A, S, A, I (D) I, S, I, C, S, A

DIRECTIONS *for questions 52 to 55:* Read the following passage and answer the questions given below it.

I think the oddest case I have seen attempted for the existence of God is the Bayesian argument recently put forward by Stephen Unwin in his book *The Probability of God*. The book's subtitle *A Simple Calculation that Proves the Ultimate Truth* has all the hallmarks of a late addition by the publisher because such overweening confidence is not to be found in Unwin's original text. The book is better seen as a 'How To' manual, a sort of Bayes' theorem for Dummies, using the existence of God as a semi-facetious case study.

Even Richard Dawkins in his book *The God Delusion* tries to set the God Hypothesis as a scientific hypothesis and to apply scientific methods to validate or invalidate this hypothesis. Despite the highly frequent use of "statistically" or "improbable" there is no p-value or quantitative answer at the end. What's even more fascinating is Dawkins' take at Bayesian arguments! Because it relies on subjective prior assessments, Bayesian statistics does not fit as a proper approach. Dawkins does not aim at the whole Bayesian perspective when he starts from Stephen Unwin's probability of God. However his criticism would equally apply to any Bayesian argument.

Bayes' Theorem is a mathematical engine for combining many estimated likelihoods and coming up with a final verdict, which bears its own quantitative estimate of likelihood. But of course that final estimate can only be as good as the original numbers fed in. These are usually subjectively judged, with all the doubts that inevitably flow from that. The GIGO principle (Garbage In, Garbage Out) is applicable here – and, in case of Unwin's God example, applicable is too mild a word. Unwin is a risk management consultant who carries a torch for Bayesian inference, as against rival statistical methods. He illustrates Bayes' theorem by taking on the biggest test case of all, the existence of God.

[Unwin's] plan is to start with complete uncertainty, which he chooses to quantify by assigning the existence and non-existence of God a 50 per cent starting likelihood each. Then he lists six facts that might bear on the matter, puts a numerical weighting on each, feeds the six numbers into the engine of Bayes' Theorem and sees what number pops out. The trouble is that the six weightings are not measured quantities but simply Stephen Unwin's own personal judgements, turned into numbers for the sake of the exercise. The six facts are:

(a) We have a sense of goodness.
(b) People do evil things (Hitler, Stalin, Saddam Hussein).
(c) Nature does evil things (earthquakes, tsunamis, hurricanes).
(d) There might be minor miracles (I lost my keys and found them again).
(e) There might be major miracles (Jesus might have risen from the dead).
(f) People have religious experiences.

For what it is worth (nothing, in my opinion) at the end of a ding-dong Bayesian race in which God surges ahead in the betting, then drops way back, then claws his way up to the 50 per cent mark from which he started, he finally ends up enjoying, in Unwin's estimation, a 67 per cent likelihood of existing. Unwin then decides that his Bayesian verdict of 67 percent isn't high enough, so he takes the bizarre step of boosting it to 95% by an emergency injection of 'faith'. It sounds like a joke, but that really is how he proceeds. I wish I could say how he justifies it, but there really is nothing to say. Surprisingly, Unwin's list of six statements does not include the argument from Intelligent Design but the arguments that he does admit through his Bayesian door are just as weak. That is only to say that the subjective likelihood weightings I would give to them are different from his and who cares about subjective judgements anyways? He thinks the fact that we have a sense of right and wrong counts strongly in God's favour whereas I don't see that it should really shift him, in either direction, from his initial prior expectation. There is no good case to be made for our possession of right and wrong having any clear connection with the existence of a supernatural deity. _____

52. Which of the following sentences can complete the last paragraph of the passage?
(A) Goodness is no part of the definition of the God Hypothesis, only a desirable add-on.
(B) Here, Unwin's judgement is opposite to mine but goes along with many uncomfortable theologians.
(C) As in the case of our ability to appreciate a Beethoven quartet, our sense of goodness, though not necessarily our inducement to follow it, would be the way it is with a God and without a God.
(D) For these reasons, if I were redoing Unwin's Bayesian exercise, neither the problem of evil nor moral considerations in general would shift me far, one way or the other, from the null hypothesis or Unwin's 50 percent.

53. Which of the following is the correct interpretation of the GIGO principle, based on the passage?
(a) If the basic information and the intermediate understanding used to arrive at a conclusion are not explicitly stated, then a conclusion cannot be reached.

(b) If the data used to arrive at a conclusion is erroneous or distorted and there are other hunches or anomalous assumptions added to the information being tested at the outset, then the conclusion will be worthless.
(c) The propensity for individuals to blindly accept what the outcome is.
(d) If the basic facts used to arrive at a conclusion are not the only relevant premises but some other important subjective assumptions need to be made, then the conclusion will be wrong.
(e) If the probability of the correctness of the basic premises used to arrive at a conclusion is unknown, then a conclusion cannot be derived from them.

(A) Only b (B) a and e
(C) Only d (D) b and c

54. Which of the following lines of thinking shows the same logical flaws as Unwin's God example?
(a) Gautam Singhania calculates the probability of businessmen to build a boat to be zero as they are marooned on an uninhabited island after a shipwreck and have no possibility of returning.
(b) Al Gore calculates the amount of damage done to glaciers based on research findings by ecologists/ scientists and the petroleum industry and then dismisses the former findings.
(c) Eric Davis, a physicist, calculates the possibility that werewolves and UFOs (Unidentified Flying Objects) exist based on stories by people who claim to have seen them and concludes that they do not because he himself does not believe in werewolves and UFOs.
(d) Sunita Williams calculates the possibility that alien life exists in other galaxies based on the subjective likelihood of the arguments for and against it, and then concludes it must exist, based on a gut feeling of hope.
(e) Stephen Hawking calculates the possibility that life on earth will be wiped out after the earth is hit by a large meteorite in the near future based on statistics of past occurrences (like the Big Bang or the circumstances that led to the extinction of the dinosaurs) and scientific predictions for the future and then concludes that it is highly unlikely.
(f) X calculates the probability of the government of a newly formed country Eritrea to form the constitution based on the fact that such principles will govern the lives of the rule makers only in their next birth if the rule makers agree that they will be born again.
(g) Y calculates the probability of potential immigrants succeeding in a foreign country to be 50% because they are unaware of the resources necessary to succeed in a foreign country.

(A) b, e and g (B) a and c
(C) Only d (D) c and f

55. The God example used by Stephen Unwin would have become more acceptable to the author if
(a) Unwin had used statistical methods superior to Bayes' theorem.
(b) Unwin had not assigned numerical weightings on the facts bearing on God's existence.
(c) Unwin's subjective weighting of the facts bearing on God's existence had been more objective.
(d) Unwin's subjective weighting of the facts bearing on God's existence had been 50 and not 67.
(e) Unwin had not taken the additional step of injecting 'faith' into his calculations.

(A) d and e (B) a and c
(C) a, b and d (D) None of the above

DIRECTIONS *for questions 56 and 57:* The sentences / set of sentences given in each of the following questions, when properly sequenced, form a contextually complete paragraph. **One sentence / set of sentences is not part of the context**. Each sentence/ set of sentences is labelled with a letter. From among the four choices given below each question select the one that, while it omits the contextually unconnected sentence, presents the most logically ordered and coherent paragraph.

56. (a) As my own labour becomes more specialized and productive, I contribute an increasing amount to the general wealth and the community becomes increasingly dependent on me.
(b) At this point, not only am I dependent on the right of all to labour for the objectification of my freedom, but also I can satisfy my need only if many people actually do labour.
(c) As a result, "need" is always relative; there is no absolute level of wealth at which humans conclude that they have "enough"; "enough" is always defined by the society in which one lives, and even when one has enough by that society's standards, one will always "need" a bit more to differentiate oneself from everyone else.
(d) The important aspect of the specialization of labour is that it further increases our interdependence.
(e) Recognition of this increased interdependence leads to the creation of a new common interest in civil society; we develop a common interest in sustaining an economy that will allow all of us to labour and to satisfy our needs.
(f) Labour becomes increasingly specialized because specialization allows for increased productivity and efficiency, which are necessary to create enough general wealth to satisfy the endlessly proliferating needs.
(g) At the same time, however, as my skills become increasingly specialized they also become increasingly narrow, and I become more and more dependent upon the community.

(A) fcabed (B) fdbage
(C) agefdb (D) aegdbf

57. (a) Following increased pressure from Southern politicians, Congress passed a revised Fugitive Slave Act in 1850.
(b) In order to ensure the statute was enforced, the 1850 law also placed control of individual cases in the hands of federal commissioners. These agents were paid more for returning a suspected slave than for freeing them, leading many to argue the law was biased in favour of Southern slaveholders.
(c) By the mid-1800s, thousands of slaves had poured into free states via networks like the Underground Railroad.
(d) Refusing to be complicit in the institution of slavery, most Northern states intentionally neglected to enforce the law.

(e) Part of Henry Clay's famed Compromise of 1850 – a group of bills that helped quiet early calls for Southern secession – this new law forcibly compelled citizens to assist in the capture of runaway slaves.
(f) Despite decisions like Prigg v. Pennsylvania, the Fugitive Slave Act of 1793 remained largely unenforced.
(g) It also denied slaves the right to a jury trial and increased the penalty for interfering with the rendition process to $1000 and six months in jail.

(A) cfdaeg (B) fceabg
(C) fcaegb (D) facegb

DIRECTIONS *for question 58:* Select the correct alternative from the choices to answer the following question.

58. Proportions of unemployed persons are usually substantially higher in Europe than in the United States of America and the employed fraction of the population smaller.

Which of the following, if true, would show that unemployment may not be a serious problem in Europe?

(A) Most of the Europeans are self-employed whereas in the United States of America it is not the case.
(B) The density of population in Europe is comparatively higher than that in the United States of America.
(C) The disparity of income levels in Europe is not as pronounced as in the United States of America.
(D) The population profile of European countries shows that a much higher percentage is of people of unemployable age.

DIRECTIONS *for question 59:* The question has a set of five sequentially ordered statements. Classify the statements into Facts, Inferences and Judgements based on the following criteria and then choose the most appropriate option.

– Facts, which deal with pieces of information that one has seen, heard or read; which are known matters of direct observation or existing reality; which are open to discovery or verification (the answer option indicates such a statement with an 'F')
– Inferences, which are logical conclusions or deductions drawn about the unknown, on the basis of the known i.e. based on the knowledge of facts (the answer option indicates such a statement with an 'I')
– Judgements, which are opinions or estimates or anticipations of common sense or intention that imply approval or disapproval of persons, objects, situations and occurrences in the past, the present or the future (the answer option indicates such a statement with an 'J')

59. (1) The self-immolator's death, no matter how spectacular, will remain utterly meaningless unless it is captured by a receptive gaze – that is, unless it occurs within a community eaten up by guilty thoughts and feelings.
(2) The guilt can be due to several factors: habitual toleration of injustices, collective cowardice and ethical numbness, passivity in front of political oppression, a general sense of defeat in front of a force (totalitarian government, foreign military occupation, and so on) perceived as invincible, if illegitimate.
(3) In other words, self-immolators are effective in societies that feel responsible in part for their servitude, where feelings of complicity, mutual resentment, and distrust have not only poisoned people's private lives, but also undermined whatever social life is left.
(4) What self-immolators do is disarmingly simple: they break the spell, which is exactly what it takes for the web to start unravelling. As a result, they are instantly embraced as "saviours" and "Redeemers" when in fact sometimes, they only happen to light a match at the very moment when social tension has become explosive.
(5) The strength of the witnesses' embrace is in direct proportion to the intensity of the collective guilt; if the self-immolator redeems them of anything, it is of this oppressive feeling.

(A) JJJFI (B) JIJFF (C) FFIJI (D) JIJJJ

DIRECTIONS *for question 60:* The following question presents four statements, of which three, when placed in appropriate order, would form a contextually complete paragraph. Pick the statement that is not part of the context.

60. (A) In this volatile environment flashy individuals skilled at manipulating symbols of knowledge have a distinct advantage.
(B) In the past, labour unions exacted power by striking or threatening to do so.
(C) Knowledge is the key weapon in power struggles that accompany the emergence of the supersymbolic economy.
(D) Today in addition, they hire investment bankers, lawyers and tax-experts hoping to become part of a restructuring deal rather than its victuals.

DIRECTIONS *for questions 61 to 64:* Answer the questions on the basis of the information given below.

A website allows its customers to download films from its database. The audio and video quality of a film is rated, each on an integer scale of 0 – 10. The product of the Audio and Video ratings gives the final rating. The following table gives partial information of the ratings of 8 films A, B, C, D, E, F, G and H:

	Audio Rating	Video Rating	Final Rating
A	6		
B			24
C		7	
D	7		
E		9	
F		4	
G	5		
H		10	

Further it is known that
– No film has a final rating of less than or equal to 10.

- The films are categorised based on the final rating as 'Bad', 'Average', 'Good' and the 'Best'.
- If final rating is in the range of 0 – 20 then the film quality is 'Bad'.
- If the final rating is in the range of 21 – 50 then the film quality is 'Average'.
- If the final rating is in range of 51 – 75 then the film quality is 'Good'.
- If the final rating is in range of 76 – 100 then the film quality is 'Best'.
- Exactly two films got equal video ratings.
- G is categorised as a 'Bad' quality film.
- The number of films under each category is the same.
- E obtained a higher video rating than A and a higher final rating than H.
- Exactly two films obtained equal audio rating.
- The audio rating of B was higher than its video rating.

61. What is the video rating obtained by A?
(A) 5 (B) 6
(C) 7 (D) Cannot be determined

62. What is the final rating obtained by D?
(A) 42 (B) 56 (C) 63 (D) 70

63. Which of the following is true?

(I) Film F obtained the lowest final rating.
(II) The final rating of A is at least 30.
(A) Only I is true
(B) Only II is true
(C) Both I and II are true
(D) Neither I nor II is true.

64. Which of the following movies were categorized as a 'Good' quality film?
(A) A and C (B) A and D
(C) C and D (D) A and F

DIRECTIONS *for question 65:* In the question, there are five sentences or parts of sentences that form a paragraph. Identify the sentence(s) or parts of sentence(s) that is / are correct in terms of grammar and usage, including spelling, punctuation and logical consistency. Then choose the most appropriate option.

65. (a) It never ceases to amaze us that success often eludes us in spite of one's best intentions.
(b) Our 'smart' work – the planning that we put into the framing of our objectives, the enthusiasm with which we begin
(c) and the willingness we have to accept help of all quarters – seem to be no guarantee that we will achieve the results we desire.
(d) We do sometimes realise, belatedly, that the crucial element missing in our mix is our own effort – elbowgrease, plain and simple.
(e) English, and virtually every other language, is replete by proverbs that point in this direction; "the road to hell is paved with good intentions", "well begun is only half done", "God helps those who help themselves" and many others in the same wane.
(A) Only c (B) Only b
(C) a, b and c (D) b, d and e

DIRECTIONS *for questions 66 and 67:* Each of the following questions has a paragraph from which the last sentence has been deleted. From the given options, choose the sentence that completes the paragraph in the most appropriate way.

66. Man's consciousness shares with animals the first two stages of its development: sensations and perceptions; but it is the third state, conceptions, that makes him man. Sensations are integrated into perceptions automatically, by the brain of a man or of an animal. But to integrate perceptions into conceptions by a process of abstraction, is a feat that man alone has the power to perform – and he has to perform it by choice. The process of abstraction, and of concept-formation is a process of reason, of thought; it is not automatic nor instinctive nor involuntary nor infallible. Man has to initiate it, to sustain it and to bear responsibility for its results. The pre-conceptual level of consciousness is non-volitional; volition begins with the first syllogism.
_____

(A) But the living organisms that possess the faculty of consciousness need to exercise it in order to survive; for an animal, the question of survival is primarily physical; for man, primarily epistemological.
(B) Man cannot survive on the perceptual level of his consciousness; his senses do not provide him with an automatic guidance, they do not give him the knowledge he needs, only the material of knowledge, which his mind has to integrate.
(C) Man has the choice to think or to evade – to maintain a state of full awareness or to drift from moment to moment, in a semi-conscious daze, at the mercy of whatever associational whims the unfocused mechanism of his consciousness produces.
(D) It is the same reasoning that underlies the ideas of chance (as opposed to necessity), and of nothingness (as opposed to existence); structured around our real needs and interests, intelligence fails to recognize this ultimate reality.

67. Historically, the professional intellectual is a very recent phenomenon: he dates only from the industrial revolution. There were no professional intellectuals in primitive, savage societies, there were only witch doctors. There were no professional intellectuals in the Middle Ages, there were only monks in monasteries. In the post-Renaissance era, prior to the birth of capitalism, the men of intellect – the philosophers, the teachers, the writers, the early scientists – were men without a profession, that is: without a socially recognized position, without a market, without a means of earning a livelihood. Intellectual pursuits had to depend on the accident of inherited wealth or on the favour and financial support of some wealthy protector. And wealth was not earned on an open market, either; wealth was acquired by conquest, by force, by political power, or by the favour of those who held political power. Tradesmen were more vulnerably and precariously dependent on favour than the intellectuals. The professional businessman and the professional Intellectual came into existence together, as

brothers born of the industrial revolution. Both are the sons of capitalism – and if they perish, they will perish together. _____

(A) With very rare and brief exceptions, pre-capitalist societies had no place for the creative power of man's mind, neither in the creation of ideas nor in the creation of wealth.
(B) These two figures dominate every antirational period of history, whether one calls them tribal chief and witch doctor – or absolute monarch and religious leader – or dictator and logical positivist.
(C) Our present state of cultural disintegration is not maintained and prolonged by intellectuals as such, but by the fact that we haven't any.
(D) The tragic irony will be that they will have destroyed each other; and the major share of the guilt will belong to the intellectual.

DIRECTIONS *for questions 68 and 69:* In the following questions, there are 6 sentences (a) through (f) that form the content of a single paragraph. One statement is in the right sequential position while the other five are not. Also given below the six sentences are four statements labelled (p), (q), (r) and (s). One of these is a logical continuation of the paragraph containing sentences (a) through (f). Answer the two questions given below the information provided, following the specific directions given for each.

(a) Is there anything at all that can _____ **banish (a)/ dispel (b)** the darkness and restore her world?
(b) Gripped in the fear that all is lost, and filled with the _____ **conviction (a)/ belief (b)** that the end of the world is nigh, the little one sheds copious tears.
(c) No power on earth, it would seem, can console a three-year-old whose ice cream cone has _____ **fallen (a)/ dropped (b)** on the doormat, leaving no possibility for retrieval.
(d) Her tiny frame is wracked by sobs, each one of which is preceded by a gasp and a _____ **heave (a)/ tremble (b)** of the chest that, in any other circumstance, would have her parents calling for an ambulance.
(e) Gone is the _____ **gleam (a)/ sparkle (b)** in the eye and the joy in the heart.
(f) Why, two cones, of course, each _____ **with (a)/ having (b)** two scoops this time!

<u>One of the following sentences is a logical continuation of the above jumbled paragraph.</u>

(p) As a privileged child, she will advance proudly with one cone in her right hand and one in her left; and expertly moving her head from side to side, she will lick the first one, then the other.
(q) The pathetic, and obviously mendacious justification for refusing her the cones was that a girl concerned with turning her eyes from one cone to the other was more inclined to stumble over stones, steps or cracks in the pavements.
(r) But, only spoiled children ate two cones at once, those children who in fairy tales were rightly punished, as Pinocchio was when he rejected the skin and the stalk; and parents who encouraged this weakness, appropriate to little parvenus, were bringing up their children in the foolish theatre of "I'd like to but I can't."
(s) Like the parents of those ambidextrous gluttons I so envied, the consumer civilization pretends to give more, but actually gives, for four cents, what is worth four cents.

68. If statement (f) is the closing statement of the question paragraph, rearrange the remaining five sentences so that when read with f, they would result in a paragraph that delivers the best sense. Also pick the statements that are grammatically incorrect, considering punctuation, appropriate use of words, logical sense and/ or spellings. Ignore the error of the blank being filled by the wrong word. Then mark the appropriate option.

(A) Correct logical order – cbdea; Incorrect sentences – bcef
(B) Correct logical order – ecdba; Incorrect sentences – abdf
(C) Correct logical order – cebda; Incorrect sentences – bcde
(D) Correct logical order – cebda; Incorrect sentences – abce

69. The statements (a) through (f) contain a blank followed by 2 words in bold. Identify the appropriate word for each statement and select from the choices, the one that represents the correct sequence of appropriate words in the six statements. Follow the same order as given in the question. Also from sentences (p), (q), (r) and (s), pick the sentence that logically continues the question paragraph. Then mark the appropriate option.

(A) Correct sequence of words – baaaba; Sentence that logically completes the para – p
(B) Correct sequence of words – bbbaaa; Sentence that logically completes the para – q
(C) Correct sequence of words – aabaaa; Sentence that logically completes the para – r
(D) Correct sequence of words – bbaaab; Sentence that logically completes the para – s

DIRECTIONS *for question 70:* The question below is followed by two statements, I and II. Answer the question using the following instructions:

Mark (A) if the question cannot be answered even by using both the statements together
Mark (B) if the question can be answered only by using both the statements together but not each statement alone
Mark (C) if the question can be answered by using either statement alone
Mark (D) if the question can be answered by one statement alone but not by the other statement alone.

70. Four friends-Ajay, Bharat, Charan and Dinesh, stand in a line one behind the other in increasing order of their heights. Ajay does not stand behind Bharat and Dinesh does not stand in front of Charan.
Who is the tallest among the four friends?

I. Charan stands behind at least one the three friends and Bharat stands before at least one of the three other friends.
II. Bharat does not stand in front of Charan and Ajay does not stand behind Dinesh.

DIRECTIONS *for questions 71 to 74:* Read the following passage and answer the questions given below it.

Conflict happens everywhere, including in the workplace. When it does, it's tempting to blame it on personalities. But more often than not, the real underlying cause of workplace strife is the situation itself, rather than the people involved. So, why do we automatically blame our coworkers? Chalk it up to psychology and organizational politics, which cause us to oversimplify and to draw incorrect or incomplete conclusions.

There's a good reason why we're inclined to jump to conclusions based on limited information. Most of us are, by nature, "cognitive misers," a term coined by social psychologists Susan Fiske and Shelley Taylor to describe how people have a tendency to preserve cognitive resources and allocate them only to high-priority matters. And the limited supply of cognitive resources we all have is spread ever-thinner as demands on our time and attention increase.

Stereotypes are shortcuts that preserve cognitive resources and enable faster interpretations, albeit ones that may be inaccurate, unfair, and harmful. While few people would feel comfortable openly describing one another based on racial, ethnic, or gender stereotypes, most people have no reservations about explaining others' behaviour with a personality typology like Myers-Briggs Type Indicator ["She's such an 'INTJ' (Introversion, Sensing, Thinking, Judgement)"] or ["He's such an 'ENTP' (Extroversion, Intuition, Thinking, Perception)"], Enneagram, or Colour Code ("He's such an 8: Challenger"). As Annie Murphy Paul argues in her insightful book, The Cult Of Personality Testing, these horoscope-like personality classifications at best capture only a small amount of variance in behaviour, and in combination only explain tangential aspects of adversarial dynamics in the workplace. Yet, they're frequently relied upon for the purposes of conflict resolution.

The real reasons for conflict are a lot harder to raise — and resolve — because they are likely to be complex, nuanced, and politically sensitive. For example, people's interests may truly be opposed; roles and levels of authority may not be correctly defined or delineated; there may be real incentives to compete rather than to collaborate; and there may be little to no accountability or transparency about what people do or say.

When two co-workers create a safe and imaginary set of explanations for their conflict ("My co-worker is a micromanager," or "My co-worker doesn't care whether errors are corrected"), neither of them has to challenge or incur the wrath of others in the organization. It's much easier for them to imagine that they'll work better together if they simply understand each other's personality (or personality type) than it is to realize that they would have to come together to, for example, request that their boss stop pitting them against one another, or to request that HR match rhetoric about collaboration with real incentives to work together. Or, perhaps the conflict is due to someone on the team simply not doing his or her job, in which case talking about personality as being the cause of conflict is a dangerous distraction from the real issue. Personality typologies may even provide rationalizations, for example, if someone says "I am a spontaneous type and that's why I have a tough time with deadlines." Spontaneous or not, they still have to do their work well and on time if they want to minimize conflict with their colleagues or customers.

Finally, if you or others feel you must use personality testing as part of conflict resolution, consider using non-categorical, well-validated personality assessments such as the Hogan Personality Inventory or the IPIP-NEO Assessment of the "Big Five" Personality dimensions. These tests, which have ample peer-reviewed, psychometric evidence to support their reliability and validity, better explain variance in behaviour than do categorical assessments like the Myers-Briggs, and therefore can better explain why conflicts may have unfolded the way they have. And unlike the Myers-Briggs which provides an "I'm OK, you're OK"-type report, the Hogan Personality Inventory and the NEO are likely to identify some hard-hitting development themes for almost anyone brave enough to take them, for example telling you that you are set in your ways, likely to anger easily, and take criticism too personally. While often hard to take, this is precisely the kind of feedback that can help build self-awareness and mutual awareness among two or more people engaged in a conflict.

71. According to the passage, workplace conflicts are more conveniently explained by psychology because
(A) focussing on hypothetical causes of conflict is easy and fun in the short term.
(B) situational dynamics that are worsening or causing conflict are multifaceted and complex.
(C) focussing on predetermined perceptions of people or of their variances in behaviour is faster, simpler and more convenient than focussing on situations of adversarial dynamics in the workplace.
(D) no one wants to address underlying causes of conflict in the long term.

72. By the expression "cognitive misers", the author refers to
(A) our reluctance to think deeply about routine work situation conflicts.
(B) our allotment of cognitive resources only to emergency situations.
(C) our judgement of fellow-workers based on limited information on their personalities.
(D) our focussing on a few attributes of people, rather on their complicated entirety.

73. The author of the passage would consider which of the below as a genuine explanation for workplace conflict?
(A) An ENTP personality type and an ISTJ personality type might have a hard time working together.
(B) The boss did not clarify who is responsible for what.
(C) Impulsive personalities would naturally have a tough time sticking to standards and deadlines.
(D) A party with a conservative, data-driven approach would be at loggerheads with a team member having a risk-seeking intuitive style.

74. Which of the following can be understood from the passage?
(a) The word "rhetoric" as used in the passage most closely means persuasive speech.
(b) The word "rhetoric" as used in the passage most closely refers to corporate jargon.
(c) The word "rhetoric" as used in the passage also indicates the situations of empty promises.
(d) The author is most likely to recommend the Myer-Briggs and the Enneagram personality tests for conflict resolution.
(e) The author is also in favour of the Colour code test and diagnostic tests pertaining to imaginary situations at work for conflict resolution.
(A) b and d (B) b, c and e
(C) a and e (D) Only b

DIRECTIONS *for questions 75 to 79:* Answer the questions on the basis of the information given below.

Five friends – Navandar, Chandekar, Waradkar, Bholanekar and Edwankar – purchased five books – *The Kite Runner*, *Simoqin Prophecies*, *The God of Small Things*, *Paddy Clarke Ha Ha Ha* and *The Finkler Question.* As none of the friends had read any of the five books, they decided to finish reading the books in exactly five days, with each of them reading exactly one book per day. At the end of each day, all the friends met together and exchanged the books among themselves so that each of them got a new book to read. The following information is also known about the order in which the books were read:

(i) All the friends, except Chandekar, read *Simoqin Prophecies* before they read *The Finkler Question*.
(ii) *The Kite Runner* was the third book read by Bholanekar and he read it after he read *Paddy Clarke Ha Ha Ha*.
(iii) Waradkar was the third person to read *Paddy Clarke Ha Ha Ha* and after reading it, he gave the book to Navandar.

75. What was the first book read by Chandekar?
(A) *The God of Small Things*
(B) *The Finkler Question*
(C) *Paddy Clarke Ha Ha Ha*
(D) Cannot be determined

76. Who read *Simoqin Prophecies* on the fourth day?
(A) Bholanekar
(B) Navandar
(C) Chandekar
(D) Cannot be determined

77. Which of the following is the order of the persons who read *The God of Small Things* (from the first day to the fifth day)?
(A) Bholanekar, Navandar, Chandekar, Waradkar, Edwankar.
(B) Waradkar, Edwankar, Navandar, Chandekar, Bholanekar
(C) Edwankar, Bholanekar, Chandekar, Waradkar, Navandar.
(D) Cannot be determined

78. After reading *The Finkler Question*, Navandar gave the book to
(A) Bholanekar.
(B) Edwankar.
(C) Chandekar.
(D) Cannot be determined

79. How many books did Chandekar read before Waradkar?
(A) 1 (B) 2 (C) 3 (D) 4

DIRECTIONS *for questions 80 to 84:* Read the following passage and answer the questions given below it.

Amartya Sen is a great economist and social philosopher whose willingness to recognise a central role for market institutions in securing economic development and individual freedom shows considerable commonality with the classical liberal tradition. Sen's commitment to the values that underpin a free society is, however, equivocal and indeed often points towards what classical liberals would see as a dangerous form of paternalism. This tendency is particularly evident in the discussion of 'adaptive preferences' and their relationship to freedom.

Sen questions the traditional liberal view that we should accept that the choices people make in their lives are a reasonable indicator of the subjective value they attach to the choices concerned. The notion of adaptive preference emphasises how the values that people express can be conditioned by the social environment and more specifically by oppressive structures – such as, for example, those that emphasise asymmetric gender relationships within the household. According to Sen, we cannot always trust in the revealed preferences of individual agents as reflecting their 'true' best interests because faced with structures that narrow their range of options people may 'adapt' to their environment by 'accepting' their lot and lowering expectations of what life has to offer. Just as 'libertarian paternalists' attribute the difference between the 'revealed preferences' of people for fatty foods or a low savings rate and their 'real' preferences to various cognitive biases, so Sen focuses on the role of 'adaptation' in accounting for the difference between the subjectively expressed beliefs of actors and their underlying 'objective' interests. The assumption in both of these cases is that these biases can be addressed via appropriate policy interventions either in the form of 'nudges' a la Sunstein and Thaler or via public education in the case of Sen.

From a classical liberal standpoint there are two fundamental problems with this line of analysis. First, it is far from evident that there is anything 'wrong' with people adapting their preferences to their particular circumstances. One might adapt one's desires to be an Olympic athlete, to make the England football team, or to be a champion boxer to the realities of one's physical limitations. Most people would consider adaptation of this nature entirely rational and indeed essential to having any hope in finding satisfaction from life. Of course, it might be argued that there is a fundamental difference between the constraints set by physical limitations and 'socially constructed' constraints which might be thought more malleable. Yet, it is far from evident that this is so. Suppose that most people have a preference for

greater social equality and support Rawls' view that the 'basic structure' of society should operate to 'maximise the position of the worst off'. Suppose also, however, that evidence indicates (as it does) that only societies that tolerate substantial inequalities in income and ownership do in fact raise the absolute condition of the worst- off. In these circumstances, adapting to social inequality would be the rational course to pursue. I do not believe for a minute that the recent London riots were a response to social inequality, but suppose for a moment that they were. One way in which the risk of future social disturbances could be reduced would be for potential rioters to learn to 'adapt' their preferences to the necessary inequality.

Second, one can accept the point that cognitive biases or 'adaptations' may prevent people from getting 'what they really want', but it is another matter to suggest that public policy – or at least policy which is compatible with liberal principles – should play a major role in dealing with these biases. In order for there to be any chance of success in this regard policy-makers need to be able to distinguish between the 'real preferences' or the 'objective interests' of people and those preferences that result from cognitive biases. In the case of libertarian paternalists they need to distinguish preferences for fatty food that are 'genuine' from those that are distorted by 'weakness of will'. In the case of Sen' s adaptive preferences, policy makers need to judge whether a woman's endorsement of asymmetric gender roles reflects her 'real' beliefs or whether these beliefs are a reflection of an overly-constrained social environment. In addition, they would need to decide whether this adaptation is rational in the face of social circumstances which cannot realistically be changed, or whether it results from a more malleable set of conditions. There is little or no reason to suppose that policy makers are able to make such distinctions competently and yet in the absence of this competence the danger is that public policy will collapse into a more conventional form of paternalism – which claims to know what preferences people should have.

The suspicion is, of course, that 'old fashioned paternalism' is the value system that really lies behind this recent behavioural theory and Sen's approach in particular. Sen's commitment to interventionist methods to widen the horizons of women in developing countries reflects a view that traditional gender roles are almost by definition morally problematic and must therefore be 'explained' by the existence of oppressive structures which prevent the 'politically correct' outcome. I have considerable sympathy with Sen's distaste for asymmetric family relations, but I do not believe they are a matter for public policy. Better to rely on trade, economic growth and the cross-cultural contact this brings as the best route to unintentionally expose women to the wider world and what it has to offer. To argue for deliberate intervention to transform what are deemed 'adaptive' preferences is deeply paternalistic and at root, fundamentally illiberal.

80. The term "Adaptive preferences" as used in the passage would most likely correspond with which of the following?
(A) Adaptation which would clearly constitute manipulation since little can be done in the face of intractable inequalities.
(B) Individuals adjusting to something which might be seen as a restriction on either freedom of choice or the range of opportunities a person has.
(C) People altering their preferences to reflect the set of feasible options they have.
(D) The disadvantaged, who adjust to their living conditions and the opportunities available.

81. It has been claimed in the passage that Amartya Sen is paternalist. According to the passage, which of the following seems an appropriate reason for such a claim?
(a) Because a person has adjusted to her position, and her values may have been affected, there is no need to scrutinize and judge whether she has reason to value the objects she actually values.
(b) We play God when we decide what is good for others, even if they never feel it to be so.
(c) If Sen leaves the matter of what functionings are valuable to personal valuation and preference, it is quite possible that people's personal circumstances and deprivation might influence the list they articulate.
(d) The sort of scrutiny and judgement that can be carried out through public discussion can potentially correct evaluative judgements which reflect adaptation.
(A) Only d (B) a, b and c
(C) b and d (D) a and c

82. The author cites examples of preferences for fatty foods and high spending in order to
(A) argue that people get hooked on certain goods, which they then consume compulsively.
(B) provide us with an expert opinion of what is good and bad for us.
(C) present an analogy to Sen's distinction between genuine compromises and weak-willed submission.
(D) make a case that what constitute a good life can have different interpretations.

83. Which of the following problematize(s) Sen's argument that detrimental cognitive biases can be redressed via policy interventions?
(a) When a person's preferences adjust to the limits of what is attainable not through choice but to ward off frustration, she is not an autonomous or a free being.
(b) If the disadvantaged who adapt their views or desires in the light of deprivation really do so with a view to survival, there is no reason to believe that those beliefs will easily change in the light of discussion.
(c) If people can adapt to their external environment and be relatively happy, there is little to worry about.
(d) Ethical theory should focus on what people feel, rather than what other people think is good for them.
(A) Only a (B) c and d
(C) b, c and d (D) a, b, c and d

84. The author of the passage is most likely to agree with which of the following statements regarding women disadvantaged by asymmetric gender relationships within the household?

(A) The dominated housewife may take pleasure in small mercies, and manage to suppress intense suffering for the necessity of continued survival.
(B) A woman in the face of male domination in the household and gender inequality within society alters or reduces her aspirations.
(C) Women should actively explore whether they can mould their life circumstances instead of accepting gender bias at face value.
(D) Women should avail themselves of economic opportunities in multicultural contexts to raise their stakes.

DIRECTIONS *for questions 85 to 87:* Answer the questions on the basis of the information given below.

In an international film festival, ten films – two films from each of the five languages – Spanish, German, French, English and Russian – are screened. The films are screened in a week from Monday through Friday, not necessarily in the same order. Exactly two films are screened on each day – one in the morning session and the other in the evening session.

Further the following information is known:

(i) Both the Russian films are screened before the first French film is screened.
(ii) No two films of the same language are screened either on the same day or on consecutive days.
(iii) Each of the five films screened in the morning sessions is of a different language.
(iv) A Spanish film is screened on Tuesday morning.
(v) An English film is screened on Thursday evening.

85. The films of which two languages are screened on Wednesday morning and Wednesday evening respectively?
(A) German and French
(B) Russian and French
(C) Russian and German
(D) None of these

86. Which of the following statements is definitely false?
(A) The film screened on Wednesday morning is of the same language as that of the film screened on Monday evening.
(B) The day on which a German film is screened always immediately precedes the day on which a French film is screened.
(C) A Russian film is never screened on the same day on which an English film is screened.
(D) A Spanish film is always screened on a day immediately following the day on which an English film is screened.

87. The maximum gap (in days) between the two screenings of films of the same language is
(A) 1 (B) 2 (C) 3 (D) 4

DIRECTIONS *for questions 88 to 92:* Read the following passage and answer the questions given below it.

"Death is an old joke," wrote Turgenev, "that comes to each of us afresh." Death is nothing if not democratic. We try to remove the sting of it through euphemism, so that people do not die but "pass away," or "expire," or "go to a better place." All religions have had to accommodate the fact of death, some making more specific promises about its aftermath than others. Physicians are sworn to fight it off for as long as possible, though the phrase "pull the plug" by now qualifies as one of H.W. Fowler's "Vogue Words." The great writers have understood that it provides the most serious theme in all of literature. No philosophy is complete without an explanation of the meaning of death, not excluding that it is a brute fact of nature and might have no further meaning than that.

The Greek philosopher Epicurus (341–270 B.C.E.) provided a four-step program that, in one swoosh, eliminates any anxiety about death itself and worry about the prospect of an afterlife:

1. Do not believe in God, or the gods. There is no good evidence for their existence, and worrying about them and their judgments is therefore a waste of energy.
2. Do not give any thought to what happens after death. Oblivion follows death, in which you will return to the same state in which you existed before you were born.
3. Take your mind off pain. Two things only can follow from pain: Either it will go away, or it will get worse and worse and you will die, after which oblivion will follow.
4. Do not seek fame, power, money, or extravagant luxuries. All disappoint, and none finally yields satisfaction.

Follow these steps, and serenity, Epicurus holds, will be yours. I have no doubt that it would be. Pity, I find I am unable to follow any of these steps. I am no Epicurean.

Oblivion is my problem. I cannot imagine it. Horace called it "eternal exile." Schopenhauer, like Epicurus, thought oblivion to be no different than life before we were born into it. For Schopenhauer, death, not life, was the constant. "Life can be regarded as a dream," he wrote, and "death as the awakening from it." Changing metaphors, he also claimed that "our life is to be regarded as a loan received from death, with sleep as our daily interest on this loan." Schopenhauer also believed that, on balance, suicide was not at all a bad idea. In Speak, Memory, Vladimir Nabokov wrote that "although the two [prenatal life and death] are identical twins, man, as a rule, views the prenatal abyss with more calm than the one he is heading for (at some forty-five-hundred heartbeats an hour)."

Death, unlike the railroads, publishes no schedule. Untimely is the adjective most often paired with death, but what would constitute a timely death? One, perhaps, that rescues a person from grievous pain, hideous scandal, unbearable guilt. With the exception of those formally pronounced terminally ill, the rest of us do not know when we are going to die.

Would it help if we did? Would we act differently if we had precise foreknowledge of our demise? Would it make death any easier to deal with? On this matter of a (literal) deadline, Santayana thought that, no matter one's age, it is perhaps best to assume that one will live another decade. Yet, in his middle 80s, when his physician suggested he lose weight, Santayana noted that the man evidently wanted him in perfect health in time for his death. He died at 88 at the Convent of the Blue Nuns in Rome. Whenever I hear of someone who has died at 85 or above, I find myself saying, "I'd sign on for that," but, who knows, once there I should probably do all in my power to renegotiate the contract.

Philip Larkin, assuming a normal life span of 70, wrote to a friend that if each decade be taken as a day of the week, he, then in his middle 50s, was already up to Friday afternoon. Larkin, who may well have been a depressive, usually an amusing one, wrote the darkest modern poem about death, "Aubade," whose first stanza reads:

I work all day, and get half-drunk at night.
Waking at four to soundless dark, I stare.
In time the curtain-edges will grow light.
Till then I see what's really always there:
Unresting death, a whole day nearer now,
Making all thought impossible but how
And where and when I shall myself die.
Arid interrogation: yet the dread
Of dying, and being dead,
Flashes afresh to hold and horrify.

Philip Larkin checked out at 63.

88. Which of the following most appropriately describes the central idea of the passage?
(a) We are granted the mixed blessing of being the only species with foreknowledge of its mortality.
(b) Most of us long for life to be prolonged forever and perhaps just a bit beyond.
(c) Putting death out of mind as best one can is a mistake.
(d) People gifted with a short attention span are able to hold the crushing fact of death at bay for long stretches.
(e) In their development, human beings first grasp the concept of time, and not long after the certainty that it is running out.
(A) a and e (B) Only b
(C) a, c and d (D) None of these

89. By the expression 'democratic' Turgenev refers to
(A) death being a universal theme in literature and philosophy.
(B) the only consolation for death being the religious belief that one is going on to something better.
(C) the opinion that people who most fear death are those who have not got much joy from work or who have little if anything invested in family life.
(D) human beings grasping the concept of time in the certainty that it is running out.

90. Which of the following would not qualify as a correct interpretation of Epicurus' four-step program?
(a) Life after I am gone will, of course, be exactly the same as when I was still on the roster of the living.
(b) The concern whether one will have been found good enough in the eyes of God to be worthy of a happy afterlife lacks merit.
(c) There is no point in worrying about the afterlife when the life we live can be so merry.
(d) One should not fear dying with complications and in pain as death is the anaesthesia from which none come round.
(e) Bragging about one's wealth and well-being is pointless in the face of death.
(f) My state after I am gone will, of course, be exactly the same as before I was placed on the roster of the living.
(A) a and d (B) b and e
(C) a and c (D) d and f

91. According to the passage, which of the following statement(s) is/are NOT true?
(a) Horace held it was best not to be born at all.
(b) Schopenhauer argued that only death gives us true insight into the meaning of our lives.
(c) Epicurus argues that the man best prepared for death should be the last to be distressed by death.
(d) Nabakov implies that while it is perfectly natural to think about death, it would be a mistake to let it spoil your day.
(e) Santayana argued that one must keep death always in mind.
(f) A 'not-untimely' death should be a fairly easeful one, according to the author.
(A) a, b, c and d (B) c and d
(C) b and e (D) Only f

92. The author mentions 'renegotiate the contract' to imply that
(A) he did not wish to die, not until life had no more to offer.
(B) we should recognize our true insignificance without letting it interfere with attempting to realize our dreams.
(C) it is a lot easier to believe in the Trinity or await the Messiah and let it go at that.
(D) he did not wish to die, not while life had more to offer.

DIRECTIONS *for questions 93 to 95:* Answer the questions on the basis of the information given below.

In a family, there are nine persons, namely R, S, T, U, V, W, X, Y and Z. In the family, there are two married couples viz., R and U; W and Z, while all the remaining persons are unmarried. These nine persons are to be seated for a family photograph in a row, such that no two unmarried persons can be next to each other.

93. Which of the following cannot be true about the seating arrangement of the family?
(A) W is in the fourth position from left.
(B) R is seven places to the left of the right most person.
(C) Z is three places to the right of the person in the center.
(D) S is in the eighth position from right.

94. Which of the following persons CANNOT be adjacent to Z?
(A) X (B) U (C) S (D) T

95. Which of the following can sit next to R?
(A) Only W
(B) Only U
(C) Only X
(D) Any one of the above

DIRECTIONS *for questions 96 to 100:* Read the following passage and answer the questions given below it.

As someone who grew up during the period when Whitney Houston's career was as its peak, witnessing her downfall and, her untimely death, has been difficult. Her song I Will Always Love You is now the ultimate song for aspiring singers to showcase their talents. However, no matter who attempted to take on that on that song, they exposed themselves to the same comment: "Good, but not as good as Whitney". Unfortunately, the saying "The higher they fly, the harder they fall" has applied to Whitney all too well. The young girl who got discovered while singing in a church choir and who went on to become most awarded female act of all-time with arguably the biggest voice ever heard in the music industry descended into a fiery hell of drugs, abuse and trauma. Upon learning about her death, I immediately recalled a particular interview that disturbed me. It was the lengthy interview she gave Oprah in 2009, where she described her drug usage and her tumultuous relationship with Bobby Brown. While her words were unsettling, it was her entire demeanour that got to me. The diva personality was gone. The fire in her eyes was extinguished. She simply wasn't the same person I saw during the 90's. When she took the stage to sing her new single, the heavenly voice we expected to come out wasn't there. It was as if her soul was sucked out of her.

Watching her discuss with Oprah, I kept asking myself: "What the hell happened to Whitney?" Most people would immediately reply "drugs". She did go to a few treatment centers for celebrities. But I had the sick feeling that there was **more to it**. Her eyes betrayed deep psychological and even spiritual trauma. Marijuana and cocaine, the two drugs she admitted using, do not make people this way. Even if she did use drugs, there was something else in her eyes and I felt that Whitney was holding back the true cause of her downfall. This portion of Oprah's interview particularly struck me and, when I first learned about her death, this automatically came to my mind:

> **Oprah**: Did you think something was going to happen in those drug-crazed, drug-filled days where you're sitting for hours and days?
>
> **Whitney**: There were times when he (Bobby Brown) would smash things, break things in the home. Glass. We had a big, big giant portrait of me and him and my child. He cut my head off the picture. Stuff like that. And I thought, "This is really strange." So I figured, cutting my head off a picture, that was a little much for me. That was one sign.
>
> And then there were other things like he started to paint in my bedroom – eyes. Just eyes. Evil eyes that were looking at every point of the room.
>
> **Oprah**: He started to paint on the walls?
>
> **Whitney**: Yeah. The rugs. The walls. The closet doors. If I opened the door, there would be one picture. Then I'd close them and there would be another picture and eyes and faces. It was really strange. …
>
> **Oprah**: What are you doing with all of that?
>
> **Whitney**: I'm looking at it going, "Lord, what's really going on here?" I was getting scared because I felt something was going to blow. Something was going to give.

This kind of behaviour was symptomatic of something a lot deeper. The cutting of one's head and "evil eyes" are two obsessions of mind control victims (and/or spiritually disturbed people). Whatever the case may be, something awful happened to Whitney Houston in the years following her success. But what? What was Bobby Brown's role? Difficult to say. In the same Oprah interview, Whitney described her mother's attempts to rescue her.

> **Whitney**: She said, "It's not worth it." She said: "If you move, Bobby, the sheriff will take you down. Don't you make one move." And he stood there like he was scared. And she said: "Let's go. Let's do this. I'm not losing you to the world. I'm not losing you to Satan. I'm not doing this. I want my daughter back. I want you back. I want to see that glow in your eyes. That light in your eyes. I want to see the child I raised. And you weren't raised like this. And I'm not having it. So you make a choice, and you make it here today because I have a court injunction that says you have to go." …

Houston certainly had much to be clinically depressed about to the point of being a suicide risk. She had descended into drug horror admitting that she had all but abandoned her singing in favour of daily drug use. With her chronic drug

abuse coupled with her faded stardom, humiliation from booing fans and tragically destroyed voice, as well as her difficult relationship and reportedly troubled daughter, it was only a matter of time that Houston would die. In my view, she chose the perfect night: pre-Grammy, where she could once again be the "star" of the music world. Her death on the eve of the music industry's biggest event of the year turned the jeers she had been getting for her bad behaviour and poor performances into the honouring she once had, then lost and undoubtedly desperately desired. Had she lived, one can speculate, she would have been overshadowed and overlooked at the Grammys, backgrounded by other stars, and certainly not acknowledged as she was. In stark contrast, in death, she was recognized as a legend. Stars of all kinds paid homage to her brilliance and performers like Jennifer Hudson choked while singing her songs in tribute.

Was Whitney's death an actual sacrifice or simply the result of years of abuse? The same question applies to countless artists who died too soon and in bizarre circumstances.

96. According to the passage, which of the following are true about the period when Whitney Houston's career was at its peak?
(A) Her explosive vocals with a fiery personality to match.
(B) Her personification of pure, God given talent.
(C) The sparkle in her eyes.
(D) All of the above.

97. What can be inferred about the author's view when she states "there was more to it."?
(A) Whitney was under mind control and Bobby Brown was her handler.
(B) Marijuana and cocaine can make people do crazy things.
(C) Chronic relationship troubles add to depression.
(D) Whitney was on the verge of a nervous breakdown.

98. To the author, the "one sign" would imply which of the following?
(A) Whitney's self abusive, self destructive and suicidal risk nature.
(B) Bobby Brown's jealousy of his beautiful wife's successful career.
(C) The complete lack of love in Whitney's household.
(D) Whitney's downfall and her untimely death.

99. Which of the following could be a logical inference when the author mentions Whitney's mother's interventions in her daughter's addiction problem?
(A) Once someone is addicted, it is extremely difficult to get that person to seek treatment.
(B) Whitney's mother knew that it would only be a matter of time before drug addiction took her life.
(C) If people have loved ones with addiction problems, they should take immediate action and not wait for the person who is having the addiction to listen.
(D) (A) and (C).

100. What is the thematic highlight of the penultimate paragraph "Houston certainly had.....songs in tribute?"
(A) Whitney was the archetype of the diva superstar.
(B) Despite Whitney's death, the pre-Grammy show, with its glamour and glitz took place, since the show must go on.
(C) Whitney's death on the eve of the Grammys ensured she'd be recognized, lauded and idolized once more as a legend. The singer's passing away preserved her celebrity.
(D) No one would have been politically incorrect by focussing on her decline, drug use and career demise when Whitney died at the Grammys.

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(Key and Solutions for AIMCAT1505N)

Key

SECTION – I

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

SECTION – II

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

Solutions

SECTION – I

Solutions for questions 1 to 7:

1. $f(x) = \dfrac{25^x}{25^x + 5}$

$\therefore f(1-x) = \dfrac{25^{1-x}}{25^{1-x}+5} = \dfrac{5}{5+25^x}$

Thus $f(x) + f(1-x) = \dfrac{25^x}{25^x+5} + \dfrac{5}{25^x+5} = 1$

$\therefore f\left(\dfrac{1}{99}\right) + f\left(\dfrac{98}{99}\right) = 1$

$f\left(\dfrac{2}{99}\right) + f\left(\dfrac{97}{99}\right) = 1$

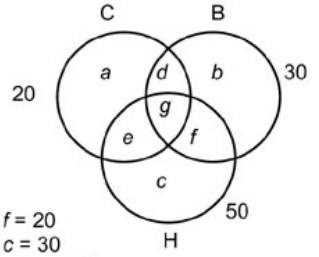
$f\left(\dfrac{49}{99}\right) + f\left(\dfrac{50}{99}\right) = 1$

Therefore adding,

we get $f\left(\dfrac{1}{99}\right) + f\left(\dfrac{2}{99}\right) + \ldots . f\left(\dfrac{98}{99}\right)$

$= 49(1) = 49$ Choice (A)

2. Consider the diagram below.



$d + e + f = 20$
$a + b + c = 30$
$a + d + g + e = 20$
$b + d + g + f = 30$
$c + e + g + f = 50$
Adding the above three equations
$a + b + c + 2(d + e + f) + 3g = 100$
$30 + 2 \times 20 + 3g = 100 \Rightarrow g = 10.$

Alternative solution:

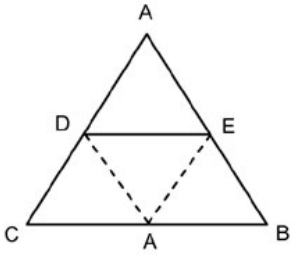
The number of students who play cricket, basketball and hockey is 20, 30, 50 respectively.
The number of students who play exactly 1 game, 2 games and 3 games is 30, 20 and x (say). Therefore number of student games (a student playing a game) is $20 + 30 + 50 = 30 + 2(20) + 3x$
$\Rightarrow x = 10$ Choice (B)

3. Given
$6xy + 10x + 15y = 39$
$\Rightarrow 6xy + 10x + 15y + 25 = 64$
$\Rightarrow (2x + 5)(3y + 5) = 64$
If the product of two positive numbers ($2x + 5$ and $3y + 5$) is constant, then the minimum value of the sum occurs when the numbers are equal i.e., $2x + 5 = 3y + 5 = 8$ or $x = \dfrac{3}{2}$ and $y = 1$
$\therefore$ The minimum value of $(2x + 5) + (3y + 5)$ or that of $2x + 3y$ occurs when $x = \dfrac{3}{2}$ and $y = 1$.

The minimum value of $2x + 3y$ is $2\left(\dfrac{3}{2}\right) + 3(1)$

$= 6.$ Choice (A)

4. Height of the trapezium DEBC = Height of ADE.



$\therefore$ D & E are midpoints of AC & AB respectively.

$\therefore \dfrac{AD}{AC} = \dfrac{1}{2} = \dfrac{AE}{EB}$ and

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$$\frac{h_{ADE}}{h_{ABC}} = \frac{1}{2} \Rightarrow \frac{\Delta_{ADE}}{\Delta_{ABC}} = \frac{1}{4} \Rightarrow \frac{\text{Area of ADE}}{\text{Area of ADEBC}} = \frac{1}{3}$$

As the area of trapezium DEBC is 45, the area of ΔADE = 15 and the area of the ΔABC = 60 Choice (D)

5. The total volume of water that flows through the pipes P_1 and P_2 per second

$$= \left\{2\left(\frac{15}{10000}\right) + 6\left(\frac{25}{1000}\right)\right\} m^3 = 0.018\ m^3.$$

Therefore every second 0.018 m^3 of water will flow through the pipes into the tank.
Thus in 40 minutes $40 \times 60 \times (0.018)\ m^3$ or 43.2 kilolitres of water will be filled.
So the capacity of the tank is 43.2 kilolitres. (since 1 m^3 = 1 kilolitre) Choice (D)

6. $(2^{1783}) / (73) = (2^{1783})\ (7) / 73(7)$
$= (2^9)^{198}\ (2)\ (7) / (2^9 - 1) = (14)\ (2^9)^{198} / (2^9 - 1)$
Using remainder theorem, the remainder of the above division is 14. As we have multiplied the dividend and the divisor by 7, the remainder will also be multiplied by 7.
Actual remainder = 14/7 = 2

Alternative solution:

$$\text{Rem}\left(\frac{2^6}{73}\right) = \text{Rem}\left(\frac{64}{73}\right) = -9 \Rightarrow \text{Rem}\left(\frac{2^9}{73}\right)$$

$$= -9 \times 2^3 = -72 \equiv 1$$

$\therefore \frac{2^9}{73}$ gives 1 as remainder.

$$\Rightarrow \text{Rem}\left(\frac{2^{1783}}{73}\right) = \text{Rem}\frac{\left(2^9\right)^{198} \times 2}{73} = 2.$$ Choice (D)

7. Since the four expressions (say A_1, A_2, A_3 and A_4) are in A.P. The sum of the first and the fourth expressions equals the sum of the second and the third expressions
$\Rightarrow (a_1 - 2a_2) + (4a_4 - a_1)$
$= (2a_2 - 3a_3) + (3a_3 - 4a_4)$
$\Rightarrow a_2 = 2a_4$ ——— (1)
Also, $A_2 - A_1 = A_3 - A_2$
$\Rightarrow (2a_2 - 3a_3) - (a_1 - 2a_2)$
$= (3a_3 - 4a_4) - (2a_2 - 3a_3)$
$\Rightarrow 8a_2 - 9a_3 = a_1$ ——— (2)
Also $A_4 - A_1 = 2(A_3 - A_2)$
$\Rightarrow (4a_4 - a_1) - (a_1 - 2a_2)$
$= 2[(3a_3 - 4a_4) - (2a_2 - 3a_3)]$
$\Rightarrow 6a_2 - 6a_3 = a_1$ ——— (3)
Now, eliminating a_3 from (2) and (3) by $4 \times (2) - 6 \times (3)$; we get $a_1 : a_2 = 2 : 1$ Choice (A)

Solutions for questions 8 to 12:

8. Total number of girls = 33
Those with work experience = 9
$\therefore$ Girls with no work experience = 24 girls
Boys with no work experience = 88 – 24 = 64
$\therefore$ percentage of boys with no work experience
= 64/180 x 100 = 35.5% Choice (A)

9. All commerce and arts graduates take finance as specialization but nothing is mentioned about others not taking finance. Choice (D)

10. Students with > 3 yrs experience = 13 + 2 = 15
IITians with > 3 yrs experience = 15 – 4 = 11
IITians with < 3 yrs experience = 31 – 11 = 20
Non – IITians with > 3 yrs experience = 4
$\therefore$ Non – IITians with < 3 yrs experience
= 52 – 4 = 48
Answer = 20 : 48 i.e. 5 : 12 Choice (B)

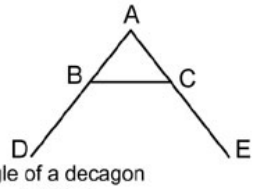
11. Non-engineering background = 180 – 83 = 97
Number of students who are < 24 yrs of age = 115
$\therefore$ Engineers = 1 – 97/115 x 100 = 15.6%
Note: By observation choices are far apart, so you can rule out options (A), (C) and (D). Choice (B)

12. Data regarding strength of boys in the batch of 2014 is missing. As a result, you cannot estimate the total strength of the batch of 2014. Therefore, the answer cannot be determined. Choice (D)

Solutions for questions 13 and 14:

13. It is given that $\mu k = \mu_{k-1} - \mu_{k-2}$ for $k \geq 3$.
$\therefore \mu_3 = \mu_2 - \mu_1 \Rightarrow \mu_2 = \mu_1 + \mu_3$
i.e., In the sequence every number is the sum of its successor and its predecessor in the series
Let $\mu_1 = a$, $\mu_2 = b$
$\mu_3 = \mu_2 - \mu_1 = b - a$
$\mu_4 = \mu_3 - \mu_2 = b - a - b = -a$
$\mu_5 = \mu_4 - \mu_3 = -a - b + a = -b$
$\mu_6 = \mu_5 - 5_4 = -b + a$
$\mu_7 = \mu_6 - \mu_5 = -b + a + b = a$
$\mu_8 = \mu_7 - \mu_6 = a + b - a = b$
$\therefore \mu_7 = \mu_1$ and $\mu_8 = \mu_2$
and this cycle repeats for every 6 terms
i.e., $\mu_k + \mu_{k+1} + \mu_{k+2} + \mu_{k+3} = \mu_{k+4} + \mu_{k+5} = 0$
i.e., Sum of any 6 consecutive terms in this series = 0
$\therefore$sum of 9006 terms in the series (9006 is divisible by 5) is 0.
$\therefore$sum of 9007 + 9008 terms = sum of 1st and 2nd terms
= –62·33 + 27 = –35·33. Choice (B)

14.



Internal angle of a decagon

$$= \frac{[2(10) - 4](90°)}{10} = 9(16)° = 144°$$

$\angle CBD = 144°$ and $\angle BCE = 144°$
Alternately, exterior angle in a n sided regular polygon is $\frac{2\pi}{n}$.

$\therefore$ In case of decagon, it is $\frac{2\pi}{10} = 36° = \angle ABC = \angle ACB$.

(where DB, BC, CE are sides of the decagon)
$\therefore \angle ABC = \angle ACB = 180° - 144° = 36°$.
$\angle BAC = 180° - (36° + 36°) = 108°$ Choice (B)

Solutions for questions 15 and 16:

15. $y = f(x)$ can be obtained, by reflecting the graph of $y = F(x)$ in the x-axis
i.e., $f(x) = -F(x)$; OR by reflecting $y = F(x)$ in the y-axis and then in the x-axis
i.e., $f(x) = -F(-x)$ OR by taking the modulus of $y = F(x)$
i.e., $f(x) = |F(x)|$.
Hence 3 relations are satisfied. Choice (C)

16. The graph $y = f(x)$ can be obtained by reflecting $y = F(x)$ in the y-axis i.e., $f(x) = F(-x)$, or by taking the modulus of $y = F(x)$, i.e., $f(x) = |F(x)|$.
Hence two relations are satisfied. Choice (B)

Solution for question 17:

17. To minimize the number of students who received at least one gift, assume that all the students except a certain group of k students give gifts to that group of k students.

Also, among this group of k students, each student would have given gifts to all other students of the group.
Now, these k students gave gifts to $k - 1$ students. Each student of this group has to give a gift to one more student, that student must be from other than this group.
$\therefore$ At least $(k + 1)$ students received at least one gift.

Alternative Solution:

By assuming $n = 3$, $k = 1$ and $n = 3$, $k = 2$, we can easily eliminate the choices and arrive at the answer.

Choice (B)

Solution for question 18:

18. From statement I alone, 35 people came on time and 60 left late. But, how many came late is not known. Hence statement I alone is not sufficient.
From statement II alone, we know that 20 people came late and 20 left early, but, how many came late and left on time can not be determined. Hence, statement II alone is not sufficient.
By combining both statements together we can determine how many out of 20, who came late, left on time i.e., (20 – 12) = 8. We can tabulate the data as in the following table.

	Arrival to office	Leaving office
On time	35	20
Early	45	20
Late	20	60

Hence both the statements together are sufficient.

Choice (C)

Solutions for questions 19 to 21:

19. Let x, y and t be the number of 1 rupee, 2 rupee and 5 rupee coins respectively. Then,.
$x + y + z = 200$ ---------- (1)
$x + 2y + 5z = 450$ --------- (2)
After interchanging the 1 rupee and 2 rupee coins, we have
$2x + y + 5z = 325$ --------- (3)
Solving (1), (2), and (3),
we get $x = 25$, $y = 150$ and $z = 25$.
Hence, the number of 5 rupee coins is 25.

Choice (A)

20. Let the two numbers be ha and hb where h is their HCF and h a b their LCM. Let us consider a < b.
It is given that ha + hb + hab = 143
h(a + b + ab) = 143
143 can be expressed as the product of two numbers in 2 ways i.e, 1×143 and 11×13
Case I: 1×143
H = 1 and a + b + ab = 143. [h = 143 and a + b + ab = 1 is not possible]
A + b + ab = 143
Adding 1 to both sides, we get
ab + a + b + 1 = 144
(a +1)(b + 1) = 144
144 can be expressed as the product of two numbers in the following ways.

	a	b	ha	hb	hab
1×144	0	143 [Not possible]			
2×72	1	71	1	71	71
3×48	2	47	2	47	84
4×36	3	35	3	35	105
6×24	5	23	5	23	115
8×18	7	17	7	17	119
9×16	8	15	8	15	120
12×12	11	11[Not possible, as a, b are coprime to each other]			

Case II: 11×13
If h = 11, a + b + ab = 13
$\therefore$ ab + a + b + 1 = 14
$\Rightarrow$ (a + 1)(b + 1) = 14

	a	b	ha	hb	hab
1×14	0	13 [Not possible]			
2×7	1	6	11	66	66

If h = 13, a + b + ab = 11
1 + a + b + ab = 12
Possible ways (a + 1)(b + 10 = 12

Possible ways	a	b	ha	hb	hab
1×12	0	11 [Not possible]			
2×6	1	5	13	65	65
3×4	2	3	26	39	78

The following are the pairs of numbers satisfying the given condition.
1. (1, 71) 4. (5, 23) 7. (11, 66)
2. (2, 47) 5. (7, 17) 8. (13, 65)
3. (3, 35) 6. (8, 15) 9. (26, 39)
Thus there are nine such pairs of numbers

Choice (C)

21. To check for the minimum possible value of b, consider the area of the triangle ABC = $\frac{1}{2}$ bc. Sin A = 1

$\Rightarrow$ b = $\frac{2}{c \cdot \text{Sin A}}$ for b to minimum, c and Sin A should be maximum
$\Rightarrow$ Sin A = 1 and c =b ($\therefore$ b $\geq$ c)
$\Rightarrow b = \frac{2}{b} \Rightarrow b = \sqrt{2} \quad \therefore b \geq \sqrt{2}$

To find the minimum value of a, the 3 sides should be made equal. This is so because a $\geq$ b $\geq$ c; when a is reduced, b is also reduced. In the limiting case, a = b = c and the triangle is equilateral.

$\therefore \frac{\sqrt{3}}{4} a^2 = 1 \Rightarrow a = \frac{2}{3^{1/4}} \quad \therefore a \geq \frac{2}{3^{1/4}}$

But 'a' need not be greater than $6^{1/4}$ Choice (C)

Solutions for questions 22 to 26:

Minimum part travel distance.
Let us find the machine sequence that can give minimum part-travel distance. Observe that closer the machines, lesser the distance to be travelled.
Total part movement, between

1 and 2 = 5 + 30 = 35	2 and 5 = 5 + 15 = 20
1 and 3 = 0 + 10 = 10	2 and 6 = 0 + 0 = 0
1 and 4 = 0 + 10 = 10	3 and 4 = 0 + 0 = 0
1 and 5 = 10 + 20 = 30	3 and 5 = 5 + 10 = 15
1 and 6 = 0 + 10 = 10	3 and 6 = 5 + 15 = 20
2 and 3 = 0 + 40 = 40	4 and 5 = 20 + 20 = 40
2 and 4 = 15 + 0 = 15	4 and 6 = 0 + 0 = 0
	5 and 6 = 0 + 10 = 10

Observe that major part movement is between $p_{12} = 35$, $p_{23} = 40$, $p_{15} = 30$ and $p_{45} = 40$. Therefore, 1 must be placed adjacent to both 2 and 5. Similarly, 2 must be placed adjacent to both 1 and 3. 3 must be adjacent to 2 and 6 and 5 must be adjacent to 4 and 1. Also $p_{46} = 0$ means machine 4 and 6 can be placed the farthest from each other.

Possible sequences are
$4 \leftrightarrow 5 \leftrightarrow 1 \leftrightarrow 2 \leftrightarrow 3 \leftrightarrow 6$
or
$6 \leftrightarrow 3 \leftrightarrow 2 \leftrightarrow 1 \leftrightarrow 5 \leftrightarrow 4$
Part-travel distance for the sequence between each the machines.
Adjacent machines: (4 and 5), (5 and 1), (1 and 2), (2 and 3), (3 and 6)
$40 + 30 + 35 + 40 + 20 = 165 \times 10 = 1650$
Machines which are two places away:
(4 and 1), (5 and 2), (1 and 3), (2 and 6)
$= 10 + 20 + 10 + 0 = 40 \times 20 = 800$
Machines which are three places away
= (4 and 2), (5 and 3), (1 and 6)
$= 15 + 15 + 10 = 40 \times 30 = 1200$
Machines which are four places away = (5 and 6)
$= 10 \times 40 = 400$
Total part-travel distance
$= 1650 + 800 + 1200 + 400 = 4050$

22. 4 and 6 must be at the ends. Choice (B)

23. The number of parts moved between all the pairs of adjacent machines = 165. Choice (C)

24. Part-travel distance = 4050 Choice (D)

25. Required value = $15 \times 30 = 450$ units Choice (C)

26. Required value = $30 \times 10 + 20 \times 20 + 15 \times 30 + 40 \times 10 + 10 \times 40 = 1950$ Choice (D)

Solutions for questions 27 to 37:

27. In such cases, it would be advisable to identify the number of ways of selection and arrangement independently and then multiply.
The toppings can be selected and arranged on the pizza in the following ways.
(1) All the four slices have distinct toppings.
(2) Two of the slices have identical topping while the other two have distinct toppings.
(3) Two of the slices have one identical topping while the other two have another identical topping distinct from the one used previously.

Case 1: All four different toppings.
Selection – 4 toppings can be selected out of 5 in ${}^5C_4$ ways
Arrangement – 4 distinct toppings can be arranged in 3! ways.
$\therefore$ Total number of ways of having 4 distinct toppings on a four-slice pizza is ${}^5C_4 \times 3! = 30$

Case 2: Two identical and two distinct.
Selection: The identical topping to be used on two slices can be selected in ${}^5C_1$ ways and the toppings to be used on the remaining two slices can be selected in ${}^4C_2$ ways.
$\therefore$ Selection can be done in ${}^5C_1 \times {}^4C_2 = 30$ ways.
Arrangement: Once the toppings are selected, there is only one way to arrange the slices in which no two adjacent slices have identical toppings.
$\therefore$ Total number of ways in this case $= 30 \times 1 = 30$.

Case 3: Two identical and two identical.
Selection: The two toppings to be used on the four slices can be selected in ${}^5C_2$ ways.
Arrangement: There is only one way to arrange the slices in which no two adjacent slices have identical toppings.
$\therefore$ Total number of ways in this case $= {}^5C_2 \times 1 = 10$
$\therefore$ For all the three cases combined, total number of ways
$= 30 + 30 + 10 = 70$ Choice (C)

28. Let the total age of the 5 members other than Bunti and Babli be T.

$\Rightarrow$ on January 1st 1986, $\frac{T + 70 + 63}{7} = 33$

$\Rightarrow T = 231 - 133 = 98$

N years later, Bunti died, but Mona was born, i.e., the number of members remained 7.
After a few more years, (say x) Babli died and Rohan was born, i.e., the number of member remained 7. Another N years later (i.e., January 1st 2007) Raj was born. Now the total age, on 1st January 2008, of the five members of the family, other than Bunti, Babli, Mona, Rohan and Raj
$= 98 + (22 \times 5) = 208$ years.
The age of Mona = $(x + N + 1)$ years
The age of Rohan = $(N + 1)$ years
The age of Raj = 1 year
But we also know that from 1st January 1986 to 1st January 2007 was a period of $(N + x + N)$ years
$\Rightarrow (2N + x) = 21$ years.
$\Rightarrow$ The total age of the family of eight members on 1st January 2008 is
$208 + (x + N + 1) + (N + 1) + 1$ years
$= 208 + (2N + x) + 3$ years $= 211 + 21 = 232$ years
$\therefore \frac{232}{8} = 29$ years Choice (D)

29. Given N = $x246y8189z$
Since N must be divisible by 8, $89z$ must be divisible by 8.
$\Rightarrow z = 6$
$\therefore$N = $x246y$ 81896
Since N is divisible by 9, the sum of the digits,
i.e., $x + y + 44$ must be divisible by 9.
i.e., $x + y + 8$ must be divisible by 9.
$\Rightarrow x + y + 8 = 9$ or 18
$\because$ ($x + y + 8$ cannot be other than these two because maximum value of $x + y + 8 = 26$)
$\therefore x + y = 1$ or 10 ——— (1)
since N is divisible by 11, $(x + y + 14) - 30$ must be divisible by 11.
$\Rightarrow x + y = 11k + 16 \Rightarrow x + y = 16$ or 5 ——— (2)
From (1) & (2) it is clear that no such number exists.
Choice (D)

30. $y = x^3 + 5x^2 + 6x + 8$ —— (1)
$y = x^3 + 4x^2 + 10x + 4$ —— (2)
(1) – (2) $\Rightarrow x^2 - 4x + 4 = 0$
$\Rightarrow (x - 2)^2 = 0 \Rightarrow x = 2$
But when, $x = 2$, $x^3 + 5x^2 + 6x + 8 \neq 0$
$x^3 + 4x^2 + 10x + 4 \neq 0$
Root of an equation is the value of x for which the curve intersects x axis i.e $y = 0$
$\therefore$ No common roots exist. Choice (A)

31. Given,
$\log_2(x^4 + y^4 - 41) = 8$
$x^y + y^4 - 41 = 2^8$
$x^y + y^4 = 256 + 41$
$x^y + y^4 = 297$
By, trial and error, the possible values of (x, y) are (6, 3) or (296, 1).
$\therefore$The value of xy^3 can be (6) $(3)^3 = 162$ or (296) $(1)^3 = 296$.
Choice (B)

32.

Operation	3-l bucket	4-l bucket	Drum
Initially	0	0	9
1	3	0	6
2	0	3	6
3	3	3	3

$\therefore$Three operations are needed. Choice (A)

33. $V = \frac{P(Q^2 + R^2) + Q(P^2 + R^2) + R(P^2 + Q^2)}{PQR}$,

$\Rightarrow V = \frac{Q}{R} + \frac{R}{Q} + \frac{P}{R} + \frac{R}{P} + \frac{P}{Q} + \frac{Q}{P}$

Let $\frac{P}{Q} = a$, $\frac{Q}{R} = b$ and $\frac{R}{P} = c$

As P, Q and R are distinct, $a \neq 1$, $b \neq 1$, $c \neq 1$

$\therefore V = a + \frac{1}{a} + b + \frac{1}{b} + c + \frac{1}{c}$

As a, b and c are positive, $a + \frac{1}{a} > 2$, $b + \frac{1}{b} > 2$ and $c + \frac{1}{c} > 2$

$\therefore \frac{Q}{R} + \frac{R}{Q} + \frac{P}{R} + \frac{R}{P} + \frac{P}{Q} + \frac{Q}{P} > 6.$

$\therefore$ V can be any value greater than 6.

Alternative Solution:

This question can be solved by considering two extreme cases, i.e., when P, Q and R are very large and when they are the least possible, i.e., 1, 2 and 3.
If P, Q and R are very large, then assume that they are also consecutive, then for all practical purposes, the given expression can be evaluated by considering P = Q = R. This evaluation to, say in term of 'p' as

$$\frac{P(2P^2) + P(2P^2) + 2(2P^2)}{P^3}$$

i.e., the expression equals 6.
In the other case, when P = 1, Q = 2, R = 3, the expression

$= \frac{1(4+9) + 2(1+9) + 3(4+1)}{1.2.3} = 16 > 6.$

Hence, we can conclude that the value of the expression will always be greater than 6. Choice (B)

34. Since one needs to go through exactly 7 cities including the cities 5, 8, and 12 and excluding the cities 7 and 9 we need to select 4 cities from the remaining 20 – (2 + 3 + 2), i.e., 13 cities we need to select 4 cities form the cities 1, 2, 4, 6, 10, 11, 13, 14, 15, 16, 18, 19, and 20.
Now 4 cities can be selected from the remaining 13 cities in $^{13}C_4$ ways i.e., $\frac{(13)(12)(11)(10)}{(4)(3)(2)(1)}$ or 715 ways

Say cities C_1, C_2, C_3, C_4 are selected. Now we have a total of 7 cities to be covered in each path from city 3 to city 17.
The 7 cities can be arranged in 7! ways. ($\because$ change in order results in a different path). Choice (D)

35. Let the distance over which the race was run be L m.
Let the speeds of A, B and C be U_A, U_B and U_C respectively

$$\frac{U_A}{U_B} = \frac{L}{L-40}, \quad \frac{U_A}{U_C} = \frac{I}{I-60} \quad U_B = \frac{7}{5} I_C$$

$$\frac{U_B}{U_C} = \frac{\left(\frac{U_A}{U_C}\right)}{\left(\frac{U_A}{U_B}\right)} = \frac{L-40}{L-60} = \frac{7}{5} \Rightarrow L = 110 \text{ m}$$

Alternative Solution:

Using the options, if the length of the race was 90 m, then A covered 90 m when B covered 50 m and C covered 30 m. Now speeds of B and C are in ratio 5 : 3, and not 1.4 : 1 (as given in the question). Trying for length of race = 110 m, gives B : C = 70 : 50 = 1.4 : 1. Hence, 110 m.
Choice (B)

36. Statement I:
Let us evaluate the last two digit of 5! + 6! + …+230! From 10! onwards, the last digits will be 00. The last two digits of 5! + 6! + 7! + 8! + 9! = 120 + 720 + 5040 + 40320 + 362880 = 409080
For any perfect square ending in 0, the preceding digit must also be 0.
$\therefore$ statement I is false
Statement II:
Let us evaluate the last two digits of 2[1! + 2! + …….+125!]
From (10!) onwards the last two digits will be 00.
The last two digits of 2[1! + 2! + 3! + 4! + 5! + 6! + 7! + 8! + 9!] = 2[1 + 2 + 6 + 24 + 120 + 720 + 5040 + 40320 + 362880] = 818226.
For any perfect cube ending in 6, the preceding digit must be odd.
Therefore statement II is false

Alternatively if the given expression is a perfect cube, the number in the brackets must have 4 as a factor. However, it can be observed that the number in the bracket is odd. Hence II is false. Choice (D)

37. Given a 5 × 5 grid with cells having distinct identity. Now the first coin can be placed in any of the 25 cells.
i.e., in 25 ways.
Now we cannot place the second coin (or the third coin) in the row or column containing the first coin. So, the second coin can be placed in any of the remaining 16 cells i.e., in 16 ways. Now the third coin cannot be placed in the rows and columns in which the first two coins are placed. So, the third coin can be placed in any of the remaining 9 cells i.e., in 9 ways. Since the three coins are identical, the total number of ways of placing them = $\frac{25 \times 16 \times 9}{3!} = 600$
Choice (C)

Solutions for questions 38 to 42:

38. Looking at the values in table 1 in 2009 and 2010, we can see that the number of managers has increased by 2. As the number of recruitments is the minimum possible, we assume that the two managers are not recruited by were promoted, i.e., the number of Assistant Managers should be 98 – 2 = 96, but as it is 102, six Senior Executives were promoted. The number of Senor Executives left is 92 – 6 = 86, but as it is 87 in 2010, one Junior Executive got promoted. The number of Junior Executive should have been 112 – 1 = 111 but as the number in 2010 is only 110, it means one of them retired. Now as the number of trainees increased by 3, they must have been recruited. Similarly values for other years can be found.

The minimum number of recruitments from table 1 are 2009 to 2010: 3 recruited and 1 retired.
2010 to 2011: 8 recruited and 3 retired.
2011 to 2012: 3 recruited and 8 retired.
2012 to 2013: 11 recruited and 7 retired.

The values in table 2 has to be calculated after redrawing the table for ₹1,00,000 or more, ₹50,000 and more up to ₹1,00,000 and so on and also adding on column. For employees with salary of ₹10,000 or less. The total number of employees in the company can be determined from table 1.

From table 2 the minimum values will differ.
2009 to 2010: 2 recruited and 0 retired.
2010 to 2011: 17 recruited and 12 retired.
2011 to 2012: 0 recruited and 5 retired.
2012 to 2013: 26 recruited and 22 retired.
$\therefore$ The maximum of these two values must be the minimum possible values.
Total minimum possible number of employees that are recruited in the company is = 3 + 17 + 3 + 26 = 49
Choice (C)

39. The least number of employees retired in the year 2009-2010. Choice (D)

40. The maximum number of people promoted are
Assistant Manager to Manager – 45
Senior Executive to Assistant Manager – 87
Junior Executive to Senior Executive – 85
Trainees to Junior Executives – 85

The number of people recruited would be maximum if all the other employee left the company i.e.,
426 – (45 + 87 + 85 + 85) = 124. Choice (B)

41. Total minimum possible number of employees retired = 1 + 12 + 8 + 22 = 43 Choice (C)

42. If can be seen that in the year 2013, the total number of Managers, Assistant Managers and Senior Executives together is 219 while the number of employees with salary more than 30,000 is only 218.
∴The statement that all Senior Executives have a salary more than ₹30,000 in each of the given years is false.
Choice (C)

Solution for question 43:

43. We have:
$a^n - b^n = (a-b)(a^{n-1} + a^{n-2}b + a^{n-3}b^2 + .. + ab^{n-2} + b^{n-1})$

$$\therefore x = \frac{10^{18} - 8^{18}}{10^{13} - 8^{13}}$$

$$= \frac{(10-8)\left[10^{17} + 10^{16}.8 + 10^{15}.8^2 + ... + 10^6.8^{11} + 10^5.8^{12} + 10^4.8^{13} + ... + 10^1.8^{16} + 8^{17}\right]}{(10-8)\left[10^{12} + 10^{11}.8 + 10^{10}.8^2 + ... + 10^2.8^{10} + 10^1.8^{11} + 8^{12}\right]}$$

$$= \frac{\left(10^{17} + 10^{16}.8 + ... + 10^6.8^{11} + 10^5.8^{12}\right)}{\left(10^{12} + 10^{11}.8 + ... + 10^1.8^{11} + 8^{12}\right)} + \frac{\left(10^4.8^{13} + 10^3.8^{14} + 10^2.8^{15} + 10.8^{16} + 8^{17}\right)}{\left(10^{12} + 10^{11}.8 + ... + 10.8^{11} + 8^{12}\right)}$$

$= 10^5$ + some positive quantity.
$\therefore x > 10^5$.

Alternative Solution:

Given $x = \frac{10^{18} - 8^{18}}{10^{13} - 8^{13}}$

$$\Rightarrow x = \frac{10^{18}\left(1 - 0.8^{18}\right)}{10^{13}\left(1 - 0.8^{13}\right)}$$

$$\Rightarrow 10^5 \times \frac{\left(1 - 0.8^{18}\right)}{\left(1 - 0.8^{13}\right)}$$

Since $0.8^{18} < 0.8^{13}$, $(1 - 0.8^{18}) > (1 - 0.8^{13})$
$\Rightarrow x > 10^5$ Choice (D)

Solution for question 44:

44. Using statement I alone, the possible values of 'm' and 'n' are
$m = 3, n = 15$
$m = 8, n = 11$
$m = 13, n = 7$
$m = 18, n = 3$
So, statement I alone is not sufficient.
Statement II alone is also not sufficient as m can be equal to n, for eg $m = 53$, $n = 53$ or m can be greater than n, for eg $m = 53$, $n = 52$
Only when $m = 18$ and $n = 3$ is $m^3 > 52n^2$
Combining both the statements, we can definitely rule out cases when m is 3 or 8.
When $m = 13$, $13 \times 13 \times 13 < 52 \times 49$
Since, $13 \times 13 < 4 \times 49$
∴ $m = 18$ and $n = 3$ Choice (C)

Solutions for questions 45 to 48:

45. Since a, b, c are in A. P let us consider them as A, A+ d and A + 2d respectively. Where A is the first term and d the common difference of the AP under consideration
Now,
ax + by + c = 0
Ax + (A +d)y + A + 2d = 0
A(x + y + 1) + d(y + 2) = 0
The above equation represents a pair of straight lines viz x + y + 1 = 0 and y – 2 = 0 whose point of intersection is
P = (1, –2)[By solving the two equation].
The distance of p from the origin
$= \sqrt{(1)^2 + (-2)^2} = \sqrt{5}$ units.

Alternative Solution:
Assume (a, b, c) = (–1, 0, 1) and (0, 1, 2). This gives –x + 1 = 0 and y + 2 = 0. Now it is easy to check and choose from the given options. Choice (D)

46. From the given information, we can write the following equations:
$X = a + nk$
$Y = a + nm$

$$\Rightarrow \frac{X+Y}{2} = \frac{a + nk + a + nm}{2} = a + (m+k)\frac{n}{2}$$

If $m + k$ is odd, then the units digit of $\frac{X+Y}{2}$ when expressed in base n will be $a + \frac{n}{2}$.

If $m + k$ is even, then the units digit of $\frac{X+Y}{2}$ when expressed in base n will be a.

$\therefore a = 2$ and $a + \frac{n}{2} = 5$

$\Rightarrow n = 6$ Choice (B)

47. If $x = -0.2$, $\left(-x^{-1/x}\right) = -\left((-0.2)^{\frac{-1}{-0.2}}\right)$

$= -\left((-0.2)^5\right) = (0.2)^5$
$250x^2 = 250(-0.2)^2 = 250(0.2)^2 = 10$

$$\frac{10}{\left(\sqrt{-x}\right)^3} = \frac{10}{\left(\sqrt{-(-0.2)}\right)^3} = \frac{10}{(0.2)^{3/2}} = 10 \times 5^{3/2}$$

$$5^{\frac{-1}{2x}} = 5^{\frac{-1}{2(-0.2)}} = 5^{5/2} = 5 \times 5^{3/2}$$

∴ Clearly, $\frac{10}{\left(\sqrt{-x}\right)^3}$ is the largest. Choice (C)

48. When a cube of side n is cut along the diagonals of a face of the cube, perpendicular to the face, number of unit cubes cut is
$= 2n^2 - n$ when n is odd
$= 2n^2$ when n is even
From (A) number of unit cubes cut = $2K^2 + 3k + 1$
$= 2(k+1)^2 - (k+1)$
∴ the side of the cube is an odd integer
From (B) the number of unit cubes cut is $72k^2 = 2(6k)^2$
∴ Side of the cube is an even integer.
The question can be answered from either statement.
Choice (C)

Solutions for questions 49 and 50:

49. Let N be the number of candidates who appeared for the exam. Let PQ.RST be the percentile scored by a candidate (C) (for whom $T \neq 0$). Let there be M(M < N) candidates who scored less than C.

$\Rightarrow$ C's percentile score = $\frac{M}{N} \times 100$ = PQ.RST ($T \neq 0$)

$\Rightarrow \frac{M}{N}$ = 0.PQRST ($T \neq 0$)

$\Rightarrow$ 0·PQRST ($T \neq 0$) = $M \times \left(\frac{1}{N}\right)$

Let $\frac{1}{N}$ = 0·ABCDE

Since $M \times \frac{1}{N}$ does not end in a zero, $\frac{1}{N}$ should not end in a zero.

$\Rightarrow$ 0·ABCDE = $\frac{1}{N}$

$\Rightarrow$ ABCDE = $\frac{10^5}{N}$ (Multiplying both sides by 10^5)

N is minimum when ABCDE is the largest factor of 10^5 (i.e. $2^5 \times 5^5$) that does not have a units digit of zero. The largest such factor is 5^5 = 03125 and N is correspondingly equal to 2^5 = 32.

Alternative Solution:

One can go from choices and observe that

$\frac{1}{32} \times 100 = 3.125\%$ ile Choice (D)

50. Continuing from the earlier solution, for N to be maximum, ABCDE must be the least possible factor of $2^5 \times 5^5$, which does not end in a zero.
ABCDE can be 1(i.e., 00001), but then N = 100,000 which is not possible (since it is given that $N \leq 87,654$). Hence, consider the next least possible factor of $2^5 \times 5^5$ which does not end in a zero, which is 2(i.e., 00002).
Hence, N = 50,000. This is the largest possible value of N.

Alternative Solution:
One can go from choices and check for which of them is $\frac{1}{N}$ of the form PQ.RST.

$\frac{1}{80,000} \times 100 = 0.00125$ $\frac{1}{64,000} \times 100 = 0.0015625$

$\frac{1}{50,000} \times 100 = 0.002$

$\frac{1}{32,000} \times 100 = 0.003125$ Choice (C)

Difficulty level wise summary - Section I	
Level of Difficulty	Questions
Very Easy	–
Easy	5, 15, 16, 32, 35
Medium	2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 28, 29, 30, 31, 34, 36, 37, 43, 44, 47
Difficult	1, 3, 22, 23, 24, 25, 26, 27, 33, 45, 46, 48, 49, 50
Very Difficult	21, 38, 39, 40, 41, 42

SECTION – II

Solution for question 51:

51. On a close reading of the six sentences, it can be observed that there are sentences in this question which discuss two issues, safety and honesty. Sentences (c) and (d) are concerned with 'safety' and sentences (b) and (e) deal with 'honesty'. So, based on the definitions provided, it can be clearly identified that there are two points of view discussed. Sentences (c) and (e) are assertions or points of views. Sentence (d) gives the reason for the point of view given in the assertion sentence (c). The dividing line between safety and disaster is thin because a wrong move can mean pain or death. Similarly, sentence (b) provides support for the point of view discussed in the assertion sentence (e). The dividing line between honesty and dishonesty is very thin. If someone uses a white lie to save another person pain, it would be difficult to say whether it is the truth or a lie. Even though the sentences are independent, this is a case of two separate assertions with respective supporting reasons. Statement (a) is an Assertion as well, an independent one, since it has no statements related to it. Statement (f) is Irrelevant since it doesn't fall into any of the other 3 categories. Hence (B).
Choice (B)

Solutions for questions 52 to 55:

Number of words and Explanatory notes for RC:

Number of words : 694

52. Refer to the last two sentences just before the blank, at the end of the passage. Unlike Unwin who believes that possessing a sense of right or wrong counts in God's favour, the author believes that this fact does not make or break the case for God's existence. God's existence or non-existences comes back to being a 50% likelihood (null hypothesis). And another example of a sense appreciation to reiterate this fact is provided in Choice (C). So Choice (C) best completes the idea in the last few sentences of the concluding paragraph, by providing a parallel that drives the point home. Statement (A) can only come later in the text after statements that discuss arguments against the existence of a good God. Choice (B) does not sound like a conclusion sentence. It would need more elaboration since 'uncomfortable theologians' is a new thought. In any case, dissimilarities between the author's point of view and Unwin's method have already been discussed. So Choice (B) is inappropriate. The paragraph does not warrant a discussion about "redoing Unwin's Bayesian exercise". So Choice (D) is incorrect. It also needs more elaboration ("problem of evil nor moral considerations"). Choice (C)

53. Garbage in, garbage out (GIGO) in the field of computer science or information and communications technology refers to the fact that computers, since they operate by logical processes, will unquestioningly process unintended, even nonsensical, input data ("garbage in") and produce undesired, often nonsensical, output ("garbage out").

Refer to the 2nd, 3rd and 4th sentence of the third paragraph. The final estimate can only be as good as the original numbers fed in. These are usually **subjectively judged**, with all the **doubts** that inevitably flow from that. According to the author, the subjective nature of the numbers used to come up with the final verdict in the Bayes' Theorem means that the quality of the outcome depends on the truth value or the quality of the information provided i.e. the correctness of the input numbers. So if the numbers themselves are subjective or flawed (as they are in case of Stephen Unwin's example), then the conclusion will not be correct. This is the GIGO (Garbage In, Garbage Out) Principle, which is summed up by statement (b). Statement (a) cannot be inferred. The author has only talked about "input numbers" which are subjective and not intermediate understandings. Statement (d) cannot be inferred at all from the passage. Statement (e) is far-fetched or extreme. Statement (c) is a literal interpretation of some moralistic view but not the interpretation of GIGO.
Choice (A)

54. In the passage Unwin's God example has been explained in detail. Unwin first makes a show of assigning value to arguments both for and against God's existence (though even these values are subjective) .....(six facts that might bear on the matter, puts a numerical weighting on each.....) then, taking the result he gets from these (67%), he artificially raises the possibility to 95% by arbitrarily adding 'faith' into the mix. Such reasoning can be

seen in statement (d); subjective arguments for and against an idea, and a final conclusion based on an arbitrary factor. Statement (c) is close but it does not contain arguments for and against an idea. In statement (b), the data cannot be said to be subjective, though the conclusion is. Statement (a) states a definite conclusive result – probability of businessmen returning is zero. Statement (f) also states a definite probability – 50%, similar to the null hypothesis discussed in the passage. And in statement (e), neither the data nor the conclusion are subjective. Only statement (d) includes subjective arguments for and against an idea followed by the inclusion of another factor and closely resembles the line of reasoning discussed in the passage. Hence Only (d). Choice (C)

55. Refer to the penultimate and the last paragraph of the passage. Stephen Unwin's illustration of Bayes' Theorem using the example of God's existence involves two distinct steps: first, he assigns numerical weightings to facts that he thinks bear on God's existence and arrives at the number 67% from these.....Unwin then decides that his Bayesian verdict of 67 percent isn't high enough, so he takes the bizarre step of boosting it to 95% by an emergency injection of 'faith'. So he adds faith to the equation and arrives at the number 95%. Throughout the description, the author is extremely scornful of both the steps ('ding dong Bayesian race', 'bizarre step'), so simply changing only one of the two steps is unlikely to have made the example more acceptable to the author. In the beginning of the last paragraph, he states that there is nothing worthwhile about the method employing Bayes' theorem. So none of the options are valid as they suggest that the steps could be corrected. The author's tone indicates complete disagreement. Choice (D)

Solutions for questions 56 and 57:

56. On a close reading of the paragraph, it can be inferred that sentence (f) is the only sentence that stands alone and is a general sentence. Also all other sentences stem from this particular sentence ..... Labour becomes more specialized. So sentence (f) sets the background of the paragraph. Also sentence (e) speaks about "this increased **interdependence**" and therefore sentences (a) (**community** becomes increasingly **dependent** on **me**) and sentence (g) (**I** become more and more **dependent** upon the **community**) must precede sentence (e). Sentence (f) can only be followed by sentence (d). It talks about the specialization of labour further increasing our interdependence. Placing sentence (b) after sentences (a) and (g) would not ensure a proper thoughtflow. So sentence (f) is followed by sentence (d) which in turn is followed by sentence (b). Sentence (b) states the reason for the point made in sentence (d). Statements (a) and (g) continue the idea forward in that order, after statement (d). Sentence (e) concludes the paragraph with a summary (.....this increased interdependence.....) of the idea in the previous statements. Statement (c) is not related to the rest of the statements and is the odd sentence out. The words "As a result" speak about a consequence of a step not discussed in the remaining sentences. It can be a part of a paragraph preceding this paragraph where the concepts of "need" and "levels of wealth" or "enough levels" are discussed before the given paragraph begins to discuss "create **enough** general wealth to satisfy the **endlessly proliferating needs**" in (f). So, fdbage. The other choices disrupt the thought flow. Choice (B)

57. *On a close reading of the paragraph, one can infer that chronological order, proper nouns like 'Fugitive Slave Act' and 'revised Fugitive Slave Act' and the pronouns or determiners for these nouns as mentioned in the sentences can help us sequence the sentences into a coherent paragraph. The paragraph details some important events pertaining to Black History.*

Statement (f) with the Act of (1793) sets the background for the paragraph. The Fugitive Slave Act remained unenforced. Statement (c) follows as an effect of the point stated in statement (f) (thousands of slaves had poured into free states.....due to non-enforcement of the Fugitive Slave Act). Come 1850 and there was a revised Fugitive Slave Act. So statement (a) follows statement (c). "this new law" in statement (e) refers to the revised Fugitive Slave Act of 1850. So 'ae' form a mandatory pair. So, 'fcae'. "It also" in statement (g) continues with what the new law did. So sentence (g) follows sentence (e). The new law forcibly compelled citizens....., denied slaves....., increased penalty. Statement (b) concludes the paragraph with what was done to ensure that the new law was enforced. So, 'fcaegb'. Statement (c) is very general and provides some unnecessary detail which does not fit in with the specific discussion of the Fugitive Slave Act(s). The word 'complicit' means involved with others in an activity that is unlawful or morally wrong. So choice (C) is correct. The other choices disrupt the thoughtflow. Choice (C)

Solution for question 58:

58. The employed form a smaller fraction of the population. This will not be a serious problem, if the population consists of more people of unemployable age. Then it would mean that only a lower percentage of people in the employable age group are unemployed. Choice (D) is the correct answer. (A), (B) and (C) are not relevant to the argument. Choice (D)

Solution for question 59:

59. Statement 1 is the author's view on what circumstances make an event of self-immolation one that serves any purpose. This statement is a Judgement (J). Statement 2 is the author's understanding that various factors (After the colon) amount to the reasons for guilt. This is an inference (I). Statement 3 is the author's view on what circumstances make an event of self-immolation one that serves any purpose. This statement is a Judgement (J). What the author presents in statement 4 are his views on the circumstances of self-immolation. This statement is a judgement. (J). As in statements 1 and 3, statement 5 is the suthor's view on what the self-immolator achieves. This statement is a Judgement (J). Choice (D)

Solution for question 60:

60. Sentence (C) is a general sentence that begins the paragraph. "emergence of a supersymbolic economy" in sentence (C) links with "volatile environment" and "manipulating symbols" in sentence A. So A follows C. The pronoun 'they' in sentence (D) refers to "flashy individuals" in sentence A. Hence A is followed by D. So, CAD. B is the odd sentence out as matters of the past are not relevant to the given context. Choice (B)

Solutions for questions 61 to 64:

Given that there are equal number of films in each category. From the given table we can say that only E and H can be the best films as they are the only two films which can have their final rating in the range of 76 – 100.
B is an average film as final points are 24 and G has Bad quality.
Since G is Bad quality film and no film has final rating less than or equal to 10, the video rating of G should be either 3 or 4.
As E obtained a higher video rating than A, video rating of A should be less than 9.
Hence C and D are categorised as Good quality films.
E obtained a higher final rating than H. Hence E obtained either 9 or 10 in Audio and H got 8 points in Audio.
B obtained a higher rating in Audio than in Video.
Hence the combination is either 8, 3 or 6, 4.

Case 1: Let us assume B got 8, 3 then from the clue only 2 films got same ratings in any parameter.

We say that F gets either 3 or 4 in Audio. Hence it must be the other Bad quality film. Therefore, A is an average quality film. A can either get 5 or 6 in Video.
The table looks as follows.

	Audio	Video	Final rating points
A	6	5/6	30/36
B	8	3	24
C	10/9	7	70/63
D	7	8	56
E	9/10	9	81/90
F	3/4	4	12/16
G	5	3/4	15/20
H	8	10	80

Case 2: B got 6, 4 ratings
We get D has got final rating points as 56 and A can get either 5 or 6 in video.
The table looks as follows.

	Audio	Video	Final rating points
A	6	5/6	30/36
B	6	4	24
C	10/9	7	70/63
D	7	8	56
E	9/10	9	81/90
F	3/4	4	12/16
G	5	3	15
H	8	10	80

61. From case (1) the rating of A in video is either 5 or 6. Hence cannot be determined. Choice (D)

62. The final rating points of D is 56. Choice (B)

63. Statement I: we cannot determine as F can either get 12 or 16 final points.
Statement I is not definitely true.
Statement II: Film A gets either 5 or 6 in video. Hence it gets minimum 30 points.
Therefore, statement II is true. Choice (B)

64. C and D are categorized as 'Good' quality films.
Choice (C)

Solution for question 65:

65. In part (a), the indefinite possessive pronoun "one's" is inappropriate, since the context requires 'our' for the objective pronoun 'us' used in the sentence. Part (b) is grammatically correct. In part (c), "help of all quarters" is incorrect. It should be "help from all quarters". Also there is a subject-verb agreement error in part (c). The singular subject "smart work" needs a singular verb "seems" and not the plural verb "seem". In part (d), "elbow-grease" would be inappropriate without the hyphen. Part (e) requires the phrasal verb "replete with" and not "replete by". Since what follows (After the word "direction") is a list of proverbs, a colon would be appropriate and not a semi-colon. Also the word "wane" needs to be replaced with "vein." Part (e) should read: .....replete **with** proverbs that point in this direction: "the road to hell is paved..... in the same **vein**. So only part (b) is correct. Choice (B)

Solutions for questions 66 and 67:

66. An important or key sentence in the paragraph is "Man alone can perform, by choice, the task of integrating perceptions into conceptions by a process of abstraction." The process of abstraction or conception (concept formation) is a process of reason which differentiates man from other animals. It is neither automatic nor instinctive. (In animals, instinct is very well developed). The penultimate sentence of the paragraph reiterates that the conceptual level of consciousness is volitional. Volition is nothing but the act or an instance of making a conscious choice or decision. So, in keeping with this interpretation of the last two sentences of the paragraph, Choice (C) would be an appropriate ending to the paragraph. Choices (A) and (B) which bring in the idea of 'survival' need precedents and more substantiation. They do not focus on volition or choice. Choice (D) is out of scope and can come as an introduction sentence of another paragraph, much later in sequence in the text. Choice (C)

67. The paragraph is mainly about the professional intellectual coming into existence in recent times. In pre-capitalist societies, intellectuals were men without a profession. The focus of the paragraph is on the professional intellectuals in recent historical periods contrasted with the situation prevalent before the industrial revolution when there was no profession, no market, no socially recognized position. Even wealth was earned by force or political power. The last two sentences of the paragraph talk about the simultaneous birth and death of the professional businessman and the professional intellectual. Continuing with this line of thought and having observed the importance that the paragraph gives to the professional intellectual, only Choice (D) is the correct sentence that will complete and conclude the paragraph. Choices A and C look like introduction sentences of different paragraphs. They bring in new points of view and they need more substantiation. With reference to Choice (B), the term "tribal chief" needs to be introduced in the paragraphs and even if we assume that "these two figures" as given in Choice (B) refer to the professional businessman and the professional Intellectual as discussed in the paragraph, one cannot say that they dominate every antirational period of history as they are only a recent phenomena. Choice (D)

Solutions for questions 68 and 69:

68. With the conclusion sentence given as sentence (f) and (a) its clear predecessor, we understand that the paragraph is about the 'traumatic' experience of the child. The event that causes the trauma is in statement (c), which is therefore the appropriate opening sentence. The loss of the cone would first be followed by the loss of happiness, before other feelings set in. Therefore (e) succeeds (c). The description of the act of sobbing would follow the statement that speaks of the act. Thus 'bd' makes a mandatory pair. As already discussed, 'af' closes the paragraph. The appropriate sequence is therefore 'cebda'(f).

Sentence (c) is erroneous – it needs 'possibility of', instead of 'possibility for.' Sentence (e) is erroneous – if the look in the eye and joy in the heart are, together, representative of happiness, no 'the' is needed before 'joy'. If they are being looked at as two separate features, 'gone is' should be replaced by 'gone are.' Sentence (b) is erroneous – 'gripped in' should be replaced by 'gripped by.' Sentence (d) is erroneous – a comma is needed after 'sobs'. Sentence (a) and (f) have no errors. Thus 'bcde'.
Choice (C)

69. The answer to this question has been divided into two parts:
Part A:
'Banish' would imply the elimination of darkness (here, unhappiness) permanently, whereas the context, refers to dealing with the situation on hand. 'Dispel' meaning 'cause to vanish' is appropriate in the context – b.
The context speaks of a belief that borders on certainty, in the child's mind. 'Conviction' is appropriate in the context – a.
When something 'has dropped' it would mean that the something carried out an action whereby it dropped. However, here it is the child who dropped it, so the cone 'has fallen' – a.
A 'heave' of the chest is the physical indication of a large inhalation that accompanies a gasp – a.

A 'gleam' in the eye would mean the display of interest or intent. A 'sparkle' would mean the display of delight – b.
2 scoops are provided 'with' the cone, it is not the cone that 'has' scoops – a. Thus, baaaba.

Part B:

Now, with reference to the sentence that would complete the question paragraph, only sentence (p) is the best fit. As explained for the previous question, a child has dropped her icecream cone and is in mental agony over the issue. The penultimate sentence of the question paragraph asks a question "Can anything be done to restore the child's happiness?" and the conclusion sentence suggests that the child be given two cones each having two scoops. So the child will be happy now. Only sentence p ends the positive with a happy tone. "refusing her the cones" as given in sentence (q) is out of the question. Sentences (r) and (s) are too critical and judgmental for the given context.

Choice (A)

Solution for question 70:

70. Let Ajay, Bharat, Charan and Dinesh be denoted by A, B, C, D respectively

Given, A is not behind B and D is not in front of C

$\Rightarrow$ A is in 1^{st}, 2^{nd}, 3^{rd} position, B is in 2^{nd}, 3^{rd} or 4^{rth} position

D is in 2^{nd}, 3^{rd}, or 4^{rth} position, C is in 1^{st}, 2^{nd} or 3^{rd} position

Statement I: C stands behind at least one of the remaining three

$\Rightarrow$ C is in 2^{nd} position (and D is in 3^{rd} or 4^{rth} position)

or C is in 3^{rd} position (and D is in 4^{rth} position)

B stands before at least one of the remaining three

$\Rightarrow$ B is in 1^{st}, 2^{nd} or 3^{rd} position but B is always behind A

$\Rightarrow$ B is in 2^{nd} or 3^{rd} position and A is either 1^{st} or 2^{nd} position

The possible arrangements are ABCD or ACBD

In both cases, D is the last person

$\therefore$ Dinesh is the tallest

$\therefore$ Statement I is alone sufficient to answer the question

Statement II:

B does not stand in front of C

$\Rightarrow$ B is in 3^{rd} or 4^{rth} position and C is in 1^{st} or 2^{nd} position

A does not stand behind D

$\Rightarrow$ A is in 1^{st} or 2^{nd} position and D is in 3^{rd} or 4^{rth} position

$\therefore$ Possible arrangements are ACBD, ACDB, CABD, CADB

$\therefore$ The last person can be either Bharat or Dinesh

Statement II alone cannot be used to answer the question

Choice (D)

Solutions for questions 71 to 74:

Number of words and Explanatory notes for RC:

Number of words : 699

71. Refer to the third sentence of the first paragraph "the real underlying cause.....is the **situation** itself, rather than the **people** involved.....to **oversimplify**" and the last sentence of the first paragraph (Chalk it up to **psychology** and organizational politics, which cause us to **oversimplify** and to draw **incorrect** or **incomplete conclusions**). Also refer to the discussion on stereotypes in para 3. These ideas supports Choice (C). All the other choices are probably true, but they do not address the question directly. They do not explain the reference to psychology.

Choice (C)

72. Refer to the second paragraph. "people have a tendency to preserve cognitive resources and allocate them only to high-priority matter" and "limited supply of cognitive resources we all have is spread ever-thinner as demands on our time and attention increase" directly support Choice (A). We do not think deeply about routine work **situation** conflicts. Choice (B) is tangential and extreme or narrow in scope. Choices (C) and (D) again shift the focus of strife or conflict from situations to people stereotyped. The author says in the opening lines of the passage that it is tempting to blame conflicts on personalities when the underlying cause is the situation itself. Choice (A)

73. Refer to the third paragraph. Choice (A) is stereotyping. So is (D). Here "personality types" are given weightage and not the characteristics of the conflicting situation. Choice (C) is a "dangerous distraction" from the real issue that someone on the team is simply not doing his or her job and "spontaneous or not, they still have to do their work well and on time." This has been addressed in the penultimate paragraph. Choice (B) is a genuine case of conflict due to lack of role clarity. Refer to the fourth paragraph. The reasons for conflict are complex, nuanced, and politically sensitive.....roles are poorly defined..... levels of authority may not be correctly defined or delineated; there may be real incentives to compete rather than to collaborate. Choice (B)

74. Statement (a) is vague – Why should anyone be persuaded to do their jobs? Statement (b) is true. The author is indicating that there should be practicality and pragmatism rather than 'rhetoric' or mere statement of principles. Statement (c) is unwarranted. In an HR context, the word "rhetoric" would indicate motivational discourse. The author is most likely to recommend the Hogan Personality Inventory and the IPIP-NEO tests for conflict resolution. Refer to the third paragraph. The author criticizes generalizations or stereotypes arising out of Myers-Briggs and Enneagram. So statement (d) is not correct. But the author feels that one has to be brave enough to face facts identified by the Hogan Personality Inventory and the NEO. These better explain variances in behaviour. Refer to the last paragraph. Color code is nothing but the Enneagram, so even statement (e) is incorrect. The author speaks about real situations as a source of conflict. Diagnostic tests for "imaginary situations" would not be considered as valid. They would not be recommended by the author. All statements do not apply except (b). Choice (D)

Solutions for questions 75 to 79:

Let us represent the given information in the following table.

Person	First Day	Second Day	Third Day	Fourth Day	Fifth Day
Navandar				*Paddy Clarke Ha Ha Ha*	
Chandekar					
Waradkar			*Paddy Clarke Ha Ha Ha*		
Bholanekar			*The Kite Runner*		
Edwankar					

It is given that all except Chandekar read *Simoqin Prophecies* before they read *The Finkler Question.* From this, we can say that none except Chandekar read *The Finkler Question* on first day and read *Simoqin Prophecies* on fifth day. But as every book was read by one the five friends on each day, it must be Chandekar who must have read *The Finkler Question* on first day and *Simoqin Prophecies* on fifth day.

Now, one among the remaining four friends, must have read *The Finkler Question* on the second day. As all, except Chandekar, have read *Simoqin Prophecies* before *The Finkler Question,* the person who read *The Finkler Question* on second day must have read *Simoqin Prohpecies* on first day. Another person must have read *The Finkler Question* on third day, and this person must have read *Simoqin Prophecies* on the second day. Similarly, we can say that the person who read *The Finkler Question* on fourth day must have read *Simoqin Prophecies* on third day and the person who read *The Finkler Question* on fifth day must have read *Simoqin Prophecies* on fourth day.

From the above, we can conclude that other than Chandekar, all must have read *Simoqin Prophecies* and *The Finkler Question* on consecutive days.

Also, from (ii), as Bholanekar read *Paddy Clarke Ha Ha Ha* before he read *The Kite Runner,* which was his third book, he must have read *Paddy Clarke Ha Ha Ha* on first two days. So, he must not have read the consecutive pair *Simoqin Prophecies* and *The Finkler Question* on first two days. Therefore, he must have read *Simoqin Prophecies* and *The Finkler Question* on the fourth and fifth days respectively.

Now, from the above conclusion regarding Bholanekar, we can say that Waradkar did not read *Simoqin Prophecies* on fourth day, also he could not have read *Simoqin Prophecies* on second day, (since, according to (iii), he read *Paddy Clarke Ha Ha Ha* on the third day). So, he must have read *Simoqin Prophecies* on first day and therefore, *The Finkler Question* on the second day.

Now, from the above conclusions and from (iii),, we can say that, Navandar could not have read *Simoqin Prophecies* on first day and third day. So, he must have read *Simoqin Prophecies* on second day and *The Finkler Question* on third day and therefore Edwankar must have read *Simoqin Prophecies* on the third day and *The Finkler Quesiton* on the fourth day.

Now, on the third day, *The God of Small Things* must have been read by Chandekar, who must have read *Paddy Clarke Ha Ha Ha* on the second day and *The Kite Runner* on the fourth day. Waradkar must have read *The God of Small Things* on the fourth day and *The Kite Runner* on the fifth day. Bholanekar must have read *Paddy Clarke Ha Ha Ha* on the first day and *The God of Small Things* on the second day. Edwankar must have read *The Kite Runner* on the second day, *Paddy Clarke Ha Ha Ha* on the fifth day and *The God of Small Things* on the first day. Finally, Navandar must have read *The Kite Runner* on the first day and *The God of Small Things* on the fifth day.

The entire representation can be shown as below:

Person	First Day	Second Day	Third Day	Fourth Day	Fifth Day
Navandar	*The Kite Runner*	*Simoqin Prophecies*	*The Finkler Question*	*Paddy Clarke Ha Ha Ha*	*The God of Small Things*
Chandekar	*The Finkler Question*	*Paddy Clarke Ha Ha Ha*	*The God of Small Things*	*The Kite Runner*	*Simoqin in Prophecies*
Waradkar	*Simoqin Prophecies*	*The Finkler Question*	*Paddy Clarke Ha Ha Ha*	*The God of Small Things*	*The Kite Runner*
Bholanekar	*Paddy Clarke Ha Ha Ha*	*The God of Small Things*	*The Kite Runner*	*Simoqin Prophecies*	*The Finkler Question*
Edwankar	*The God of Small Things*	*The Kite Runner*	*Simoqin Prophecies*	*The Finkler Question*	*Paddy Clarke Ha Ha Ha*

75. *The Finkler Question* was the first book read by Chandekar.
Choice (B)

76. Bholanekar read *Simoqin Prophecies* on the fourth day.
Choice (A)

77. Choice (C) is the correct order (from first to last) of the persons who read *The God of Small Things*.
Choice (C)

78. After reading *The Finkler Question*, Navandar gave the book to Edwankar. Choice (B)

79. Chandekar read *The Finkler Question*, *Paddy Clarke Ha Ha*, *The God of Small Things* and *The Kite Runner* before Waradkar. Choice (D)

Solutions for questions 80 to 84:

Number of words and Explanatory notes for RC:

Number of words : 924

80. Refer to the second paragraph (second sentence onwards). The values that people express can be **conditioned** by the social environment and more specifically by **oppressive structures**. .....Faced with structures that narrow their range of options people may 'adapt' to their environment by 'accepting' their lot and lowering expectations of what life has to offer. (A) is a judgement and not a definition. B and C are neutral whereas the passage mentions "specifically by oppressive structures" making D appropriate.
Choice (D)

81. (a), (b) and (c) undermine Sen's paternalism with well-argued observations. (d) is Sen's paternalism.
Choice (B)

82. A is beside the point, so is B. D is out of context. C points out the comparison implicit in libertarian paternalists' discrimination of revealed preferences from real preferences when applied to Sen's gendered discourse. Refer to the penultimate sentence of para 2 - Just as 'libertarian paternalists' attribute the difference between the 'revealed preferences' of people for fatty foods or a low savings rate and their 'real' preferences to various cognitive biases, so Sen focuses on the role of 'adaptation' in accounting for the **difference** between the subjectively expressed beliefs of actors and their underlying 'objective' interests. From the second and third sentence of para 4 (In order for there to be any chance of success in this regard policy-makers need to be able to distinguish between the 'real preferences' or the 'objective interests' of people and those preferences that result from cognitive biases. In the case of libertarian paternalists they need to distinguish preferences for fatty food that are '**genuine**' from those that are **distorted by 'weakness of will'**, only Choice (C) is correct. Choice (C)

83. (a) is in line with Sen's argument. (b) is neither here nor there. The second part of sentence (b) is incorrect from the last two sentences of the penultimate paragraph. It is not about "there is no reason to believe . . . . ". The author's reference to policy interventions is not to state whether they are competent/effective or not but whether they should play a role in dealing with detrimental cognitive biases and people need to understand this. Refer to the first sentence and the last two sentences of the penultimate paragraph. (c) and (d) reflect the "two fundamental problems with.....Sen's line of analysis - "it is far from evident that there is anything wrong" and "claims to know what preferences people should have". Refer to the ultimate paragraph. Choice (B)

84. (A) and (B) are unhelpful. These choices bring in particular situations or circumstances to which individuals react. Amartya Sen's argument is directed at a much higher level in a global or economic context. (C) is Sen's argument as given in the last but one sentence of the penultimate paragraph - ".....whether this adaptation is rational in the face of social circumstances which cannot realistically be changed, or whether it results from a more malleable set of conditions." (D) is endorsed by the author in the penultimate sentence of the last paragraph - "economic growth and the cross cultural contact to unintentionally expose women to the wider world." Choice (D)

Solutions for questions 85 to 87:

It is given that ten films from five languages (two from each language) are screened from Monday through Friday in a week.
Exactly two films, one in the morning and the other in the evening, are screened everyday.
Two films of the same language are screened neither on the same day nor on two consecutive days.
As all the films that are screened in the morning session are of different languages, the films that are screened in the evening session are also to be of different languages.
A Spanish film is scheduled to be screened on Tuesday morning and a English film on Thursday evening. From this we get another Spanish film is screened on Friday evening and another English film on Monday morning.
As both the Russian films are screened before the first French film, the only possibility is that the Russian films are screened on Monday evening and Wednesday morning and the French films are screened on Wednesday evening and Friday morning. The German films are screened on Tuesday evening and Thursday morning.

The final schedule is as follows:

Day	Morning	Evening
Monday	English	Russian
Tuesday	Spanish	German
Wednesday	Russian	French
Thursday	German	English
Friday	French	Spanish

85. On Wednesday the Russian and the French films are screened in the morning and in the evening sessions respectively. Choice (B)

86. On Monday the Russian and the English films are screened.
Hence, (C) is definitely false. Choice (C)

87. The maximum gap between the two screenings of films of the same language is observed in case of English and Spanish languages. In both the cases, the gap is two days. Choice (B)

Solutions for questions 88 to 92:

Number of words and Explanatory notes for RC:

Number of words : 778

88. Statement (a) is too neutral given the author's penchant for life as hinted in statement (b). The author says, "I cannot imagine (oblivion) it", and wants to live beyond even the optimistic 85 as mentioned in the penultimate paragraph. But statement (b) is wrong. There is no 'beyond forever' and you can't support 'most', certainly not when you consider Larkin. A correct interpretation would be – Some long for a life as long as possible and perhaps first a bit longer. Statement (c) is not specific. It has not been discussed in the passage. Statement (d) is beside the point. Statement (e) might be a fact but it is not the central idea of the passage. Choice (D)

89. Choice (A) is true as it has been mentioned in the first paragraph but is not the reason for the question. Choice (D) is of immediate concern. "That comes to each of us afresh." Choice (B) is an expression in the context and Choice (C) is out of scope, though somewhat true. Choice (D)

90. Refer to the second paragraph of the passage where Epicurus' four step-program is discussed. All the statements are possible interpretations, except the materialistic view in statement (c) and the point of view in statement (a). (a) is incorrect as the speaker's life is not going to the same, It's back to oblivion for him and he's not referring to the rest of human life and living in his absence. (f) is more correct than (a). So (a) and (c) are not true. Choice (C)

91. Statement (a) is not true. Horace called death "eternal exile." Statement (b) is not true, life being "a loan received from death." Life was a dream and death was the awakening from it. So 'true insight into the meaning of our lives' as given in statement (b) cannot be inferred. It can only be 'true insight into the significance of our lives'. "Follow these steps, and serenity.....will be yours" as given in the last few sentences of the second paragraph does not support statement (c). We cannot read 'serenity' as 'prepared for death'. It can only be 'peace in life'. Statement (d) is not true. Nabakov points out that we are less concerned about how we got here than about where we're going after this. Statement (e) is implied in Santayana's calculations - "no matter one's age, it is perhaps best to assume, that one will live another decade." Wishing for a decade ahead does imply keeping death in mind. Statement (f) is evident in absence of "grievous pain, hideous scandal...unbearable guilt" as given in the fourth paragraph. Choice (A)

92. Refer to the last sentence of the fourth paragraph..... Whenever I hear of someone who has died at 85 or above, I find myself saying, "I'd sign on for that," but, who knows, once there I should probably do all in my power to renegotiate the contract. "renegotiate the contract (till 85 years)" means to attempt to seek to extend life further, naturally implying Choice (D). In (D), he reaches a point where he knows that life has still more to offer. So he needs an extension and would therefore renegotiate the contract. He feels that life is still worth living and he still wants to stay. In choice (A), he has reached a point where he feels that there is nothing left and life is not worth living. So he would not seek an extension of life. The question of 'renegotiating the contract' would not arise and choice (A) is incorrect. Choice (D)

Solutions for questions 93 to 95:

As no two unmarried persons are together, in the arrangement the unmarried persons and married persons must occupy the alternate chairs.

1	②	3	④	5	⑥	7	⑧	9
U	M	U	M	U	M	U	M	U
9	⑧	7	⑥	5	④	3	②	1

93. It can be observed that the even positions are occupied only by married people and all the married people occupy only even positions from either end.
∴ S cannot be in eighth position from either end.
∴ Option (D) is false. Choice (D)

94. Z cannot sit adjacent to U as both are married. Choice (B)

95. Among the given choices, only X is unmarried. Hence, X can be next to R. Choice (C)

Solutions for questions 96 to 100:

Number of words and Explanatory notes for RC:

Number of words : 975

96. Refer to para 1. "The diva personality was gone.... " So Choice (A) is correct. "Blessed with arguably the best voice ever heard in the music industry", "The heavenly voice we expected to come out....", ".....ultimate song for aspiring singers to showcase their talents." So B is correct. "The fire in her eyes was extinguished". Also refer to Whitney's mother's statement given later in the passage. "I want to see that glow in your eyes, the light in your eyes...." So C is correct. Choice (D)

97. Refer to para 2. "more to it" refers to more than drugs. "Her eyes betrayed deep psychological trauma" and "holding back the true cause of her downfall" along with the Oprah excerpts suggest that the reference to what is stated is Choice (C). Refer to the sentences given later in the passage - The cutting of one's head and "evil eyes" are two obsessions of mind control victims (and/or spiritually disturbed people). Whatever the case may be, something awful happened to Whitney Houston in the years following her success..... What was Bobby Brown's role?..... The persons who control mind control victims are called handlers. (a) cannot be inferred. The author does look at the possibility mentioned in (a) but says "difficult to say". The author later says, "with her chronic drug abuse coupled with her faded stardom, humiliation from booing fans and tragically destroyed voice, as well as her **difficult relationship** and reportedly troubled daughter, it is only a matter of time. . . . ". As such, though wider in scope, C is a better answer. Choice (B) is facile. It has been mentioned in the second paragraph that Marijuana and cocaine do not make people this way. Choice (D) does not mention the reason. Choice (C)

98. The question asked by Oprah was "Did you think something (terrible) was gonna happen" and Whitney mentions Bobby Brown cutting her head off a picture. Choice (D) is the premonition, however tragic and traumatic. Choice (A) paints with a wide brush. Choice (B) is a cause. Choice (C) is the situation. Choice (D)

99. Choice (A) describes the situation and Choice (C) the prescription under the circumstances. Choice (B) is unkind. The question makes us assume that her mother was referring to Whitney's addiction. She could very well have been referring to Whitney's submission to the husband's twisted and oppressive treatment (consider the word 'injunction'). Choice (D)

100. Choice (A) is mentioned in the first paragraph too. Choice (B) is an observation. Choice (C) agrees with "her faded stardom, humiliation from booing fans and tragically destroyed voice" and "the honoring she desperately desired" and "recognized once more as a legend." Choice (D) is a corollary of C. Choice (C)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	96
Easy	67, 85, 86, 87, 88, 93, 94, 95, 97, 98, 100
Medium	53, 54, 58, 64, 70, 71, 81, 82, 89, 92, 99
Difficult	52, 55, 59, 60, 61, 62, 63, 65, 66, 75, 76, 77, 78, 79, 69, 72, 73, 74, 80, 83, 84, 90, 91
Very Difficult	51, 56, 57, 68