SECTION - I
This section contains 25 questions

1. A shop stores x kg of rice. The first customer buys half this amount plus half a kg of rice. The second customer buys half the remaining amount plus half a kg of rice. Then the third customer also buys half the remaining amount plus half a kg of rice. Thereafter, no rice is left in the shop. Which of the following best describes the value of x?

   1. $2 \leq x \leq 6$ 2. $5 \leq x \leq 8$ 3. $9 \leq x \leq 12$ 4. $11 \leq x \leq 14$ 5. $13 \leq x \leq 18$

DIRECTIONS *for questions 2 and 3:*
Let $f(x) = ax^2 + bx + c$, where a, b and c are certain constants and $a \neq 0$.
It is known that $f(5) = -3f(2)$ and that 3 is a root of $f(x) = 0$.

2. What is the other root of $f(x) = 0$?

   1. -7 2. -4 3. 2
   4. 6   5. cannot be determined

3. What is the value of a + b + c?

   1. 9   2. 14   3. 13
   4. 37   5. cannot be determined.

4. The number of common terms in the two sequences 17, 21, 25, ….. 417 and 16, 21, 26, ….., 466 is

   1. 78   2. 19   3. 20   4. 77   5. 22

DIRECTIONS *for questions 5 and 6:*
The figure below shows the plan of a town. The streets are at right angles to each other. A rectangular park (P) is situated inside the town with a diagonal road running through it. There is also a prohibited region (D) in the town.
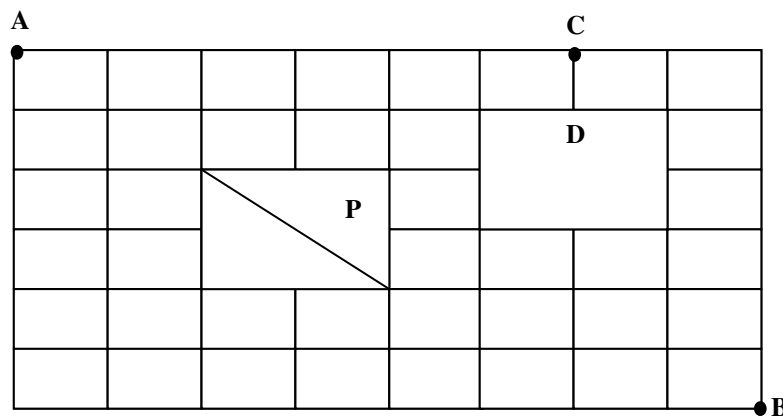
5. Neelam rides her bicycle from her house at A to her office at B, taking the shortest path. Then the number of possible shortest paths that she can choose is

   1. 60   2. 75   3. 45   4. 90   5. 72

6. Neelam rides her bicycle from her house at A to her club at C, via B taking the shortest path. Then the number of possible shortest paths that she can choose is

   1. 1170   2. 630   3. 792   4. 1200   5. 936

7. Let $f(x)$ be a function satisfying $f(x) f(y) = f(xy)$ for all real x, y. If $f(2) = 4$, then what is the value of $f\left(\dfrac{1}{2}\right)$?

   1. 0

   2. $\dfrac{1}{4}$

   3. $\dfrac{1}{2}$

   4. 1

   5. Cannot be determined

8. The integers 1, 2, …, 40 are written on a blackboard. The following operation is then repeated 39 times: In each repetition, any two numbers, say a and b, currently on the blackboard are erased and a new number $a + b - 1$ is written. What will be the number left on the board at the end?

   1. 820   2. 821   3. 781   4. 819   5. 780

9. Suppose, the seed of any positive integer n is defined as follows:

   seed(n)   = n, if $n < 10$
            = seed ($s(n)$), otherwise,

   where $s(n)$ indicates the sum of digits of n

   eg, seed (7) = 7, seed (248) = seed (2 + 4 + 8) = seed (14) = seed (1 + 4) = seed (5) = 5 etc.
   How many positive integers n exist, such that $n < 500$, will have seed (n) = 9?

   1. 39   2. 72   3. 81   4. 108   5. 55

10. In a triangle ABC, the lengths of the sides AB and AC equal 17.5 cm and 9 cm respectively. Let D be a point on the line segment BC such that AD is perpendicular to BC. If AD = 3cm, then what is the radius (in cm) of the circle circumscribing the triangle ABC?

    1. 17.05   2. 27.85   3. 22.45   4. 32.25   5. 26.25

11. What are the last two digits of 7^{2008}?

    1. 21   2. 61   3. 01   4. 41   5. 81

12. If the roots of the equation $x^3 - ax^2 + bx - c = 0$ are three consecutive integers, then what is the smallest possible value of b?

    1. $-\dfrac{1}{\sqrt{3}}$ 2. -1 3. 0   4. 1   5. $\dfrac{1}{\sqrt{3}}$

13. Consider obtuse-angled triangle with sides 8 cm, 15 cm and x cm. If x is an integer, then how many such triangles exist?

    1. 5   2. 21   3. 10   4. 15   5. 14

14. How many integers, greater than 999 but not greater than 4000 can he formed with the digits 0, 1, 2, 3 and 4 if repetition of digits is allowed?

    1. 499   2. 500   3. 375   4. 376   5. 501

15. What is the number of distinct terms in the expansion of $(a + b + c)^{20}$?

    1. 231   2. 253   3. 242   4. 210   5. 228

16. Consider a square ABCD with midpoints E, F, G, H of AB, BC, CD and DA respectively. Let L denote the line passing through F and H. Consider points P and Q, on L and inside ABCD such that the angles APD and BQC both equal 120°. What is the ratio of the area of ABQCDP to the remaining area inside ABCD?

1. $\dfrac{4\sqrt{2}}{3}$ 2. $2+\sqrt{3}$ 3. $\dfrac{10-3\sqrt{3}}{9}$ 4. $1+\dfrac{1}{\sqrt{3}}$ 5. $2\sqrt{3}-1$

17. Three consecutive positive integers are raised to the first, second and third powers respectively and then added. The sum so obtained is a perfect square whose square root equals the total of the three original integers. Which of the following best describes the minimum, say *m,* of these three integers?

1. $1 \leq m \leq 3$ 2. $4 \leq m \leq 6$ 3. $7 \leq m \leq 9$ 4. $10 \leq m \leq 12$ 5. $13 \leq m \leq 15$

18. Find the sum $\sqrt{1+\dfrac{1}{1^2}+\dfrac{1}{2^2}} +\sqrt{1+\dfrac{1}{2^2}+\dfrac{1}{3^2}} +\ldots\ldots + \sqrt{1+\dfrac{1}{2007^2}+\dfrac{1}{2008^2}}$

1. $2008-\dfrac{1}{2008}$ 2. $2007-\dfrac{1}{2007}$ 3. $2007-\dfrac{1}{2008}$ 4. $2008-\dfrac{1}{2007}$ 5. $2008-\dfrac{1}{2009}$

19. Two circles, both of radii 1 cm, intersect such that the circumference of each one passes through the centre of the other. What is the area (in sq cm) of the intersecting region?

1. $\dfrac{\pi}{3}-\dfrac{\sqrt{3}}{4}$ 2. $\dfrac{2\pi}{3}+\dfrac{\sqrt{3}}{2}$ 3. $\dfrac{4\pi}{3}-\dfrac{\sqrt{3}}{2}$ 4. $\dfrac{4\pi}{3}+\dfrac{\sqrt{3}}{2}$ 5. $\dfrac{2\pi}{3}-\dfrac{\sqrt{3}}{2}$

20. Two circles, both of radii 1 cm, intersect such that the circumference of each one passes through the centre of the other. What is the area (in sq cm) of the intersecting region?

1. 6: 15am   2. 6:30 am   3. 6: 45 am   4. 7:00 am   5. 7 : 15 am

21. Consider a right circular cone of base radius 4 cm and height 10 cm. A cylinder is to be placed inside the cone with one of the flat surfaces resting on the base of the cone. Find the largest possible total surface area (in sq cm) of the cylinder.

1. $\dfrac{100\pi}{3}$ 2. $\dfrac{80\pi}{3}$ 3. $\dfrac{120\pi}{7}$ 4. $\dfrac{130\pi}{9}$ 5. $\dfrac{110\pi}{7}$

DIRECTIONS *for questions 22 and 23:*
Five horses, Red, White, Grey, Black and Spotted participated in a race. As per the rules of the race, the persons betting on the winning horse get four times the bet amount and those betting on the horse that came in second get thrice the bet amount. Moreover, the bet amount is returned to those betting on the horse that came in third, and the rest lose the bet amount. Raju bets Rs.3000, Rs. 2000 and Rs.1000 on Red. White and Black horses respectively and ends up with no profit and no loss.

22. Which of the following cannot be **true?**

1. At least two horses finished before Spotted
2. Red finished last
3. There were three horses between Black and Spotted
4. There were three horses between White and Red
5. Grey came in second

23. Suppose, in addition, it is known that Grey came in fourth. Then which of the following cannot be true?

1. Spotted came in first
2. Red finished last
3. White came in second
4. Black came in second
5. There was one horse between Black and White

DIRECTIONS *for questions 24 and 25:*
Mark (1) if Q can be answered from A alone but not from B alone.
Mark (2) if Q can be answered from B alone but not from A alone.
Mark (3) if Q can be answered from A alone as well as from B alone.
Mark (4) if Q can be answered from A and B together but not from any of them alone.
Mark (5) if Q cannot be answered even from A and B together.

In a single elimination tournament, any player is eliminated with a single loss. The tournament is played in multiple rounds subject to the following rules:

(a) If the number of players, say n, in any round is even, then the players are grouped in to $n/2$ pairs. The players in each pair play a match against each other and the winner moves on to the next round.
(b) If the number of players, say n, in any round is odd, then one of them is given a bye, that is, he automatically moves on to the next round. The remaining $(n-1)$ players are grouped into $(n-1)/2$ pairs.

The players in each pair play a match against each other and the winner moves on to the next round. No player gets more than one bye in the entire tournament.

Thus, if n is even, then n/2 players move on to the next round while if n is odd, then $(n+1)/2$ players move on to the next round. The process is continued till the final round, which obviously is played between two players. The winner in the final round is the champion of the tournament.

24. Q. What is the number of matches played by the champion?

A. The entry list for the tournament consists of 83 players.
B. The champion received one bye.

25. Q. If the number of players, say n, in the first round was between 65 and 128, then what is the exact value of n?

A. Exactly one player received a bye in the entire tournament.
B. One player received a bye while moving on to the fourth round from the third round

SECTION II
This section contain 25 questions

DIRECTIONS *for questions 26 to 28: Answer the following questions based on the information*
For admission to various affiliated colleges, a university conducts a written test with four different sections, each with a maximum of 50 marks. The following table gives the aggregate as well as the sectional cut-off marks fixed by six different colleges affiliated to the university. A student will get admission only if he/she gets marks greater than or equal to the cut-off marks in each of the sections and his/her aggregate marks are at least equal to the aggregate cut-off marks as specified by the college.

	Sectional Cut-off Marks				Aggregate Cut-off Marks
	Section A	Section B	Section C	Section D	
College 1	42	42	42		176
College 2		45	45		175
College 3			46		171
College 4	43			45	178
College 5	45		43		180
College 6		41		44	176

26. Aditya did not get a call from even a single college. What could be the maximum aggregate marks obtained by him?

    1. 181   2. 176   3. 184   4. 196   5. 190

27. Bhama got calls from all colleges. What could be the minimum aggregate marks obtained by her?

    1. 180   2. 181   3. 196   4. 176   5.184

28. Charlie got calls from two colleges. What could be the minimum marks obtained by him in a section.

    1. 0   2. 21   3. 25   4. 35   5. 41

DIRECTIONS *for questions 29 to 32: Answer the following questions based on the information given below.*

The bar chart below shows the revenue received, in million US Dollars (USD), from subscribers to a particular Internet service. The data covers the period 2003 to 2007 for the United States (US) and Europe. The bar chart also shows the estimated revenues from subscription to this service for the period 2008 to 2010.

29.   While the subscription in Europe has been growing steadily towards that of the US, the growth rate in Europe seems to be declining. Which of the following is closest to the percent change in growth rate of 2007 (over 2006) relative to the growth rate of 2005 (over 2004)?

1. 17   2. 20   3. 35   4. 60   5. 100

30.   The difference between the estimated subscription in Europe in 2008 and what it would have been if it were computed using the percentage growth rate of 2007 (over 2006), is closest to:

1. 50   2. 80   3. 20   4. 10   5. 0

31.   In 2003, sixty percent of subscribers in Europe were men. Given that women subscribers increase at the rate of 10 percent per annum and men at the rate of 5 percent per annum, what is the approximate percentage growth of subscribers between 2003 and 2010 in Europe? The subscription prices are volatile and may change each year.

1. 62   2. 15   3. 78   4. 84   5. 50

32.   Consider the annual percent change in the gap between subscription revenues in the US and Europe. What is the year in which the absolute value of this change is the highest?

1. 03-04   2. 05-06   3. 06-07   4. 08-09   5. 09-10

DIRECTIONS *for questions 33 to 35: Answer the following questions based on the information given below.*

There are 100 employees in an organization across five departments. The following table gives the department-wise distribution of average age, average basic pay and allowances. The gross pay of an employee is the sum of his/her basic pay and allowances.

Department	Number of Employees	Average Age (Years)	Average Basic Pay (Rs.)	Allowances (% of Basic Pay)
HR	5	45	5000	70
Marketing	30	35	6000	80
Finance	20	30	6500	60
Business Development	35	42	7500	75
Maintenance	10	35	5500	50

There are limited numbers of employees considered for transfer promotion across departments. Whenever a person is transferred/promoted from a department of lower average age to a department of higher average age, he/she will get an additional allowance of 10% of basic pay over and above his/her current allowance. There will not be any change in pay structure if a person is transferred/ promoted from a department with higher average age to a department with lower average age.

Questions below are independent of each other.

33.   There was a mutual transfer of an employee between Marketing and Finance departments and transfer of one employee from Marketing to HR. As a result, the average age of Finance department increased by one year and that of Marketing department remained the same. What is the new average age of HR department?

1. 30   2. 35   3. 40
4. 45   5. Cannot be determined

34.   What is the approximate percentage change in the average gross pay of the HR department due to transfer of a 40-year old person with basic pay of Rs.8000 from the Marketing department?

1. 9%   2. 11%   3. 13%   4. 15%   5. 17%

35.   If two employees (each with a basic pay of Rs.6000) are transferred from Maintenance department to HR department and one person (with a basic pay of Rs.8000) was transferred from Marketing department to HR department, what will be the percentage change in average basic pay of HR department?

1. 10.5%   2. 12.5%   3. 15%   4. 30%   5. 40%

DIRECTIONS *for questions 36 to 40:* *Answer the following questions based on the information given below.*

Abdul, Bikram and Chetan are three professional traders who trade in shares of a company XYZ Ltd. Abdul follows the strategy of buying at the opening of the day at 10 am and selling the whole lot at the close of the day at 3 pm. Bikram follows the strategy of buying at hourly intervals: 10 am, 11 am, 12 noon, 1 pm and 2 pm, and selling the whole lot at the close of the day. Further, he buys an equal number of shares in each purchase. Chetan follows a similar pattern as Bikram but his strategy is somewhat different. Chetan's total investment amount is divided equally among his purchases. The profit or loss made by each investor is the difference between the sale value at the close of the day less the investment in purchase. The "return" for each investor is defined as the ratio of the profit or loss to the investment amount expressed as a percentage.

36. On a "boom" day the share price of XYZ Ltd. keeps rising throughout the day and peaks at the close of the day. Which trader got the minimum return on that day?

   1. Bikram   2. Chetan   3. Abdul
   4. Abdul or Chetan   5. Cannot be determined

37. On a day of fluctuating market prices, the share price of XYZ Ltd. ends with a gain, i.e., it is higher at the close of the day compared to the opening value. Which trader got the maximum return on that day?

   1. Bikram   2. Chetan   3. Abdul
   4. Bikram or Chetan   5. Cannot be determined

38. Which one of the following statements is always true?

   1. Abdul will not be the one with the minimum return
   2. Return for Chetan will be higher than that of Bikram
   3. Return for Bikram will be higher than that of Chetan
   4. Return for Chetan cannot be higher than that of Abdul
   5. None of the above

One day, two other traders, Dane and Emily joined Abdul, Bikram and Chetan for trading in the shares of XYZ Ltd. Dane followed a strategy of buying equal numbers of shares at 10 am, 11 am and 12 noon, and selling the same numbers at 1 pm, 2 pm and 3 pm. Emily, on the other hand, followed the strategy of buying shares using all her money at 10 am and selling all of them at 12 noon and again buying the shares for all the money at 1 pm and again selling all of them at the close of the day at 3pm. At the close of the day the following was observed:

   i.   Abdul lost money in the transactions.
   ii. Both Dane and Emily made profits.
   iii. There was an increase in the share price during the closing hour compared to the price at 2 pm.
   iv. Share price at 12 noon was lower than the opening price.

39. Which of the following is necessarily false?

   1. Share price was at its lowest at 2 pm
   2. Share price was at its lowest at 11am
   3. Share price at 1 pm was higher than the share price at 2 pm
   4. Share price at 1 pm was higher than the share price at 12 noon
   5. None of the above

40. Share price was at its highest at

   1. 10 am   2. 11 am   3. 12 noon
   4. 1 pm   5. Cannot be determined

DIRECTIONS *for questions 41 to 43: Answer the following questions based on the statements given below:*

1. There are three houses on each side of the road.
2. These six houses are labeled as P, Q, R, S, T and U.
3. The houses are of different colours, namely, Red, Blue, Green, Orange, Yellow and White.
4. The houses are of different heights.
5. T, the tallest house, is exactly opposite to the Red coloured house.
6. The shortest house is exactly opposite to the Green coloured house.
7. U, the Orange coloured house, is located between P and S.
8. R, the Yellow coloured house, is exactly, is exactly opposite to P.
9. Q, the Green coloured house, is exactly opposite to U.
10. P, the White coloured house, is taller than R, but shorter than S and Q.

41. What is the colour of the tallest house?

| 1. Red | 2. Blue | 3. Green |
| 4. Yellow | 5. None of these | |

42. What is the colour of the house diagonally opposite to the Yellow coloured house?

| 1. White | 2. Blue | 3. Green |
| 4. Red | 5. None of these | |

43. Which is the second tallest house?

| 1. P | 2. S | 3. Q |
| 4. R | 5. Cannot be Determined | |

DIRECTIONS *for questions 44 to 47: Answer the following questions based on the information given below:*

In a sports event, six teams (A, B, C, D, E and F) are competing against each other. Matches are scheduled in two stages. Each team plays three matches in Stage-I and two matches in Stage-II. No team plays against the same team more than once in the event. No ties are permitted **in** any of the matches. The observations after the completion of Stage-I and Stage-II are as given below.

Stage-I:
- One team won all the three matches.
- Two teams lost all the matches.
- D lost to A but won against C and F.
- E lost to B but won against C and F.
- B lost at least one match.
- F did not play against the top team of Stage-I.

Stage-II:
- The leader of Stage-I lost the next two matches.
- Of the two teams at the bottom after Stage-I, one team won both matches, while the other lost both matches.
- One more team lost both matches in Stage-II.

44.   The team (s) with the most wins in the event is (are):

1. A   2. A & C   3. F   4. E   5. B & E

45.   The two teams that defeated the leader of Stage-I are:

1. F & D   2. E & F   3. B & D   4. E & D   5. F & D

46.   The only team (s) that won both matches in Stage-II is (are):

1. B   2. E & F   3. A, E & F   4. B, E & F   5. B & F

47.   The teams that won exactly two matches in the event are:

1. A,D&F   2. D&E   3. E&F   4. D, E&F   5. D & F

DIRECTIONS *for questions 48 to 50:* Answer the questions based on the information given below:
Telecom operators get revenue from transfer of data and voice. Average revenue received from transfer of each unit of data is known as ARDT. In the diagram below, the revenue received from data transfer as percentage of total revenue received and the ARDT in US dollars (USD) are given for various countries.
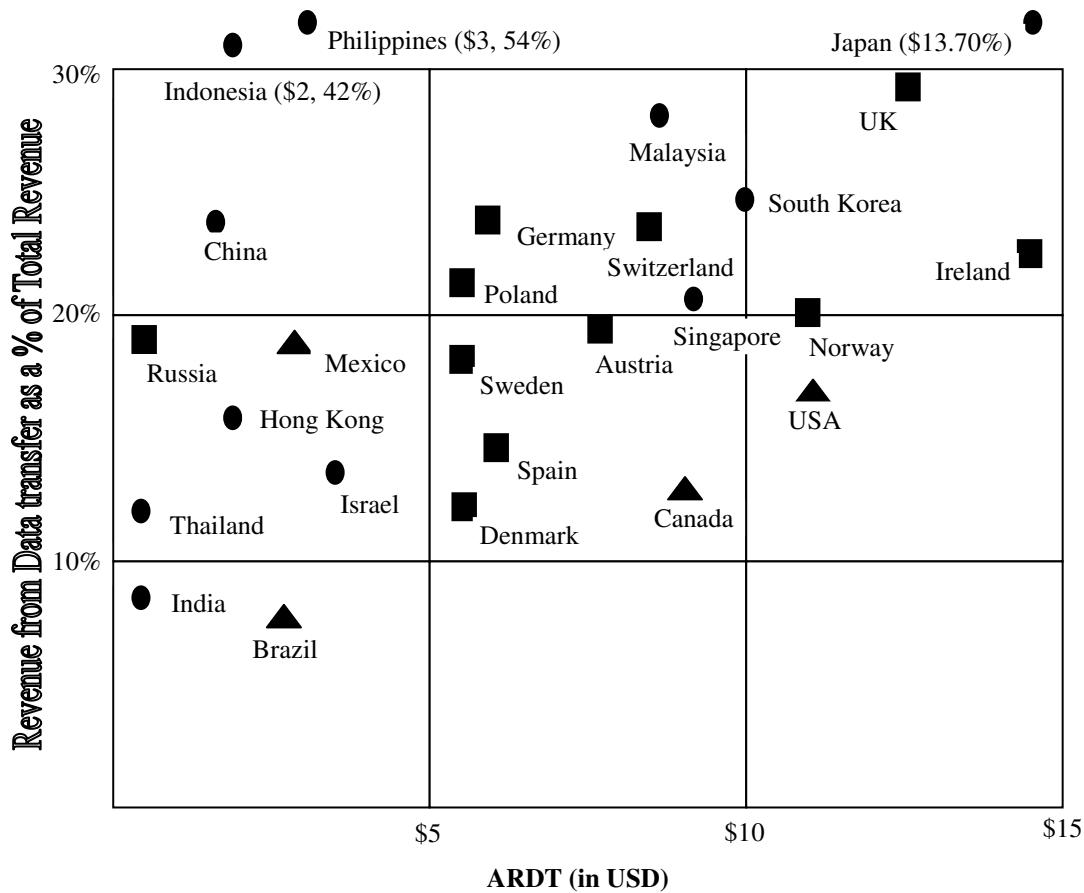
48. If the total revenue received is the same for the pairs of countries listed in the choices below, choose the pair that has approximately the same volume of data transfer.

1. Philippines and Austria
2. Canada and Poland
3. Germany and USA
4. UK and Spain
5. Denmark and Mexico

49. It was found that the volume of data transfer in India is the same as that of Singapore. Then which of the following statement is true?

1. Total revenue is the same in both countries
2. Total revenue in India is about 2 times that of Singapore
3. Total revenue in India is about 4 times that of Singapore
4. Total revenue in Singapore is about 2 times that of India
5. Total revenue in Singapore is about 4 times that of India.

50. It is expected that by 2010, revenue from data transfer as a percentage of total revenue will triple for India and double for Sweden. Assume that in 2010, the total revenue in India is twice that of Sweden and that the volume of data transfer is the same in both the countries. What is the percentage increase of ARDT in India if there is no change in ARDT in Sweden?

1. 400%   2. 550%   3. 800%   4. 950%   5. Cannot be determined

SECTION III
This section contains 40 questions

DIRECTIONS *for questions 51 to 54:* In each question, there are five sentences. Each sentence has a pair of worlds that are italicized and highlighted. From the italicized and highlighted words, select the most appropriate words (A or B) to form correct sentences. The sentences are followed by options that indicate the words, which may be selected to correctly complete the set of sentences. From the options given, choose the **most appropriate** one.

51. Anita wore a beautiful *broach(A)/brooch(B)* on the lapel of her jacket.
If you want to complain about the amenities in your neighborhood, please meet your *councilor(A)/counselor(B).*
I would like your *advice(A)/advise(B)* on which job I should choose.
The last scene provided a *climatic(A)/climatic(B)* ending to the film.
Jeans that *flair(A)/flare(B)* at the bottom are in fashion these days.

 1. BABAA   2. BABAB   3. BAAAB   4. ABABA   5. BAABA

52. The cake had lots of *currents(A)/currants(B)* and nuts in it.
If you engage in such *exceptional(A)/exceptionable(B)* behavior, I will be forced to punish you.
He has the same capacity as an adult to *consent(A)/assent(B)* to surgical treatment.
The minister is *obliged(A)/compelled(B)* to report regularly to a parliamentary board.
His analysis of the situation is far too *sanguine(A)/genuine(B).*

 1. BBABA   2. BBAAA   3. BBBBA   4. ABBAB   5. BABAB

53. She managed to bite back the *ironic (A)/caustic(B)* retort on the tip of her tongue.
He gave an impassioned and **valid (A)/cogent(B)** plea for judicial reform.
I am not **adverse (A)/averse(B)** to helping out.
The *coupe(A)/coup(B)* broke away as the train climbed the hill.
They heard the bells *peeling (A)/pealing(B)* far and wide.

 1. BBABA   2. BBBAB   3. BAABB   4. ABBAA   5. BBBBA

54. We were not successful in *defusing(A)/diffusing(B)* the Guru's ideas.
The students *baited(A)/bated(B)* the instructor with irrelevant questions.
The *hoard(A)/horde(B)* rushed into the campus.
The prisoner's *interment(A)/internment(B)* came to an end with his early release.
The hockey team could not deal with his *unsociable(A)/unsocial(B)* tendencies.

 1. BABBA   2. BBABB   3. BABAA   4. ABBAB   5. AABBA

DIRECTIONS *for questions 55 to 58: In each of the following questions there are sentences that form a paragraph. Identify the sentence(s) or part(s) 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.*

55. A. In 1849, a poor Bavarian imigrant named Levi Strauss
   B. landed in San Francisco, California,
   C. at the invitation of his brother-in-law David Stern
   D. owner of dry goods business.
   E. This dry goods business would later became known as Levi Strauss & Company.

 1. B only   2. B and C only   3. A and B   4. A only   5. A, B and D

56.   A.   In response to the allegations and condemnation pouring in,
        B.   Nike implemented comprehensive changed in their labour policy.
        C.   Perhaps sensing the rising tide of global labour concerns,
        D.   from the public would become a prominent media issue,
        E.   Nike sought to be a industry leader in employee relations.

        1. D and E   2. D only   3. A and E   4. A and D   5. B, C and E

57.   A.   Charges and countercharges mean nothing
        B.   to the few million who have lost their home.
        C.   The nightmare is far from over, for the government
        D.   is still unable to reach hundreds who are marooned.
        E.   The death count have just begun.

        1. A only   2.C only   3. A and C   4.A, C and D   5. D only.

58.   A.   I did not know what to make of you.
        B.   Because you'd lived in India, I associate you more with my parents than with me.
        C.   And yet you were unlike my cousins in Calcutta, who seem so innocent and obedient when
            visited them.
        D.   you were not curious about me in the least.
        E.   Although you did make effort to meet me.

        1. A only   2. A and B   3. A and E   4. D only   5. A and D

DIRECTIONS *for questions 59 to 62: Each of the following questions has a sentence with two blanks. Given below each questions are five pairs of words. Choose the pair that **best** completes the sentence.*

59.   The genocides in Bosnia and Rwanda, apart from being mis-described in the most sinister and
_____ manner as 'ethnic cleansing', were also blamed, in further hand-washing
rhetoric, on something dark and interior to _____ and perpetrators alike.

        1. innovative; communicator   2. exigent; exploiters
        3. enchanting; leaders   4. tragic; sufferers
        5. disingenuous; victims

60.   As navigators, calendar makers, and other _____ of the sky accumulated evidence
to the contrary, ancient astronomers were forced to _____ that certain bodies might
move in circles about points, which in turn moved in circles about the earth.

        1. scrutinizers; believe   2. observers; concede
        3. observers; agree   4. students; conclude
        5. scrutinizers; suggest

61.   Every human being, after the first few days of his life, is a product of two factors: on the one
hand, there is his _____ endowment; and on the other hand, there is the effect of
environment, including _____.

        1. constitutional; whether   3. economic; learning
        2. congenital; education   4. personal; climate
        5. genetic; pedagogy

62. Exhaustion of natural resources, destruction of individual initiative by governments, control over men's minds by central _____ of education and propaganda are some of the major evils which appear to be on the increase as a result of the impact of science upon minds suited by _____ to an earlier kind of world.

1. tenets; fixation
2. organs; tradition
3. aspects; inhibitions
4. departments; repulsion
5. institutions; inhibitions

DIRECTIONS *for questions 63 to 66 :* In each of the questions, a word has been used in sentences in five different ways. Choose the option corresponding to the sentence in which the usage of the word in **incorrect or inappropriate.**

63.   Run

1. I must run fast to catch up with him.
2. Our team scored a goal against the run of play.
3. You can't run over him like that
4. The newly released book is enjoying a popular run.
5. This film is a run-of-the-mill production.

64.   Round

1. The police fired a round of tear gas shells.
2. The shop is located round the corner.
3. We took a ride on the merry-go-round.
4. The doctor is on a hospital round.
5. I shall proceed further only after you come round to admitting it.

65.   Buckle

1. After the long hike our knees were beginning to buckle.
2. The horse suddenly broke into a buckle.
3. The accused did not buckle under police interrogation.
4. Sometimes, an earthquake can make a bridge buckle.
5. People should learn to buckle up as soon as they get into a car.

66.   File

1. You will find the paper in the file under C.
2. I need to file an insurance claim.
3. The cadets were marching in a single file.
4. File your nails before you apply nail polish.
5. When the parade was on, a soldier broke the file.

DIRECTIONS *for questions 67 to 70: 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.*

67.   Most people at their first consultation take a furtive look at the surgeon's hands in the hope of reassurance. Prospective patients look for delicacy, sensitivity, steadiness, perhaps unblemished pallor. On this basis, Henry Perowne loses a number of cases each year. Generally, he knows it's about to happen before the patient does: the downward glance repeated, the prepared questions beginning to falter, the overemphatic thanks during the retreat to the door.

    1.   Other people do not communicate due to their poor observation.
    2.   Other patients don't like what they see but are ignorant of their right to go elsewhere.
    3.   But Perowne himself is not concerned.
    4.   But others will take their place, he thought.
    5.   These hands are steady enough, but they are large.

68.   Trade protectionism, disguised as concern for the climate, is raising its head. Citing competitiveness concerns, powerful industrialized countries are holding out threats of a levy on imports of energy-intensive products from developing countries that refuse to accept their imports of energy-intensive products from developing countries that refuse to accept their demands. The actual source of protectionist sentiment in the OECD countries is, of course, their current lackluster economic performance, combined with the challenges posed by the rapid economic rise of China and India – in that order.

    1.   Climate change is evoked to bring trade protectionism through the back door.
    2.   OECD countries are taking refuge in climate change issues to erect trade barriers against these two countries.
    3.   Climate change concerns have come as a convenient stick to beat the rising trade power of China and India.
    4.   Defenders of the global economic status quo are posing as climate change champions.
    5.   Today's climate change champions are the perpetrators of global economic inequity.

69.   Mattancherry is Indian Jewry's most famous settlement. Its pretty streets of pastel coloured houses, connected by first-floor passages and home to the last twelve saree-and-sarong-wearing, white-skinned Indian Jews, are visited by thousands of tourists each year. Its synagogue, built in 1568, with a floor of blue-and-white Chinese tiles, a carpet given by Haile Selassie and the frosty Yaheh selling tickets at the door, stands as an image of religious tolerance.

    1.   Mattancherry represents, therefore, the perfect picture of peaceful co-existence.
    2.   India's Jews have almost never suffered discriminations, except for European colonizers and each other.
    3.   Jews in India were always tolerant.
    4.   Religious tolerance has always been only a façade and nothing more.
    5.   The pretty pastel streets are, thus, very popular with the tourists.

70.   Given the cultural and intellectual interconnections, the question of what is 'Western' and what is 'Eastern' (or 'Indian') is often hard to decide, and the issue can be discussed only in more dialectical terms. The diagnosis of a thought as 'purely Western' or 'purely Indian' can be very illusory.

    1.   Thoughts are not the kind of things that can be easily categorized.
    2.   Though 'occidentalism' and 'orientalism' as dichotomous concepts have found many adherents.
    3.   'East is East and West is West' has been a discredited notion for a long time now.
    4.   compartmentalizing thoughts is often desirable.
    5.   The origin of a thought is not the kind of thing to which 'purity' happens easily.

DIRECTIONS *for questions 71 to 75: The passage given below is followed by a set of five questions. Choose the **most appropriate** answer to each questions.*

Language is not a cultural artifact that we learn the way we learn to tell time or how the federal government works. Instead, it is a distinct piece of the biological makeup of our brains. Language is a complex, specialized skill, which develops in the child spontaneously, without conscious effort or formal instruction, is deployed without awareness of its underlying logic, is qualitatively the same in every individual, and is distinct from more general abilities to process information or behave intelligently. For these reasons some cognitive scientists have described language as a psychological faculty, a mental organ, a neural system, and a computational module. But I prefer the admittedly quaint term "instinct". It conveys the idea that people know how to talk in more or less the sense that spiders know how to spin webs. Web-spinning was not invented by some unsung spider genius and does not depend on having had the right education or on having an aptitude for architecture or the construction trades. Rather, spiders spin spider webs because they have spider brains, which give them the urge to spin and the competence to succeed. Although there are differences between webs and words, I will encourage you to see language in this way, for it helps to make sense of the phenomena we will explore.

Thinking of language as an instinct inverts the popular wisdom, especially as it has been passed down in the canon of the humanities and social sciences. Language is no more a cultural invention than is upright posture. It is not a manifestation of a general capacity to use symbols: a three-year-old, we shall see, is a grammatical genius, but is quite incompetent at the visual arts, religious iconography, traffic signs, and the other staples of the semiotics curriculum. Though language is a magnificent ability unique to *Homo sapiens* among living species, it does not call for sequestering the study of humans from the domain of biology, for a magnificent ability unique to a particular living species is far from unique in the animal kingdom. Some kinds of bats home in on flying insects using Doppler sonar. Some kinds of migratory birds navigate thousands of miles by calibrating the positions of the constellations against the time of day and year. In nature's talent show, we are simply a species of primate with our own act, a knack for communicating information about who did what to whom by modulating the sounds we make when we exhale.

Once you begin to look at language not as the ineffable essence of human uniqueness but as t biological adaptation to communicate information, it is no longer as tempting to see language as an insidious shaper of thought, and, we shall see, it is not. Moreover, seeing language as one of nature's engineering marvels – an organ with "that perfection of structure and co-adaptation which justly excites our admiration," in darwin's words – gives us a new respect for your ordinary Joe and the much-maligned English language (or any language). The complexity of language, from the scientist's point of view, is part of our biological birthright; it is not something that parents teach their children or something that must be elaborated in school – as Oscar Wilde said, "Education is an admirable thing, but it is well to remember from time to time that nothing that is worth knowing can be taught." A preschooler's tacit knowledge of grammar is more sophisticated than the thickest style manual or the most state-of-the-art computer language system, and the same applies to all healthy human beings, even the notorious syntax-fracturing professional athlete and the, you know, like, inarticulate teenage skateboarder. Finally, since language is the product of a well-engineered biological instinct, we shall see that it is not the nutty barrel of monkeys that entertainer-columnists make it out to be.

71. According to the passage, which of the following does not stem from popular wisdom on language?

1. Language is a cultural artifact.
2. Language is a cultural invention.
3. Language is learnt as we grow.
4. Language is unique to *Homo sapiens*.
5. Language is a psychological faculty.

72. Which of the following can be used to replace the "spiders know how to spin webs" analogy as used by the author?

1. A kitten learning to jump over a wall.   2. Bees collecting nectar
3. A donkey carrying a load   4. A horse running a Derby
5. A pet dog protecting its owner's property.

73. According to the passage, which of the following is unique to human beings?

1. Ability to use symbols while communicating with one another.
2. Ability to communicate with each other trough voice modulation.
3. Ability to communicate information to other members of the species.
4. Ability to use sound as means of communication.
5. All of the above.

74. According to the passage, complexity of language cannot be taught by parents or at school to children because

1. children instinctively know language.
2. children learn the language on their own.
3. language is not amenable to teaching.
4. children know language better than their teachers or parents.
5. children are born with the knowledge of semiotics.

75. Which of the following best summarizes the passage?

1. Language is unique to *Home sapiens.*
2. Language is neither learnt nor taught.
3. Language is not a cultural invention or artifact as it is made out.
4. Language is instinctive ability of human beings.
5. Language is use of symbols unique to human beings.

DIRECTIONS *for questions 76 to 80: The passage given below is followed by a set of five questions. Choose the most appropriate answer to each question.*

When I was little, children were bought two kinds of ice cream, sold from those white wagons with canopies made of silvery metal: either the two-cent cone or the four-cent ice-cream pie. The two-cent cone was very small, in fact it could fit comfortably into a child's hand, and it was made by taking the ice cream from its container with a special scoop and piling it on the cone. Granny always suggested I eat only a part of the cone, then throw away the pointed end, because it had been touched by the vendor's hand (though that was the best part, nice and crunchy, and it was regularly eaten in secret, after a pretence of discarding it).

The four-cent pie was made by a special little machine, also silvery, which pressed two disks of sweet biscuit against a cylindrical section of ice cream. First you had to thrust your tongue into the gap between the biscuits until it touched the central nucleus of ice cream; then, gradually, you ate the whole thing, the biscuit surfaces softening as they became soaked in creamy nectar. Granny had no advice to give here: in theory the pies had been touched only by the machine; in practice, the vendor had held them in his hand while giving them to us, but it was impossible to isolate the contaminated area.

I was fascinated, however, by some of my peers, whose parents bought them not a four-cent pie but two two-cent cones. These privileged children advanced proudly with one cone in their right hand and one in their left; and expertly moving their head from side to side, they licked first one, then the other. This liturgy seemed to me so sumptuously enviable, that many times I asked to be allowed to celebrate it. In vain My elders were inflexible: a four-cent ice, yes; but two-cent ones, absolutely no.

As anyone can see, neither mathematics nor economy nor dietetics justified this refusal. Nor did hygiene, assuming that in due course the tips of both cones were discarded. The pathetic, and obviously mendacious, justification was that a boy concerned with turning his eyes from one cone to the other was more inclined to stumble over stones, steps, or cracks in the pavement. I dimly sensed that there was another secret justification, cruelly pedagogical, but I was unable to grasp it.

Today, citizen and victim of a consumer society, a civilization of excess and waste (which the society of the thirties was not), I realize that those dear and now departed elders were right. Two two-cent cones instead of one at four cents did not signify squandering, economically speaking, but symbolically they surely did. It was for this precise reason, that I yearned for them: because two ice creams suggested excess. And this was precisely why they were denied to me : because they looked indecent, an insult to poverty, a display of fictitious privilege, a boast of wealth. 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 ." They were preparing them to turn up at tourist-class check-in with a fake Gucci bag bought from a street peddler on the beach at Rimini.

Nowadays the moralist risks seeming at odds with morality, in a world where the consumer civilization now wants even adults to be spoiled, and promises them always something more from the wristwatch in the box of detergent to the bonus bangle sheathed, with the magazine it accompanies, in a plastic envelope. 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. You will throwaway the old transistor radio to purchase the new one, that boasts an alarm clock as well, but some inexplicable defect in the mechanism will guarantee that the radio lasts only a year. The new cheap car will have leather seats, double side mirrors adjustable from inside, and a panelled dashboard, but it will not last nearly so long as the glorious old Fiat 500, which, even when it broke down, could be started again with a kick.

The morality of the old days made Spartans of us all, while today's morality wants all of us to be Sybarites.

76. Which of the following cannot be inferred from the passage?

1. Today's society is more extravagant than the society of the 1930s.
2. The act of eating two ice cream cones is akin to a ceremonial process.
3. Elders rightly suggested that a boy turning eyes from one cone to the other was more likely to fall.
4. Despite seeming to promise more, the consumer civilization gives away exactly what the thing is worth.
5. The consumer civilization attempts to spoil children and adults alike.

77. In the passage, the phrase "little parvenus" refers to

1. naughty midgets.
2. Old hags
3. Arrogant people
4. Young upstarts
5. Foolish kids.

78. The author pined for two two-cent cones instead of one four-cent pie because

1. it made dietetic sense.
2. it suggested intemperance.
3. It was more fun.
4. it had a visual appeal
5. he was a glutton

79. What does the author mean by "nowadays the moralist risks seeming at odds with morality"?

1. The moralists of yesterday have become immoral today.
2. The concept of morality has changed over the years.
3. Consumerism is amoral.
4. The risks associated with immorality have gone up.
5. The purist's view of morality is fast becoming popular.

80. According to the author, the justification for refusal to let him eat two cones was plausibly

1. didactic   2. dietetic   3. dialectic   4. diatonic   5. diastolic

DIRECTIONS *for questions 81 to 85:* The passage given below is followed by a set of five questions. Choose the **most appropriate** answer to each question.

A remarkable aspect of art of the present century is the range of concepts and ideologies which it embodies. It is almost tempting to see a pattern emerging within the art field – or alternatively imposed upon it *a posteriori* – similar to that which exists under the umbrella of science where the general term covers a whole range of separate, though interconnecting, activities. Any parallelism is however – in this instance at least – misleading. A scientific discipline develops systematically once its bare tenets have been established, named and categorized as conventions. Many of the concepts of modern art, by contrast, have resulted from the almost accidental meetings of groups of talented individuals at certain times and certain places. The ideas generated by these chance meetings had twofold consequences. Firstly, a corpus of work would be produced which, in great part, remains as a concrete record of the events. Secondly, the ideas would themselves be disseminated through many different channels of communication – seeds that often bore fruit in contexts far removed from their generation. Not all movements were exclusively concerned with innovation. Surrealism, for instance, claimed to embody a kind of insight which can be present in the art of nay period. This claim has been generally accepted so that a sixteenth century painting by Spranger or a mysterious photograph by Atget can legitimately be discussed in surrealist terms. Briefly, then, the concepts of modern art are of many different (often fundamentally different) kinds and resulted from the exposures of painters, sculptors and thinkers to the more complex phenomena of the twentieth century, including our ever increasing knowledge of the thought and products of earlier centuries. Different groups of artists would collaborate in trying to make sense of a rapidly changing world of visual and spiritual experience. We should hardly be surprised if no one group succeeded completely, but achievements, though relative, have been considerable. Landmarks have been established – concrete statements of position which give a pattern to a situation which could easily have degenerated into total chaos. Beyond this, new language tools have been created for those who follow-semantic systems which can provide a springboard for further explorations.

The codifying of art is often criticized. Certainly one can understand that artists are wary of being pigeon-holed since they are apt to think of themselves as individuals – sometimes with good reason. The notion of self-expression, however, no longer carries quite the weight it once did; objectivity has its defenders. There is good reason to accept the ideas codified by artists and critics, over the past sixty years or so, as having attained the status of independent existence – an independence which is not without its own value. The time factor is important here. As an art movement slops into temporal perspective, it ceases to be a living organism – becoming, rather, a fossil. This is not to say that it becomes useless or uninteresting. Just as a scientist can reconstruct the life of a prehistoric environment from the messages codified into the structure of a fossil, so can an artist decipher whole webs of intellectual and creative possibility from the recorded structure of a 'dead' art movement. The artist can match the creative possibility from the recorded structure of a 'dead' art movement. The artist can match the creative patterns crystallized into this structure against the potentials and possibilities of his own time. As T.S. Eliot observed, no one starts anything from scratch; however consciously you may try to live in the present, you are still involved with a nexus of behaviour patterns bequeathed from the

part. The original and creative person is not someone who ignores these patterns, but someone who is able to translate and develop them so that they conform move exactly to his – and our – present needs.

81. Many of the concepts of modern art have been the product of

1. ideas generated from planned deliberations between artists, painters and thinkers.
2. the dissemination of ideas through the state and its organizations.
3. accidental interactions among people blessed with creative muse.
4. patronage by the rich and powerful that supported art.
5. systematic investigation, codification and conventions.

82. In the passage, the word 'fossil' can be interpreted as

1. an art movement that has ceased to remain interesting or useful.
2. an analogy from the physical world to indicate a historic art movement.
3. an analogy from the physical world to indicate the barrenness of artistic creations in the past.
4. an embedded codification of pre-historic life.
5. an analogy from the physical world to indicate the passing of an era associated with an art movement.

83. In the passage, which of the following similarities between science and art may lead to erroneous conclusions?

1. Both, in general, include a gamut of distinct but interconnecting activities.
2. Both have movements not necessarily concerned with innovation.
3. Both depend on collaborations between talented individuals.
4. Both involve abstract thought and dissemination of ideas.
5. Both reflect complex priorities of the modern world.

84. The range of concepts and ideologies embodied in the art of the twentieth century is explained by

1. the existence of movements such as surrealism.
2. landmarks which give a pattern to the art history of the twentieth century.
3. new language tools which can be used for further explorations into new areas.
4. the fast changing world of perceptual and transcendental understanding.
5. the quick exchange of ideas and concepts enabled by efficient technology.

85. The passage uses an observation by T.S. Eliot to imply that

1. creative processes are not 'original' because they always borrow from the past.
2. we always carry forward the legacy of the past.
3. past behaviours and thought processes recreate themselves in the present and get labeled as 'original' or 'creative'.
4. 'originality' can only thrive in a 'greenhouse' insulated from the past biases.
5. 'innovations' and 'original thinking' interpret and develop on past thoughts to suit contemporary needs.

DIRECTION *for questions 86 to 90:* The passage given below is followed by a set of five questions. Choose the **most appropriate** answer to each question.

To summarize the Classic Maya collapse, we can tentatively identify five strands. I acknowledge, however, that Maya archaeologists still disagree vigourously among different parts of the Maya realm; because detailed archaeological studies are available for only some Maya sites; and because it remains puzzling why most of the Maya heartland remained nearly empty of population and failed to recover after the collapse and after re-growth of forests.

With those caveats, it appears to me that one strand consisted of population growth outstripping available resources: a dilemma similar to the one foreseen by Thomas Malthus in 1798 and being played out today in Rwanda, Haiti and elsewhere. As the archaeologist David Webster succinctly puts it, "Too many farmers grew too many crops on too much of landscape." Compounding that mismatch between population and resources was the second strand: the effects of deforestation and hillside erosion, which caused a decrease in the amount of useable farmland at a time when more rather than less farmland was needed, and possibly exacerbated by an anthropogenic drought resulting from deforestation, by soil nutrient depletion and other soil problems, and by the struggle to prevent bracken ferns from overrunning the fields.

The third strand consisted of increased fighting, as more and more people fought over fewer resources. Maya warfare, already endemic, peaked just before the collapse. That is not surprising when one reflects that at least five million people, perhaps many more, were crammed into an area smaller than the US state of Colorado (104,000 square miles). That warfare would have decreased further the amount of land available for agriculture, by creating no-man's land between principalities where it was now unsafe to farm. Bringing matters to a head was the strand of climate change. The drought at the time of the Classic collapse was not the first drought that the Maya had lived through, but it was the most severe. At the time of previous droughts, there were still uninhabited parts of the Maya landscape, and people at a site affected by drought could save themselves by moving to another site. However, by the time of the Classic collapse the landscape was now full, there was no useful unoccupied land in the vicinity on which to begin anew, and the whole population could not be accommodated in the few areas that continued to have reliable water supplies.

As our fifth strand, we have to wonder why the kings and nobles failed to recognize and solve these seemingly obvious problems undermining their society. Their attention was evidently focused on their short-term concerns of enriching themselves, waging wars, erecting monuments, competing with each other, and extracting enough food from the peasants to support all those activities. Like most leaders throughout human history, the Maya kings and nobles did not heed long-term problems, insofar as they perceived them.

Finally, while we still have some other past societies to consider before we switch our attention to the modern world, we must already be struck by some parallels between the Maya and the past societies. As on Mangareva, the Maya environmental and population problems led to increasing warfare and civil strife. Similarly, on Easter Island and at Chaco Canyon, the Maya peak population numbers were followed swiftly by political and social collapse. Paralleling the eventual extension of agriculture from Easter Island's coastal lowlands to its uplands, and from the Mimbres floodplain to the hills, Copan's inhabitants also expanded from the floodplain to the more fragile hill slopes, leaving them with a larger population to feed when the agricultural boom in the hills went bust. Like Easter Island chiefs erecting ever larger statues, eventually crowned by Pukao, and like Anasazi elite treating themselves to necklaces of 2,000 turquoise beads, Maya kings sought to outdo each other with more and more impressive temples, covered with thicker and thicker plaster – reminiscent in turn of the extravagant conspicuous consumption by modern American CEOs. The passivity of Easter chiefs and Maya kings in the face of the real big threats to their societies completes our list of disquieting parallels.

86. According to the passage, which of the following best represents the factor that has been cited by the author in the context of Rwanda and Haiti?

1. Various ethnic groups competing for land and other resources
2. Various ethnic groups competing for limited land resources
3. Various ethnic groups fighting with each other.
4. Various ethnic groups competing for political power
5. Various ethnic groups fighting for their identity.

87. By an anthropogenic drought, the author means

1. a drought caused by lack of rains.
2. a drought caused due to deforestation.
3. a drought caused by failure to prevent bracken ferns from overrunning the fields.
4. a drought caused by actions of human beings.
5. a drought caused by climate changes.

88. According to passage, the drought at the time of Maya collapse had a different impact compared to the droughts earlier because

1. the Maya kings continued to be extravagant when common people were suffering.
2. it happened at the time of collapse of leadership among Mayas.
3. it happened when the Maya population had occupied all available land suited for agriculture.
4. it was followed by internecine warfare among Mayans.
5. irreversible environmental degradation led to this drought.

89. According to the author, why is it difficult to explain the reasons for Maya collapse?

1. Copan inhabitants destroyed all records of that period
2. The constant deforestation and hillside erosion have wiped out all traces of the Maya kingdom.
3. Archaeological sites of Mayas do not provide any consistent evidence.
4. It has not been possible to ascertain which of the factors best explains as to why the Maya civilization collapsed.
5. At least five million people were crammed into a small area.

90. Which factor has not been cited as one of the factors causing the collapse of Maya society?

1. Environmental degradation due to excess population
2. Social collapse due to excess population.
3. Increased warfare among Maya people
4. Climate change
5. Obsession of Maya population with their own short-term concerns.

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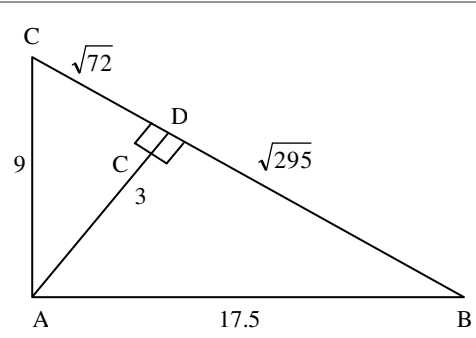
1.	2	**21.**	1	**41.**	2	**61.**	2	**81.**	3
2.	2	**22.**	4	**42.**	4	**62.**	1	**82.**	5
3.	5	**23.**	3	**43.**	5	**63.**	3	**83.**	1
4.	3	**24.**	4	**44.**	5	**64.**	5	**84.**	4
5.	4	**25.**	4	**45.**	2	**65.**	2	**85.**	5
6.	1	**26.**	3	**46.**	4	**66.**	5	**86.**	2
7.	2	**27.**	2	**47.**	5	**67.**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

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EXPLANATIONS

1.	Since amount of rice, in the end is zero , so last person must have got $= \dfrac{1}{2} + \dfrac{1}{2} = 1\,\text{kg}$ So, shopkeeper must have had $2 + 1 = 3\,kg$ So, 2nd person will get $= 1\dfrac{1}{2} + \dfrac{1}{2} = 2\,\text{kg}$ After that shopkeeper had $3\dfrac{1}{2} + 3\dfrac{1}{2} = 7\,\text{kg}$ originally.
2.	$f(3) = 9a + 3b + c = 0$ ----------------(1) $f(5) = -3\,f(2) \implies 25a + 5b + c = -3(4a + 2b + c)$ $\implies 25a + 5b + c = -12a - 6b - 3c$ $\implies 37a + 11b + 4c = 0.$ --------------(2) Equation $2 - 4 \times$ (Equation 1) Given $a - b = 0$, $a = b$, if $a = b$, then sum $= -1$, so other root $= -4$.
3.	Since $a = b$, thus from Equation1 $\implies 12a + c = 0$ from Equation2 $\implies \underline{48a + 4c = 0}$ $\qquad\qquad\qquad$ Can't be determined
4.	In the first series the numbers are of the type $4n + 1$, in second series the numbers are of the type $5m + 1$. Thus we need to find out the numbers of type $20x + 1$. It is a series of 21, 41, 61, ----------- 401. Total number of terms is $= 20$.
5.	No. of ways to reach from A to one corner of the park $P = 4! / 2! \times 2! = 6$ No. of ways to reach from one corner to another corner of the park $P = 1$ No. of ways to reach from another corner of park P to $B = 6! / 4! \times 2!$ Total number of possible shortest paths from A to B $= 6 \times 1 \times 15 = 90$
6.	Looking at the figure carefully and analyzing there are total of 13 ways to reach C from B or Vice Versa. Using fundamental Laws of multiplication, the number of ways from her house at A to her club at C Via B = (No. of ways from A to B) $\times$ (No. of ways from B to C) Therefore the required no. of ways has to be multiple of 13. Out of the choices only option (1) is a multiple of 13. i.e. 1170.
7.	$f(x)\,f(y) = f(xy)$, $f(2) = 4, f(2)\,f(1) = f(2)$, $4 \times f(1) = 4$, So $f(1) = 1$, $f(2)\,f(2) = f(4)$ $4 \times 4 = f(4)$, So $f(4) = 16$, $f(4)\,f(1/2) = f(2)$, $16 \times f(1/2) = 4$, $f(1/2) = 1/4$
8.	Total sum of the numbers written on the blackboard $=$ $40 \times 41/2 = 820$ When two numbers 'a' and 'b' are erased and replaced by a new number $a + b - 1$, the total sum of the numbers written on the blackboard is reduced by 1. Since, this operation is repeated 39 times, therefore,

|	
	the total sum of the numbers will be reduced by $1 \times 39 = 39$. Therefore, after 39 operations there will be only 1 number that will be left on the blackboard and that will be 820 - 39 = 781.
9.	This is a function in which we need to find out the digital root (the process in which sum of the digit is to be calculated till a single digit result). And in the question it is asking about the no. of integers having digital root 9. 9, 18 , 27, -------------- 495 (all the multiples of $9 < 500$) These are 55 in number.
10.	 Area of triangle will be $=$ $\dfrac{1}{2}(\sqrt{72} + \sqrt{295}) \times 3 = \dfrac{1}{2}(8.5 + 17.2) \times 3$ Radius of a circumcircle is always $= R = \dfrac{abc}{4\Delta}$ On solving we get 26.25 as answer.
11.	On seeing the cyclicity of last 2 digits of 7, we get 07, 49, 43, 01 as the last 2 digits, so the answer is 01.
12.	Let the roots of the above cubic equation be $(\alpha - 1)$, α, $(\alpha + 1)$ $\Rightarrow \alpha\,(\alpha - 1) + \alpha\,(\alpha + 1) + (\alpha + 1)\,(\alpha - 1) = b$ $\Rightarrow \alpha^2 - 1 + \alpha^2 + \alpha + \alpha^2 - 1 = b \Rightarrow 3\alpha^2 - 1 = b$ Thus, the minimum possible value of 'b' will be equal to - 1 and this value is attained at $\alpha = 0$.
13.	According to basic property of triangle, sum of any two sides of a triangle must be greater than third side. Since it is an obtuse angled triangle of say sides a, b and c, so $a^2 + b^2 < c^2$. If x is taken as the largest side then the third side can be 18, 19, 20, 21 and 22. Also if we take 15 as the largest side, then the third side could be 8, 9, 10, 11 and 12. Thus 10 triangles exist.
14.	$\boxed{1}\ \boxed{2}\ \boxed{3}\ \boxed{4}$ The first place can be filled in 3 ways (1, 2, 3) The second place can be filled in 5 ways (0, 1, 2, 3, 4) The third place can be filled in 5 ways (0, 1, 2, 3, 4) The fourth place can be filled in 5 ways (0, 1, 2, 3, 4) So that total numbers $= 3 \times 5 \times 5 \times 5 = 375$. So 375 + 1 (4000) = 376.
15.	Number of terms in the given expansion is nothing but the non-negative integral solutions of the equation $a + b + c = 20$. Using formula

$^{n+r-1}C_{r-1} \Rightarrow {}^{20+3-1}C_{3-1} = {}^{22}C_2 = 231$

16.	Through symmetry, AP = PD $\therefore \triangle$ APD is an isosceles triangle. Hence $\angle$ PAD = $\angle$ PDH = 30^0 Let AD = x & AH = $\dfrac{x}{2}$, Now $\dfrac{PH}{AH}$ = tan 30^0 & PH = AH tan 30^0 = $\dfrac{x}{2} \times \dfrac{1}{\sqrt{3}} = \dfrac{x}{2\sqrt{3}}$ $\therefore$ Area of $\triangle$ APD = $\dfrac{1}{2} \times AD \times PH = \dfrac{1}{2} \times x \times \dfrac{x}{2\sqrt{3}} = \dfrac{x^2}{4\sqrt{3}}$ $\therefore$ Area of two $\triangle$ APD & BQC = $\dfrac{x^2}{2\sqrt{3}}$, Area of APDGCBE = $x^2 - \dfrac{x^2}{2\sqrt{3}} = \dfrac{(2\sqrt{3}-1)x^2}{2\sqrt{3}}$ $\therefore$ Required ratio = $\dfrac{(2\sqrt{3}-1)x^2}{2\sqrt{3}} \Big/ \dfrac{x^2}{2\sqrt{3}} = 2\sqrt{3}-1$
17.	Check by the options, only 3 satisfies this condition. Hence answer is $1 \le m \le 3$.
18.	Taking 1st two terms of the series we have $\sqrt{1+\dfrac{1}{1^2}+\dfrac{1}{2^2}} + \sqrt{1+\dfrac{1}{2^2}+\dfrac{1}{3^2}}$ $= \dfrac{3}{2} + \dfrac{7}{6} = \dfrac{16}{6} = \dfrac{8}{3} = 3 - \dfrac{1}{3}$. Taking 1st three terms we have $\sqrt{1+\dfrac{1}{1^2}+\dfrac{1}{2^2}} + \sqrt{1+\dfrac{1}{2^2}+\dfrac{1}{3^2}} + \sqrt{1+\dfrac{1}{3^2}+\dfrac{1}{4^2}}$ $= \dfrac{3}{2} + \dfrac{7}{6} + \dfrac{13}{12} = \dfrac{45}{12} = \dfrac{15}{4} = 4 - \dfrac{1}{4}$ On this pattern we can conclude that $\sqrt{1+\dfrac{1}{1^2}+\dfrac{1}{2^2}} + \sqrt{1+\dfrac{1}{2^2}+\dfrac{1}{3^2}} + - - - - - - +$ $\sqrt{1+\dfrac{1}{2007^2}+\dfrac{1}{2008^2}} = 2008 - \dfrac{1}{2008}$
19.	In $\triangle$AOC becomes a 30° 60° 90° As sides are AC = 1, AO = 1/2 and OC = $\dfrac{\sqrt{3}}{2}$ So, area of segment CBD = Area of sector ACBD – Area of $\triangle$ACB = $\left[\dfrac{120}{360} \times \pi \times (1)^2 - \dfrac{1}{2} \times \sqrt{3} \times \dfrac{1}{2}\right]$ On multiplying the equation by 2, we get the area of the intersecting region as $\dfrac{2\pi}{3} - \dfrac{\sqrt{3}}{2}$
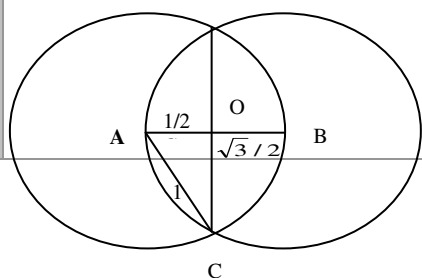
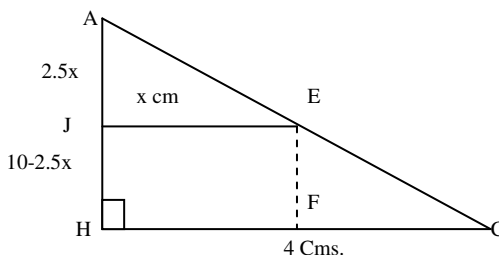|	
20.	Using sine formulae, $\dfrac{\sin 90^0}{500} = \dfrac{\sin 30^0}{BC}$ $\Rightarrow$BC = 250km. Also $\dfrac{\sin 90^0}{500} = \dfrac{\sin 60^0}{AC} \Rightarrow AC = 250\sqrt{3}$ km Train from B will cover 250km @ 50kmph in 5hrs. $\Rightarrow$ it will reach C at 1pm. Rahim will cover $250\sqrt{3}$ @ 70kmph from A to C in 6hrs 12 min. But he has to reach atleast 15 minutes earlier, so maximum he can take 6hrs. 27 minutes. So if he takes 6hrs 30 minutes, he reaches atleast 15 minutes before arrival time of the train. $\Rightarrow$ he must leave A by latest 6.30 A. M.
21.	Let ABC be required cone, Let DEFG be the required cylinder Now considering Similar triangles $\triangle$ AEJ and $\triangle$ ACH Let x = Radius of cylinder, 10 – y = Ht. of cylinder. $\dfrac{x}{4} = \dfrac{y}{10} \Rightarrow y = 2.5x$ $\Rightarrow$ Ht. of cylinder = 10 – y = 10 – 2.5x Surface Area = $\pi x^2 + \pi x^2 + 2\pi x(10-2.5x)$
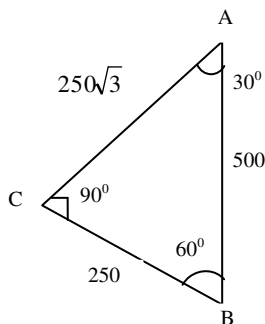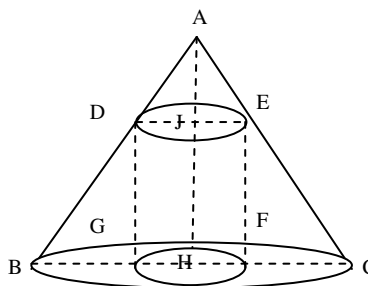
$$S = 20\pi x - 3\pi x^2$$

$$\Rightarrow \text{For } S_{max} \quad \frac{ds}{dx} = 20\pi - 6\pi x = 0$$

$$\Rightarrow x = \frac{10}{3} cm.$$

$$\frac{d^2 s}{dx^2} = -6\pi < 0$$

Thus for Radius $= \frac{10}{3} cm$ we get Surface area

$$= \pi\left(\frac{10}{3}\right)^2 + \pi\left(\frac{10}{3}\right)^2 + 2\pi\left(\frac{10}{3}\right)\left(\frac{5}{3}\right)$$

$$= \frac{100}{3}\pi$$

Alternatively : Surface area =

$$\pi x^2 + \pi x^2 + 2\pi x[10 - 2.5x] = 20\pi x - 3\pi x^2$$

Substituting Surface area attains max around

$$x \cong 3 \Rightarrow \text{ surface Area (Max)} = \frac{100\pi}{3}$$

22. Going by options, one by one.
Considering the case G W S B R , so 1st and 2nd option can be true.
Considering the case B G W R S , so 3rd and 5th options can be true.
If we consider 4th option, then Red can be first and thus Raju will get atleast Rs. 12000 or otherwise if White horse is first, then Raju will get atleast Rs. 8000 while it is given that there is no profit or loss.
So there can never be three horses between white and red.

23. _ W _ G _ _
If we assume that white came in second, then in no way Raju ends up at no profit and no loss because white at second place gives Rs. 6000 to Raju.
But out of the Red and Black horses one has to come at 3rd place, so Raju would be getting higher amount than what he has spent.
So white can never come in second.

24. The question cannot be answered by using statement A because we do not know the number of byes got by the champion.
The question cannot be answered by using statement B because we do not know the exact number of players in the tournament.
Combining both the statements together:
If there are 83 players, then there will be 7 rounds in the tournament and we know that the champion received only one bye, therefore the total number of matches played by the tournament will be 7 - 1 = 6.

25. Using statement A:
When n = 127, exactly one bye is given in round 1.
When = 96, exactly one bye is given in round 6.
As no unique value of n can be determined hence, statement A alone is not sufficient.

Using statement B:
As we do not know exactly how many byes are given, in total, we cannot determine the value of n, uniquely.

Combining statement A and B:
There is a unique value of n = 120, for which exactly 1 bye is given from the third round to the fourth round.

26. Since we have to maximize Aditya's marks, let us take the base values of 50 marks in each section and try to reduce that by minimum values to ensure he doesn't get any call. We notice that by reducing the marks obtained in section C to 41, we ensure colleges 1, 2, 3 & 5 are ruled out. Now for colleges 4 & 6, reducing the marks obtained in section D to 43, ensures these colleges are als2o ruled out. Please note that we are reducing the score to 1 less than the minimum cut-off across all colleges for that particular section.
In the other two sections A and B, Aditya may score 50 each. So, the maximum possible aggregate marks = 50 + 50 + 41 + 43 = 184.

27. According to question, Bhama need to clear cut off in all the sections for all the colleges.
For minimum total we need to assign:
Score in Section A = 45,
Section B = 45,
Section C = 46,
Section D = 45,
Total Score = 181.

28. As the least and second least aggregate cut off marks are 171 & 175.
Here, we need to find the minimum score in any section.
Let the student score a total of 175 marks and let the marks of the student in the section A, Section B and Section C to be 50.
In that case, the minimum marks in the Section D will become 25, which will be our answer.

29. Required percentage change =

$$\frac{90/180 - 120/380}{90/180} \times 100 \cong 36.84\%$$

30. Actual subscription in Europe = 600 ,
Subscription based on given assumption =

$$500 + \frac{500 \times 120}{380} = 657 \cong 50$$

31. No. of men = 60
No. of women = 40
As per given condition
No. of men in 2010 = $60 \times (1.05)^7 = 84$
No. of women in 2010 = $40 \times (1.1)^7 = 78$.
Hence total new population = 84+78 = 162
Therefore net percentage growth of subscriber is 62%

32. Maximum absolute value of the change is in year 08 – 09 which is 45%

33. To increase the average of Finance by one we need to transfer a man from marketing to finance of a age of 50 years.
To cover this gap, the man who is being transferred to marketing from finance has to be 30 only.
Final effect goes to HR department where person who is being transferred to HR has to be age of age 35 – 20 = 15.
So final average age of HR department = [(5×45)+(1×15)]/(5+1) = 40 years.

34. Total pay of Marketing man having age 40 years when he is transferred to HR department will be = 8000 + 90% of 8000 = 15200.
Total pay of HR Department will be (5000 + 70% of 5000) × 5 = 42500.
Total pay of HR Department after inclusion of marketing man = 42,500 + 15,200 = 57,700.
Average gross salary of HR Department

= 57700/6 = 9616.6.
Change in average salary = 9616.6 – 8500 = 1116.6.
Hence percentage change =

$\dfrac{1116.6}{8500} \times 100 = 13.1 \cong 13\%$

35. 2 Person transferred from maintenance department to HR department will contribute = $2 \times 6000 = 12000$
One person transferred from Marketing Department will contribute = 8000.
Total basic salary of HR Department
= 5000 × 5 + 12000 + 8000 = 45,000.
Average basic salary of HR Department
= 45000/8 = Rs.5625
Change in Average salary is = Rs. 625

Percentage change = $\dfrac{625}{5000} \times 100 = 12.5\%$

36. As the question defines that it was a boom day, as per that and information given Abdul buys at 10 am, the lowest price and sells at 3 pm, the highest price.
He will make the maximum profit.
The two other persons Bikram and Chetan, are investing with different strategies, one with equal units and other will equal investment.
In that approach the person with equal investment at all the prices always will have the lower average price.
Thus Chetan will have higher profits and returns.
Thus lowest return will be of that of Bikram.

37. The question states that the prices were fluctuating , nothing is given about the direction of the prices.
Secondly it is not known that when Bikram and Chetan bought whether the prices were more than the opening price or lesser than the opening price.
Thus cannot be determined.

38. Suppose the price of shares remains same throughout the day then all the four given statements would not hold true.

39-40. Let the share price at 10 am, 11 am, 12 noon, 1 pm, 2 pm and 3 pm be a, b, c, d, e & f rupees respectively.
From information (i) we get, a > f   …(I)
From information (ii) we get
a) Dane made profit i.e. (a + b + c) < (d + e + f)   (II)
And, (b) Emily made profit continued from original i.e. c/a× f/d > 1   (III)
or c × f > a × d   (IV)
From information in sentence (III) we get, e > f (V)
From information in sentence (IV) we get, a > c   (VI)
On combining in equations (I) & (IV) we get c > d (VII)
On combining in-equations (I) and (VII) we get,
a + c > d + f   …(VIII)
On combining in-equations (II) and (VIII) we get,
e > b   …(IX)
Hence, we get the sequence as (a > f > e > b) and (c > d). And also we know that 'a' is greater than both 'c' and 'd', therefore 'a' is the highest among the six mentioned variables.

39. Since the price at 11 am i.e. 'b' is less than the price at 2 pm (i.e. 'c'), hence statement (1) is necessarily false.
From (VII) we know that c > d.
Hence statement (4) is also necessarily false.
In the answer key given by IIMs this question is disqualified on the ground of inconsistency of data, but the explanations, which were made by our team are given here for your clarity about the approach to answer this question.

40. The price at 10 am i.e. 'a' is greater than prices at any

other time.

41-43.

Yellow	Green	Blue
R	Q	T

P	U	S
White	Orange	Red

T > S, Q > P > R > U

44. The total out come of the 1st stage is as follow
A: Defeated B, C, D
B: Defeated E & F and lost to A
C: Lost to A, D and E
D: Defeated C and F & lost to A
E: Defeated C and A lose to B
F: Lost to B, D and E.
The total out come of the 2nd stage is as follow

	No of matches played	won	lost
A	2	0	2
B	2	2	0
C	2	0	2
D	2	0	2
E	2	2	0
F	2	2	0

48. Volume of data transfer for Spain is 30/13 $\cong$ 2 and

Value of data transfer for UK is $\dfrac{15}{7} \cong 2$,

Hence are same.
For rest of the choices it is quite different.

49. Total revenue of Singapore is $\dfrac{9}{21\%} \cong 42$

which is about 4 times that of India ($\dfrac{.9}{8\%} \cong 11$)

50.

	India	Sweden
Percentage share	27%	36%
Total Revenue	200	100
Volume of Data Transfer	Same	Same
Revenue from Data Transfer as a percentage of total Revenue	27% of 200 = 54	36

Hence volume of Data transfer for Sweden is

$\dfrac{36}{6.5} = 5.8$, which is the same for India.

Therefore new ARDT of India is $\dfrac{54}{5.8} = 9.3$ which is

approx. 9 times the previous value. Hence percentage increase of ARDT in India is approx. 800%

51. Brooch - jewellery and item for jewellery,
Broach - to think.
Councillor – representative of local authority,
Counsellor – Advisor.
Climactic – constituting a climax,
climatic – relating to climate.
Flair – aptitude,
flare – expanding outward.

52. Currants – fruits.
Exceptional – uncommon/extra ordinary,
Exceptionable – objectionable.

	Consent – to accept/give acceptance, Assent – agreement. Obliged – legal obligations, Compel – to force. Sanguine – optimistic, Genuine – real.
53.	Caustic – bitter. Cogent plea (idiomatic usage) Adverse – unfavorable, Averse – opposed. Coupé – a small compartment, Coup – a struggle. Peeling – to scrap off, Pealing – a set of bells tuned to each other.
54.	Defused – reduce severity of, Diffuse – spread. Bated – to lessen, Bait – to harass. Hoard – to accumulate, Horde – a large group. Internment – to confine. Unsociable – unfriendly.
55.	Error in A- spelling of imigrant is immigrant Error in C - , (comma) required after in-law & David Stern
56.	Error in B- ……changes in "its" labour policy Error in C – sensing that…. Error in E – an industry leader
57.	Error in B – it should be millions Error in D- it should be 'the hundreds' Error in E- the death count "has" just begun
58.	Error in B & C- of tenses Error in E "make an effort"
59.	Disingenuous means insincere, Victims is the exact opposite of perpetrators
60.	Concede means "to accept/acknowledge reluctantly" hence choice 4
61.	Anticipate the blanks. This is a sentence which talks of the usual Nature Vs Nurture theory of development. So the first blank should be something related to genes or nature. Clue for this is that the environment part, read nurture, is already mentioned. So we narrow down the choices to 2 & 5. Option 2 fits the second blank better, because education is a more generic term.
62.	Tenets means any opinion, principle, doctrine. Principles to the extent of being dogmatic. Fixation- the act of fixing or the state of being fixed, related to rigid individual perception.
63.	People can't run over rather they run after.
64.	Correct usage is "come around"
65.	Unidiomatic use.
66.	A file refers to a single line/row." Broke the file " is unidiomatic
67.	Read the line "it's about to happen before the patient does…"which shows Perowneis in the know of the patient's reacton and also knows that the patient is not going to come back. Therefore the unconcern.
68.	Sums up the paragraph logically, option 2& 3 look inviting but the author gives eg's of these two countries only to reinforce the main idea which we find in option 4.
69.	Here the passage is a narration about the ambience of an old synagogue. In the last sentence we also have a statement about it being an example of religious

	tolerance. Hence 1, which reinforces the picture of tolerance. 2 is a bit tangential, since it moves the context from tolerance to absence of discrimination. 4 goes against the grain of the passage. 5 does not fit in with the theme.
70.	As per the source – Article by Amartya Sen.
71.	Refer to the line in para, "for these reasons…module." Which tells that it is an opinion of chosen few 'the scientists' and not a popular opinion.
72.	Natural Behaviour displayed by bees.
73.	Paragraph 2, last line, "In nature's talent….."
74.	Paragraph 1, line 3 & 4 "Which child develops spontaneously without conscious effort or formal instruction".
75.	The last line of Paragraph 3, reinforces what has been said in 1st line of 2nd para.
76.	It is one of the facts given in the passage. Hence cannot be inferred since it is a fact.
77.	Young upstarts- "Seeks attention thinking that he is important but he is not as important". This is confirmed by the passage.
78.	Intemperance means not in moderation – hence it is because of his desire to be seen as a person with excess….
79.	As per the author we have changed the definition of morality so as to accommodate our excessive consumerist tendency. So it has changed and evolved over the years. (5) & (3) choices are irrelevant.
80.	Para (4), last line words like 'pedagogical' gives the hint.
81.	Para (1), line 7 "Many of the concepts of modern art, by contrast, have resulted from the almost accidental meeting of groups of talented individual at certain times and certain places.
82.	Para (3), line 5 " The Time factor is important here. As an art movement slips into temporal perspective, it ceases to be a living organism – becoming, rather, a fossil. This is not to say that it becomes useless or uninteresting. Just as a scientist can reconstruct the life of a prehistoric environment from the messages codified into the structure of a fossil, so can an artist possibility from the recorded structure of a 'dead' art movement.
83.	Para (1), line 2 " It is almost tempting to see a pattern emerging within the art field or alternatively imposed upon it *posteriori* – similar to that which exists under the umbrella of science where the general term covers a whole range of separate, though interconnecting, activities. Any parallelism is however – in this instance at least – misleading."
84.	Para (1), line 20 " Different groups of artists would collaborate in trying to make sense of a rapidly changing world of visual and spiritual experience".
85.	Last Para, last line.
86.	Para 2, "compounding that mismatch between land and resources."
87.	'anthro' stands for 'mankind'.
88.	Para (3), line 9 "However by the time of the classic collapse the landscape was full, there was no useful unoccupied land in the vicinity on which to begin a new, and the whole population could not be

	accommodated in the few areas that continued to have reliable water supplies.
89.	4. Refer the first paragraph. I acknowledge, however, that Maya archaeologists still disagree vigourously among different parts of the Maya realm; because detailed archaeological studies are available for only some Maya sites
90.	Given below are references for all of the options, except 5. 1 – second paragraph 2 – second paragraph 3 – third paragraph

	4 – third paragraph 5 – here the obsession is that of the rulers and the kings, not the population.

INSTRUCTIONS ARE MISSING FROM THE FIRST SCREEN on the WEBSITE.