

CAT Sample Paper 1

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Quantitative Ability

DIRECTIONS for questions 1 to 27: Answer the questions independently of each other.

Q 1. Vivek found the product, P, of two two-digit natural numbers, M and N. He then reversed the digits of each of M and N and found the product of the resultant numbers. Interestingly, he found both products to be the same. If the product of the tens digit of M and the tens digit of N is prime, find the sum of all the possible values of P that Vivek could have obtained.

- (1) 2604
- (2) 2712
- (3) 2627
- (4) 4684
- (5) 4664

Q 2. Three circles of equal radii have been drawn inside an equilateral triangle, of side a , such that each circle touches the other two circles as well as two sides of the triangle. Then, the radius of each circle is

- (1) $\frac{a}{2(\sqrt{3}+1)}$
- (2) $\frac{a}{2(\sqrt{3}-1)}$
- (3) $\frac{\sqrt{3}+1}{a}$
- (4) $\frac{\sqrt{3}-1}{a}$
- (5) $\frac{4(\sqrt{3}-1)}{a}$

Q 3. What is the minimum value of the expression $2x^2 + 3y^2 - 4x - 12y + 18$?

- (1) 18
- (2) 10
- (3) 4
- (4) 0
- (5) -10

Q 4. Vibhu and Jayant are completing in a 100 m race. Initially, Ramu runs at twice Jayant's speed for the first fifty metres. After the 50 m mark, Vibhu runs at $1/4^{\text{th}}$ his initial speed while Jayant continues to run at his original speed. If Jayant catches up with Vibhu at a distance of 'x' metres from the finish line, then find x.

- (1) 37.5
- (2) 25
- (3) 75
- (4) 42.5
- (5) Somu will never catch up with Ramu

Q 5. When the curves $y = 10^x$ and $xy = 1$ are drawn in the X-Y plane, how many times do they intersect for values of $y > 2$?

- (1) Never
- (2) Once
- (3) Twice
- (4) Thrice
- (5) More than thrice

Q 6. Thirty-six equally spaced points - P_1 through P_{36} - are plotted on a circle, and some of these points are joined successively to form a regular polygon. How many distinct such regular polygons are possible?

- (1) 7
- (2) 23
- (3) 37
- (4) 27
- (5) None of these

Q 7. If $l + m + n \neq 0$, which of the following conditions must l , m and n satisfy so that the system of simultaneous linear equations $x + 3y - 4z = l$, $2x - y - z = m$, $x + y - 2z = n$ has at least one?

- (1) $3l - 2m + 7n = 0$
- (2) $3l - 2m - 7n = 0$
- (3) $3l + 2m - 7n = 0$
- (4) $2l + 3m + 7n = 0$
- (5) $2l + 3m - 7n = 0$

Q 8. There are n terms in an arithmetic progression. The n terms of the arithmetic progression are now distributed into eight sub-series - S_1, S_2, \dots, S_8 - as follows. The 1st, 9th, 17th terms and so on go into S_1 ; the 2nd, 10th, 18th terms and so on go into S_2 ; the 3rd, 11th, 19th terms and so on go into S_3 , and so on for S_4 till S_8 . If for exactly three of the eight sub-series, the average of the sub-series is a term of the same sub-series, which of the following could be a possible value of n ?

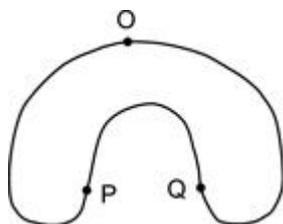
- (1) 37
- (2) 53
- (3) 49
- (4) 50
- (5) 51

Q 9. One day the king summoned all the soldiers in his army and made them stand in a queue. To the first soldier, he gave three gold coins and to every subsequent soldier, he gave four gold coins more than what he gave to the previous soldier. Then the king ordered each soldier to distribute all the coins that he received among the peasants, if and only if it is possible to distribute the coins such that each peasant to whom the soldier distributes gets as many coins as the number of peasants to whom the soldier distributes the coins. If no two soldiers were allowed to distribute coins to the same peasant and there were a total of 4000 soldiers in the king's army, how many peasants received at least one gold coin?

- (1) 386
- (2) 284
- (3) 576
- (4) 4000
- (5) None of these

Q 10. Two cyclists, Arjun and Bhim, started towards O from P and Q respectively, along the path shown below, in opposite directions. They met for the first time at 9:00 a.m. at O. At this moment, they reversed their directions but maintained their respective initial speeds and met for the second time at 10:30 a.m., following which

Arjun reached O for the second time 75 minutes after Bhim reached O for the second time. What is the ratio of the speeds of Arjun and Bhim?



- (1) 1 : 2

- (2) 2 : 3
- (3) 3 : 4
- (4) 1 : 3
- (5) Cannot be determined

Q 11. Which of the following is NOT a possible number of regions into which three straight lines (of infinite extent) can divide a plane?

- (1) 7
- (2) 6
- (3) 5
- (4) 4
- (5) None of these

Q 12. The average of the numbers of a set P, consisting of 20 numbers, is 20. There are 20 numbers in another set $Q = \{a_i : i = 1, 2, 3, \dots, 20\}$. Now, all the 20 numbers, starting from a_1 to a_{20} , in that order, are shifted from the set Q to the set P, one after the other. During the process of shifting, it was observed that when the number a_i was shifted from set Q to set P, the average of the numbers of set P increased by b_i , where $b_{i+1} - b_i = 1$, for $1 \leq i \leq 19$. If $b_1 = 2$, what is the average of the original 20 numbers of set Q?

- (1) 250
- (2) 230
- (3) 480
- (4) 240
- (5) 62

Q 13. The product of three numbers is 1620. If the HCF of any two out of the three numbers is 3, what is their LCM?

- (1) 180
- (2) 135
- (3) 90
- (4) 270
- (5) 288

Q 14. Each of four girls, A, B, C and D, had a few chocolates with her. A first gave $\frac{1}{3}$ rd of the chocolates with her to B, B gave $\frac{1}{4}$ th of what she then had to C and C gave $\frac{1}{5}$ th of what she then had to D. Finally, all the four girls had an equal number of chocolates. If A had 80 chocolates more than B initially, find the difference between the number of chocolates that C and D initially had.

- (1) 20
- (2) 30
- (3) 15
- (4) Cannot be determined

Q 15. In a survey conducted to find out the readership of three newspapers A, B and C, it was found that the number of people who read newspaper A is at least 20 and at most 40, the number of people who read newspaper B is at least 50 and at most 70, the number of people who read newspaper C is at least 70 and at most 83. It was also found that 8 people read all the three newspapers and 85 people read at least two of the three newspapers. Find the minimum number of people who read both A and B but not C.

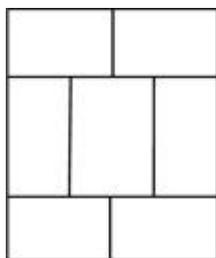
- (1) 1
- (2) 2
- (3) 3
- (4) 0

Q 16. There are twenty-five identical marbles to be divided among four brothers such that each of them gets no less than three marbles. In how many ways can the marbles be divided among the four brothers?

- (1) 286
- (2) 364
- (3) 455
- (4) 560

Q 17. Several identical cuboids of dimensions 4 cm \times 3 cm \times 2 cm are put together to form a large cube. What is the least possible volume (in cu.cm) of such a cube?

- (1) 216
- (2) 1728
- (3) 5832
- (4) 13824



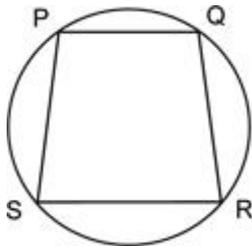
Q 18.

In the figure above, seven congruent rectangles are assembled together perfectly to form a bigger rectangle of perimeter 130 cm. Find the area (in sq.cm) of the bigger rectangle.

- (1) 1000
- (2) 1056
- (3) 750
- (4) 1050

Q 19. Three filling pipes R, S and T together, can fill an empty tank in 2 hours, S can fill the tank four times faster than T. Initially R alone is opened and after x hours, it is closed and immediately S and T are opened together. The tank is full after another y hours. If the tank was filled in a total of 4 hours, and $x \neq y$, find the time (in hours) that T alone would take to fill the tank.

- (2) 6
- (3) 12
- (4) 20
- (5) 24



Q 20.

In the figure above, PQRS is a cyclic quadrilateral, where $PQ = p$ cm, $QR = q$ cm, $RS = r$ cm and $PS = s$ cm. If $(PQ)(QR) = 3(PS)(RS)$ and $\angle PQR = 120^\circ$, then $s =$

- (1) $P + R - Q$
- (2) $Q + R - P$
- (3) $P + Q - R$
- (4) $\frac{p+q+r}{3}$

Find the value of $\frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \dots}}}}$.

Q 21.

- $\frac{\sqrt{5} - 1}{2}$
- $\frac{\sqrt{3} - 1}{2}$
- $\frac{\sqrt{2} + 1}{2}$
- $\frac{2}{\sqrt{5} + 1}$
- $\frac{2}{\sqrt{5} + 1}$

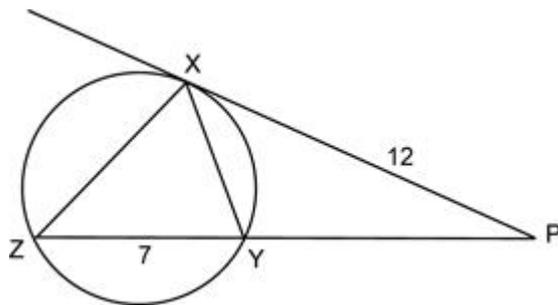
Q 22. The number N , expressed to the base five is $2323\dots\dots23$ upto a total of hundred digits. The remainder when N^{4231} is divided by 4 is

- (1) 0
- (2) 1
- (3) 2
- (4) 4

Q 23. A number written to the base five is called an *oven* number, if it is exactly divisible by 3. Which of the following is not an *oven* number?

- (1) $(4213)^{2143}$
- (2) $(1423)^{2143}$
- (3) $(1243)^{2143}$
- (4) $(3421)^{2143}$

Q 24. In the figure below, $PX = 12$ cm, $YZ = 7$ cm and the perimeter of PXY is 27 cm. Find the perimeter of PXZ .



- (1) 36 cm
- (2) 27 cm
- (3) 22.5 cm
- (4) 31.5 cm

Q 25. If a four-digit natural number is 7083 more than the number formed by reversing the order of its digits, then how many such natural numbers are possible?

- (1) 18
- (2) 24
- (3) 27
- (4) 36

Q 26. Two trains, T_1 and T_2 , simultaneously pass through a station on two parallel tracks without stopping at the station. The platform P_2 passed by the train T_2 is 50% more in length than the platform P_1 passed by train T_1 . The train T_1 runs at a speed of 72 kmph, while the other train is 25% slower and 50% longer. What is the ratio of the times taken by the trains T_1 and T_2 in passing the platforms P_1 and P_2 respectively?

- (1) 4 : 3
- (2) 3 : 1
- (3) 1 : 2
- (4) Cannot be determined

Q 27. P is a point outside the circle with centre O. If a straight line drawn through P intersects the circle at points A and B such that $AB = 4\sqrt{6}$ cm and $90^\circ < \angle AOB < 120^\circ$, which of the following could be the radius (in cm) of the circle?

- (1) 4
- (2) 5
- (3) 6
- (4) 7

DIRECTIONS for questions 28 and 29: Answer the questions on the basis of the information given below.

A single file of red ants and a single file of black beetles, both marching in opposite directions, are approaching each other. Every ant eats every fifth beetle that it comes across while every beetle eats every third ant that it comes across. If an ant and a beetle try to eat each other than the beetle always eats the ant.

Q 28. If the size of the file of ants is 13, then the minimum file size of the beetles such that the casualties on either side are the same is

- (1) 33
- (2) 35
- (3) 32
- (4) 31
- (5) 39

Q 29. If the total number of ants and beetles initially is 13 and 27 respectively, then the total number of survivors after the two files completely cross each other is

- (1) 18
- (2) 19
- (3) 22
- (4) 20
- (5) None of these

DIRECTIONS for questions 30 to 32: Answer the questions independently of each other.

Q 30. This year, during the months of January and February, every day Ramu went to a fruit shop and bought three varieties of fruits, such that when any two days are considered, he bought at least one variety of fruit on one of the days that was different from what he bought on the other day. What is the minimum number of different varieties of fruits he could have bought during that period?

- (1) 9
- (2) 8
- (3) 18
- (4) 60
- (5) 14

Q 31. Little Euclid was playing with a cuboidal box, with a square base, and 14 identical wooden spheres. He observed that he could snugly and perfectly arrange exactly nine of the fourteen spheres at the bottom of the box in a single layer comprising three rows and three columns. He then placed another layer of four spheres, stably and symmetrically on top of the bottom layer (i.e., such that each sphere in the second layer touched exactly four spheres of the bottom layer). Finally he placed the last sphere, stably and symmetrically, on top of the second layer and observed that he could then just close the lid of the box. Find the ratio of the height of the box to the radius of each sphere.

- (1) $2(2\sqrt{3}-1)$
- (2) $2(\sqrt{2}+1)$
- (3) $2(\sqrt{3}+1)$
- (4) $3(2\sqrt{2}-1)$
- (5) None of these

Q 32. In a triangle ABC, $AB = AC$, $BC = 6$ cm and BE and CF are the medians drawn to AC and AB respectively. If $BE \perp CF$, then find AC (in cm).

- (1) $3\sqrt{10}$
- (2) $6\sqrt{5}$
- (3) $4\sqrt{10}$
- (4) $8\sqrt{5}$
- (5) Cannot be determined

DIRECTIONS for questions 33 and 34: In each of the following questions, there is a main statement (MS) followed by two additional statements A and B. Study whether the data given in each of these three statements is inconsistent or not inconsistent with the data given in the other two statements and mark the correct option.

Note : *Two statements are considered to be inconsistent (i.e., not consistent) with each other, if the data given in one statement contradicts the data given in the other statement or if it is possible to arrive at conclusions that contradict each other using the two statements.*

Q 33. MS : The cost of 3 pens, 4 erasers and 5 sharpeners is Rs.54.

A : The cost of 4 pens, 4 erasers and 6 sharpeners is Rs.64.

B : The cost of 2 pens, 3 erasers and 5 sharpeners is Rs.47.

- (1) MS is not inconsistent with A but is inconsistent with B or if MS is not inconsistent with B but is inconsistent with A.
- (2) MS is inconsistent with neither A nor B but A and B are inconsistent with each other.
- (3) MS is inconsistent with neither A nor B and A and B are also not inconsistent with each other.
- (4) None of the above three are applicable.

Q 34. MS : There are two filling pipes A and B, which when opened together can fill an empty tank in 24 minutes.

A : A alone can fill the empty tank in 40 minutes.

B : If A and B were opened in alternate minutes, the empty tank would be filled in $48\frac{2}{3}$ minutes.

- (1) MS is not inconsistent with A but is inconsistent with B or if MS is not inconsistent with B but is inconsistent with A.
- (2) MS is inconsistent with neither A nor B but A and B are inconsistent with each other.
- (3) MS is inconsistent with neither A nor B and A and B are also not inconsistent with each other.
- (4) None of the above three are applicable.

Logical Reasoning & Data Interpretation

DIRECTIONS for questions 35 to 37: Answer the questions on the basis of the information given below.

The table below gives details of all the models of cars at a car rental agency.

Model	Manufacturer	Classification	Engine Capacity (in cc.)	Plus Points of the Car	Minus Points of the Car
M800	Maruti	Entry Level	< 1000	Price, Fuel efficiency	Comforts, Space
Zen	Maruti	Small	1000 – 1300	Service, Fuel efficiency	Comforts, Space
Santro	Hyundai	Small	1000 – 1300	Price, Fuel efficiency	Design, Space
Ikon	Ford	Mid Size	1301 – 1500	Technology, Comforts	Service, Fuel efficiency
City	Honda	Mid Size	1301 – 1500	Technology, Comforts	Design, Price
Optra	General Motors	Executive	1501 – 1800	Comforts, Price	Engine, Fuel efficiency
Corolla	Toyota	Executive	1501 – 1800	Engine, Comforts	Design, Price
Accord	Honda	Luxury	1800+	Price, Space	Design, Fuel efficiency
C-Class	Mercedes	Luxury	1800+	Technology, Safety	Space, Price
Swift	Maruti	Mid Size	1301 – 1500	Design, Technology	Space, Price
Octavia	Skoda	Executive	1501 – 1800	Fuel efficiency, Price	Space, Service
Lancer	Mitsubishi	Executive	1501 – 1800	Price, Service	Technology, Comforts
Wagon R	Maruti	Small	1000 – 1300	Technology, Service	Design, Space
Camry	Toyota	Luxury	1800+	Space, Technology	Price, Fuel efficiency
Alto	Maruti	Entry Level	< 1000	Price, Fuel efficiency	Space, Comforts
Fiesta	Ford	Mid Size	1301 – 1500	Technology, Price	Space, Comforts
E-Class	Mercedes	Luxury	1800+	Technology, Comforts	Price, Fuel efficiency
Vectra	General Motors	Luxury	1800+	Technology, Comforts	Design, Space
Mondeo	Ford	Luxury	1800+	Engine, Comforts	Price, Service
Baleno	Maruti	Executive	1501 – 1800	Price, Service	Design, Comforts

The agency has three major clients - companies A, B and C - which regularly source cars from the agency. The specifications of cars required by each company are given below.

Company A: *Any car with an engine capacity of more than 1300 cc. and with comforts or space as one of the plus points.*

Company B: *All cars with a classification up to executive level (i.e., entry level, small, mid size and executive level) with good fuel efficiency (i.e., fuel efficiency must be one of the plus points of the car).*

Company C: *Any car for which space or fuel efficiency is not one of its minus points.*

Q 35. If the agency has only one car of each model and Honda City and Toyota Corolla have already been sent to company A, then which of the following models of cars can be sent to company C?

- (1) Lancer
- (2) Mondeo
- (3) Baleno
- (4) All of the above
- (5) None of the above

Q 36. Which of the following models of cars cannot be sent to any of the three companies?

- (1) M800, Ikon, C-class, Wagon R
- (2) Swift, Wagon R, C-class, Fiesta
- (3) Swift, Alto, Fiesta, Baleno
- (4) Zen, Santro, Wagon R, Fiesta
- (5) Wagon R, Fiesta, Alto, Baleno

Q 37. How many different models of cars can be sent to more than one of the three companies?

- (1) 5
- (2) 4
- (3) 6
- (4) 2
- (5) 3

DIRECTIONS for questions 38 to 41: Answer the questions on the basis of the information given below.

At the finals of the "Gaana Sunao" contest, which was conducted all over India, five contestants - C_1 , C_2 , C_3 , C_4 and C_5 - participated. Before the announcement of the results, six mischievous persons - Azad, Bose, Chand, Dev, Ehsaan and Fardeen - managed to get hold of the result sheet, which contained the scores of each of the five participants. Each of the six persons then decided to announce the sum of the final scores of exactly four contestants. So, Azad, Bose, Chand, Dev, Ehsaan and Fardeen announced their sums as 220, 260, 230, 240, 210 and 250 points respectively. However, one of them made a mistake in adding the scores. Also, the organizers of the contest decided to award an amount of Rs.10,000 for each point that a contestant scored. The score of each contestant is an integral value.

Q 38. If the exact scores of the contestants C_1 , C_2 , C_3 , C_4 and C_5 are a , b , c , d and e , in no particular order, then how many of these five scores can be determined?

- (1) 0
- (2) 1
- (3) 2
- (4) 3
- (5) 4

Q 39. What is the highest possible amount that any of the five contestants can be eligible for?

- (1) Rs.7 lakh
- (2) Rs.7.5 lakh
- (3) Rs.8 lakh
- (4) Rs.8.5 lakh
- (5) Rs.9 lakh

Q 40. If one of the contestants is eligible for Rs.5 lakh, then what is the total amount that the organizers have to give away to all the five contestants put together?

- (1) Rs.30 lakh
- (2) Rs.29.5 lakh
- (3) Rs.29 lakh
- (4) Rs.28.5 lakh
- (5) Cannot be determined

Q 41. If two of the contestants put together are eligible to receive exactly Rs.15 lakh, then who among the following could have made the mistake while adding the scores?

- (1) Bose
- (2) Chand
- (3) Dev
- (4) Ehsaan
- (5) None of these

DIRECTIONS for questions 42 to 44: Answer the questions on the basis of the information given below.

DETAILS OF STUDENTS OF FOUR COLLEGES

Name of the college	Number of boys as a percentage of number of girls passed	Percentage of boys	Percentage of students who passed	Number of students failed	Number of sportsper as a percentage of sportsmen
A	60%	50%	80%	200	$112\frac{1}{2}\%$
B	75%	60%	60%	280	125%
C	100%	55%	70%	240	$133\frac{1}{3}\%$
D	140%	60%	50%	300	100%

Q 42. For how many colleges is the number of students passing more than the average number of students passing from all the colleges?

- (1) 0
- (2) 1
- (3) 2
- (4) 3
- (5) 4

Q 43. In the college C, if there are 30 girls who are sportspersons, what percentage of the students are not sportspersons?

- (1) 60%
- (2) 75%
- (3) 85%
- (4) 80%
- (5) Cannot be determined

Q 44. In which institute is the number of sportspersons the least?

- (1) A
- (2) C
- (3) D
- (4) B
- (5) Cannot be determined

DIRECTIONS for questions 45 to 48: Answer the questions on the basis of the information given below.

The following table gives some financial details of twelve Indian companies.

Company	Sales (Rs.crore)	Expenditure (Rs.crore)	Other Income (Rs.crore)	Liquidity Ratio	Net Profit (Rs.crore)
A	5800	2790	380	1.40	350
B	5490	4790	920	1.75	450
C	6400	2680	1240	1.62	180
D	3800	2190	1350	1.48	950
E	7820	6230	740	1.80	1020
F	2100	1980	980	1.73	800
G	4500	4230	650	1.36	720
H	3420	2140	1020	1.44	850
I	6500	5460	1460	1.33	650
J	6200	5840	1100	1.40	480
K	3680	2200	940	1.75	525
L	4500	3680	1130	1.45	550

Each of the above twelve companies belongs to exactly one of the four sectors - Pharmaceuticals, Automobiles, Mobiles and Construction. It is also known that, there are at least two of the above twelve companies in each of the four sectors.

Further, it is also known that,

(i) For any two mobile companies X and Y, if sales of X are more than Y, the expenditure of X will be more than that of Y and the other income of X will be less than that of Y.

(ii) For any two automobile companies X and Y, if the expenditure of X is less than that of Y, the liquidity ratio of X will be more than that of Y.

(iii) For any two pharmaceutical companies X and Y, if the other income of X is more than that of Y, the net profit of X is more than that of Y.

(iv) For any two construction companies X and Y, if the liquidity ratio of X is less than that of Y, the net profit of X is more than that of Y.

Further,

- For every pharmaceutical company, the sales are more than Rs.5000 crore.
- For every mobile company, the liquidity ratio is more than 1.6.
- For every construction company, the other income is more than Rs.1000 crore.
- For every automobile company, the net profit is more than Rs.700 crore

Q 45. Which among the following must be a construction company?

- (1) I
- (2) D
- (3) J
- (4) C
- (5) None of these

Q 46. If there are four companies in sector S, then S can be

- (1) Only Pharmaceuticals
- (2) Only Automobiles
- (3) Only Pharmaceuticals or Mobiles
- (4) Only Construction
- (5) Only Pharmaceuticals, Mobiles and Construction

Q 47. Which among the following cannot be a pharmaceutical company?

- (1) A
- (2) E
- (3) B
- (4) J
- (5) None of these

Q 48. If all the four sectors have the same number of companies, then which of the following is true?

- (1) B is a pharmaceutical company.
- (2) F is a mobile company.
- (3) I is a construction company.
- (4) B is a construction company.
- (5) None of these

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

Each of the eight students Akash, Balu, Chakri, Diren, Ehsaan, Fatima, Giri and Hari, is of a different height. All of them are standing in a row in the increasing order of their heights such that the shortest person is at the extreme left. Three of them are from 1st standard, three from 2nd standard and two from 3rd standard.

- (i) Akash, the second tallest, is not from 1st standard and Balu, who is the fourth tallest is from 2nd standard.
- (ii) Ehsaan is from 2nd standard but Chakri is not from 3rd standard.
- (iii) Hari is taller than Giri but shorter than Balu, while Diren is shorter than Akash.
- (iv) Chakri is shorter than Giri but taller than Fatima.
- (v) Neither the shortest nor the second shortest is from 1st standard.

Q 49. Which of the following statements is definitely true?

- (1) Each 2nd standard student is next to at least one 3rd standard student.
- (2) Each 3rd standard student is next to at least one 2nd standard student.
- (3) No two students of the same standard are adjacent to each other.
- (4) All the above
- (5) None of the above

Q 50. Which two students from the same standard are adjacent to each other?

- (1) Hari and Balu
- (2) Balu and Giri
- (3) Giri and Hari
- (4) Chakri and Balu
- (5) None of these

DIRECTIONS for questions 51 to 54: The questions given below are followed by two statements, I and II. Study the information given in the two statements and assess whether the statements are sufficient to answer the questions and choose the appropriate option from among the choices given below.

Q 51. In a class, the number of students who passed in both Physics and Chemistry is same as that who passed in neither Physics nor Chemistry. Find the difference between the number of students who passed in only Physics and those who passed in only Chemistry.

I. 100 students passed in Physics and 40 of them failed in Chemistry.

II. The number of students who failed in Chemistry is equal that who failed in Physics.

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.

- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Statement alone is sufficient to answer the question.
- (5) Statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Q 52. The average marks scored by the students in a class is 75. What is the number of students in the class?

I. The highest and the lowest marks in the class are 95 and 55 respectively.

II. Exclusion of the students who scored the highest and the lowest marks does not change the average marks of the remaining students.

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Statement alone is sufficient to answer the question.
- (5) Statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Q 53. A shepherd had 100 sheep which he used for breeding. The sheep were of two colours - white and brown and each sheep produced an offspring. The offspring of a white sheep was always white or black while that of a brown sheep was white or brown. How many brown sheep were used for breeding?

I. The number of white offsprings were 50.

II. The number of brown offsprings were ten more than the black offsprings.

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Statement alone is sufficient to answer the question.
- (5) Statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Q 54. How many among the four players - A, B, C and D scored a century?

I. Ram said A and B scored centuries while Mohan said at least two among A, C and D scored centuries.

II. Ram always tell the truth while Mohan always lies.

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Statement alone is sufficient to answer the question.
- (5) Statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

DIRECTIONS for questions 55 to 58: Answer the questions on the basis of the information given below.

In Rangeela land, there are only three types of people: Lalpilas, Pilharas and Haralals. Lalpilas always get confused between red and yellow (i.e. they see yellow as red and vice versa.) and can see any other colour properly. Pilharas always get confused between yellow and green and can see any other colour properly and Haralals always get confused between red and green and can see any other colour properly.

Q 55. Three persons Amar, Akbar and Anthony, who belong to Rangeela land made the following statements.

Amar : Gabbar Singh is wearing a green shirt. Akbar : Gabbar Singh is not wearing a yellow shirt. Anthony : Gabbar Singh is wearing a red shirt.

If none of them is a Haralal, then what is the colour of Gabbar Singh's shirt?

- (1) Red
- (2) Yellow
- (3) Green
- (4) Cannot be determined

Q 56. Two persons - Dhiraj and Suraj, of Rangeela land made the following statements.

Dhiraj : Feroz is wearing a red hat. Feroz is wearing a yellow shirt.

Suraj : Feroz is wearing a red hat. Feroz is wearing a green shirt.

Suraj is a

- (1) Lalpila
- (2) Pilhara
- (3) Haralal
- (4) Such a conversation is not possible.

Q 57. Veeru is a

- (1) Lalpila
- (2) Pilhara
- (3) Haralal
- (4) Cannot be determined

Q 58. What is the colour of Basanti's saree?

- (1) Green
- (2) Red
- (3) Yellow
- (4) Cannot be determined

DIRECTIONS for questions 59 to 62: Answer the questions independently of each other.

Q 59. Each of companies A, B and C - have a tradition of rewarding their employees with a bonus, once every year, during Ramzan, Christmas or Deepavali. For each company every year the bonus is paid during the same time. Use the clues below to answer the following question.

- (6) For no two companies is either the amount of bonus paid or the time of the year when bonus is paid the same
- (7) Company B distributes bonus during Deepavali.
- (8) The company that gives Rs.5,000 as bonus is in the manufacturing sector.
- (9) Company, A distributes bonus during Christmas.
- (10) The company that gives a bonus of Rs.10,000 is not in the IT sector.
- (11) The company that gives bonus for Ramzan gives Rs.5,000.
- (12) The company that gives bonus for Christmas gives Rs.12,000 as bonus.

Which of the following is true?

- (1) Company A gives a bonus of Rs.12,000 for Christmas, company B gives a bonus of Rs.5,000 for Deepavali and Company C gives a bonus of Rs.10,000 and is in the IT sector.
- (2) Company B gives a bonus of Rs.10,000 and is in the finance sector. Company C gives a bonus of Rs.5,000 during Ramzan and company A gives a bonus of Rs.12,000 and is in the manufacturing sector.
- (3) Company A gives a bonus of Rs.12,000 and is in the finance sector. Company B gives a bonus of Rs.5,000 during Deepavali and company C gives a bonus of Rs.10,000 and is in the IT sector.
- (4) Company B gives a bonus of Rs.10,000 for Deepavali. Company C gives a bonus of Rs.5,000 and is in the manufacturing sector. Company A gives a bonus of Rs.12,000 and is in the IT sector.

Q 60. Seven people, A through G, sit in a row (not necessarily in the same order). Exactly three people sit between A and G, while exactly three people sit between B and E. Exactly four people sit between C and E, while exactly four people sit between D and G. Exactly two people sit between B and D, while exactly two people sit between C and A. Given that either B or A sits to the immediate right of D, then who sits exactly at the middle of the row?

- (1) C
- (2) B
- (3) F
- (4) Cannot be determined

Q 61. According to probability theory, when a normal dice is thrown a large number of times, the probability of each number turning up will be $1/6$. A group of friends decided to try this and got the following results after 50 tries:

All numbers were obtained at least once.

The number of 1's obtained was an even number.

The number of 2's obtained was equal to the number of 5's obtained. The number of 3's obtained was five times the number of 1's obtained. Exactly six 4's were obtained.

The number of six's obtained was twenty-two, which was the highest among all the numbers obtained.

What was the total number of odd numbers obtained?

- (1) 22
- (2) 17
- (3) 25
- (4) 18

Q 62. Four friends Ashwath, Charan, Karthik and Srinivas are nicknamed Essi, KK, Kit and Maha, not necessarily in that order.

(5) Karthik is stronger than Essi but can't run as fast as Kit.

(6) Essi is stronger than Ashwath but weaker than KK.

(7) Srinivas is faster than Karthik and slower than Maha but weaker than Essi.

Who is nicknamed Maha?

- (1) Karthik
- (2) Ashwath
- (3) Charan
- (4) Srinivas

DIRECTIONS for questions 63 to 66: The questions given below are followed by two statements, I and II. Study the information given in the two statements and assess whether the statements are sufficient to answer the questions and choose the appropriate option from among the choices given below.

Q 63. Did more than 50 employees leave Company A in the year 2002? I. At the start of 2002, the difference between the number of male and female employees in company A is 90. II. By the end of 2002, the total number of employees in company A is 50.

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Both statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Q 64. Six persons - Irfan, Jagan, Karan, Lala, Manoj and Niran - participated in a race in which every participant finished in a different time. At least two persons finished before Jagan. The number of persons who finished before Lala is same as the number of persons who finished after Niran. Irfan finished before Manoj. Who finished the race in second position?

- I. Manoj finished the race in third position.**
- II. Only Lala finished the race after Karan.**

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Both statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Q 65. M and N are the father and mother of P respectively. P has four uncles and three aunts. None of the siblings of M and N are married. N has two siblings. How many sisters does M have?

- I. N has two brothers.**
- II. M has a total of 5 siblings.**

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Both statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Q 66. When J and K run a race, J beats K by 20 seconds. When K and L run the same race, K beats L by 40 seconds. Find the speed of K (in m/s).

I. J beats L by 250 m.

II. The length of the race track is 1 km.

- (1) Statement I alone is sufficient and statement II alone is not sufficient to answer the question.
- (2) Statement II alone is sufficient and statement I alone is not sufficient to answer the question.
- (3) Statements I and II together are sufficient but neither statement alone is sufficient to answer the question.
- (4) Both statements I and II together are not sufficient to answer the question and additional data, specific to the problem, is needed.

Verbal Ability

DIRECTIONS for questions 67 to 69: In each question, there are five sentences. Each sentence has pairs of words/phrases that are italicised and highlighted. From the italicised and highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

- Q 67.** (i) According to media reports the accident *occurred* (A) / *happened* (B) at about 11:30 a.m.
(ii) Caution should be exercised while handling *electric* (A) / *electrical* (B) equipment.
(iii) Abdul is a carpenter by *trade* (A) / *profession* (B).
(iv) Apart from the brilliant storyline, the excellent sound and *light* (A) / *lighting* (B) effects of the movie made it worth watching.
(v) He produced a brilliant *feint* (A) / *faint* (B) and thrust the ball into the net.

- (1) BABBA
- (2) AABBA
- (3) ABBA
- (4) ABABA
- (5) BABAB

- Q 68.** (i) The *rapid* (A) / *swift* (B) action taken by the local police in nabbing the notorious burglar was widely appreciated.
(ii) He categorically stated that no *further* (A) / *farther* (B) discussion would be entertained on the matter.
(iii) Today's women prefer a modern kitchen with all the latest *gadgets* (A) / *appliances* (B).
(iv) I am not *averse* (A) / *adverse* (B) to working extra hours.
(v) He vowed to *avenge* (A) / *revenge* (B) his sister's death.

- (1) AAAAA
- (2) AABAB
- (3) BAAAA
- (4) ABABA
- (5) BABAA

- Q 69.** (i) The *venal* (A) / *venial* (B) official's corrupt deeds were exposed by the media.
(ii) The *imminent* (A) / *eminent* (B) threat of a civil war looms large in the country.
(iii) Mahatma Gandhi was an *apostate* (A) / *apostle* (B) of non-violence.
(iv) John is a very *gregarious* (A) / *egregious* (B) person, quite the opposite of his reclusive brother.

(v) It is believed that the new government might *abnegate* (A) / *abrogate* (B) the treaty.

- (1) AAAAA
- (2) AAABA
- (3) AABAB
- (4) AAAAB
- (5) BAAAA

DIRECTIONS for questions 70 to 72: Read the following passage and answer the questions that follow it.

Where does morality come from? The modern consensus on this question lies close to the position laid out by the eighteenth century Scottish philosopher David Hume. He thought moral reason to be "the slave of the passions". Hume's view is supported by studies that suggest that our judgments of good and evil are influenced by emotional reactions such as empathy and disgust. And it fits nicely with the discovery that a rudimentary moral sense is universal and emerges early. Babies as young as six months judge individuals on the way that they treat others and even one year olds engage in spontaneous altruism.

All this leaves little room for rational deliberation in shaping our moral outlook. Indeed, many psychologists think that the reasoned arguments we make about why we have certain beliefs are mostly post-hoc justifications for gut reactions. As the social psychologist Jonathan Haidt puts it, although we like to think of ourselves as judges, reasoning through cases according to deeply held principles, in reality we are more like lawyers, making arguments for positions that have already been established. This implies we have little conscious control over our sense of right and wrong.

I predict that this theory of morality will be proved wrong in its wholesale rejection of reason. Emotional responses alone cannot explain one of the most interesting aspects of human nature: that morals evolve. The extent of the average person's sympathies has grown substantially and continues to do so. Contemporary readers of 'Nature', for example, have different beliefs about the rights of women, racial minorities and homosexuals compared with readers in the late 1800s, and different intuitions about the morality of practices such as slavery, child labour and the abuse of animals for public entertainment. Rational deliberation and debate have played a large part in this development.

Emotional and non-rational processes are plainly relevant to moral change. Indeed, one of the main drivers of moral change is human contact. When we associate with other people and share common goals, we extend to them our affection. Increases in travel and access to information as well as political and economic interdependence mean that we associate with many more people than our grandparents and even our parents. As our social circle widens, so does our 'moral circle'.

But this 'contact hypothesis' explanation is limited. It doesn't explain the shifts in opinions on issues such as slavery and animal rights. Contact cannot explain the birth of new moral ideas, such as the immorality of sexism or the value of democracy. It doesn't account for how our moral attitudes can change towards those with whom we never directly associate, for example, why some of us give money and even blood to people with whom we have no contact and little in common. There have been attempts to explain such long distance charity through mechanisms such as indirect reciprocity and sexual selection, which suggest that individuals gain reproductive benefit from building a reputation for being good or helpful. But this begs the question of why such acts are now seen as good when they were not in the past.

What is missing, I believe, is an understanding of the role of deliberate persuasion. Language is an effective tool for motivating sympathy towards others. For example, Harriet Beecher Stowe's 1852 novel Uncle Tom's Cabin helped to end slavery in the United States, and descriptions of animal suffering in Peter Singer's Animal Liberation (1975) and elsewhere have been powerful catalysts for the animal rights movement. Stories can be morally corrosive too: if we are encouraged to imagine people doing things that anger or disgust us, we are quick to evict them from our moral circle. Examples of this are all too familiar, such as Adolf Hitler's propaganda against the Jews in Nazi Germany, or the negative depictions of homosexuals put out by anti-gay campaigners in many countries today.

Stories emerge because people arrive at certain views and strive to convey them to others. It is this generative capacity that contemporary psychologists have typically ignored. Moral psychology in particular focuses nearly exclusively on studies in which volunteers are exposed to artificial moral dilemmas that have been thought up by other people, such as situations in which one must choose whether to kill one person to save five.

Proponents of the view that we are prisoners of our emotions might argue that moral deliberation and creativity are rare, perhaps restricted to people who spend their lives thinking about these issues, such as theologians and philosophers. Yet most people are regularly forced to ponder dilemmas such as the proper balance of work and family. Even though few of us write novels or produce films, humans are natural storytellers, and use narrative to influence others, particularly their own children.

It would be a mistake as scientists - and as politically and socially engaged citizens - to dismiss the importance of this reflective process in shaping our morality and, consequently, world in which we live. Research might focus more on how children and adults deal with everyday moral problems, looking closely at cases in which their judgements diverge from those of people around them. Examples of work in this area include the studies by Robert Coles, a child psychiatrist at Harvard University in Cambridge, Massachusetts, on how black and white children dealt with racial desegregation and forced school integration during the U.S. civil rights movement, and the ongoing research by the psychologists Karen Hussar and Paul Harris at the Harvard Graduate School of

Education on why some children raised in non-vegetarian households choose not to eat meat.

Psychologists have correctly emphasized that moral views make their impact by being translated into emotion. A complete theory must explain where these views come from in the first place.

Q 70. The question raised at the beginning of the passage

- (1) poses a dilemma to the author and the readers alike.
- (2) is relevant only to philosophers and theologians
- (3) becomes irrelevant by the end of the passage.
- (4) has been analysed by the author but there appears to be no answer to it yet.
- (5) has been given several and conflicting answers in the passage.

Q 71. All of the following can be attributed to the author EXCEPT:

- (1) Morality is instinctive but we seek to rationalize our position.
- (2) That morals change is evidence of the influence of reason.
- (3) The traditional views regarding morals offer no scope for a rational analysis.
- (4) Our views regarding races, gender and discrimination have changed for the better over time.
- (5) Both reason and sentiments affect our moral viewpoint.

Q 72. The contact hypothesis

A. explains why acts that were not considered good are now regarded highly.

B. finds self interest to be at the core of altruism and apparently selfless behaviour.

C. fails to explain the changes in moral outlook over a period of time.

D. accounts for changed perceptions regarding slavery, animal rights etc.

E. fails to account for altruism and selfless behaviour towards strangers.

- (1) A and D
- (2) B and E
- (3) C and E
- (4) A and C
- (5) B and D

DIRECTIONS for questions 73 to 75: In each of the following questions, the word at the top is used in five different ways, numbered 1 to 5. Choose the option in which the usage of the word is **INCORRECT** or **INAPPROPRIATE**.

Q 73. AIR

- (1) Open the windows and let the fresh air in.
- (2) It takes two hours by air to reach Chennai from Hyderabad.
- (3) The appetizing aroma wafting through air stirred up our appetite.
- (4) Her colleagues resent her as she always puts on airs.
- (5) The management never gives an opportunity to the employees to air their grievances.

Q 74. BACK

- (1) He intends to purchase a house in a non-descript village in the back of beyond.
- (2) As she hurt her back falling off a horse, she was advised bed rest for a couple of weeks.
- (3) A true friend never turns his back from you when you need his help.
- (4) We decided to keep the plan on the back burner due to paucity of funds.
- (5) She is not the sort to back away from responsibilities.

Q 75. GET

- (1) She is forever under the impression that everybody is out to get him.
- (2) You must get into the habit of maintaining a record of the money spent.
- (3) He is finding it difficult to get by on his meagre income.
- (4) He managed to get round his father to give him some extra pocket money.
- (5) The students were eagerly waiting to get over the exams.

DIRECTIONS for questions 76 to 78: Read the following passage and answer the questions that follow it.

"Listen, Jeff, please, and try to understand," veteran Senator Joseph Paine implores newbie Jefferson Smith, pleading with him to go along with Capitol Hill business as usual in that classic Hollywood fable of principle versus practicality and perniciousness, *Mr. Smith Goes to Washington* (1939).

"This is a man's world, Jeff," explains Paine, "and you've got to check your ideals outside the door, like you do your rubbers. Thirty years ago, I had your ideas. I was you. I had to make the same

decision you were asked to make today. And I made it. I compromised."

Would Barack Obama, 20 years from now, be giving that talk if he hadn't won a quick promotion? Or would Obama be the kindly president of the Senate in Frank Capra's tale who encourages young Smith to stick to his principles with a smile of solidarity here, a helpful ruling there? Hard to say, just as almost everything connected to the concept of "compromise" threatens philosophical confusion.

Is compromise a good or bad thing? Imagine trying to teach a young person whether the word "compromise" is positive or negative. Would you point to the cascade of newspaper editorials bemoaning how Republicans and Democrats can't cooperate on health care? Seems it's a positive word. What about the editorials suggesting that the demand for high integrity among public officials can't be weakened, the rights of so-called enemy defendants before U.S. courts can't be narrowed, the just entitlements of occupied people can't be denied? Seems it's a negative word. Certainly it drives one back to fundamental political and moral beliefs, one's bedrock sense, as Senator Paine says, of how "things are." The dictionaries tell us that "compromise" etymologically arises from the notion of mutual promising, an act of cooperation, though that sense now registers as "obsolete" or "archaic." Its primary contemporary meaning as a noun is "a settlement of differences in which each side makes concessions" (*American Heritage*), an "adjustment of opposing principles, systems, etc., by modifying some aspects of each" (*Webster's New World*). That sounds neutral, or even presumptively positive, on the logical assumption that any agreement, by definition, satisfies both parties. Yet pejorative senses-"a concession to something detrimental," "a weakening, as of one's principles"-follow right afterward.

We find the same split in the collected wisdom of the centuries. On the positive side, no less than conservative icon Edmund Burke famously declared, in his *Speech on Conciliation With America* (1775), that "All government-indeed every human benefit and enjoyment, every virtue and every prudent act-is founded on compromise and barter." Eleanor Roosevelt, hardly a direct ideological descendant of Burke, shared that spirit ("All big things in human history have been arrived at slowly and through many compromises"), as did a loyal Republican named Dwight Eisenhower ("Things are not all black and white. There have to be compromises. The middle of the road is all of the usable surface. The extremes, right and left, are in the gutters.").

Yet the strain of condescension and condemnation toward compromise also boasts a long lineage. "Compromise makes a good umbrella but a poor roof," observed 19th-century poet and editor James Russell Lowell, adding that it amounted to a "temporary expedient, often wise in party politics, almost sure to be unwise in statesmanship." Andrew Carnegie thought: "The 'morality of compromise' sounds contradictory. Compromise is usually a sign of weakness, or an admission of defeat. Strong men don't compromise ... and principles should never be compromised."

German novelist Günter Grass voiced the familiar idea in aesthetics that artists do as they please in their work: "Art is uncompromising and life is full of compromises."

The conflict on compromise plays out especially in American political history. Was the "Great Compromise of 1787," which settled the battle over representation between large and small states while also preserving slavery, a triumph that enabled the fledgling United States to survive, or an embarrassment that ensured its moral shame until emancipation? Charles Sumner, the intrepid 19th-century antislavery senator from Massachusetts whose rigidity about "principles" makes Jim Bunning seem like a wimp, complained that "from the beginning of our history, the country has been afflicted with compromise. It is by compromise that human rights have been abandoned." Abolitionist William Lloyd Garrison declared, "I will be as harsh as truth, and as uncompromising as justice." To Frederick Douglass, the semantics of compromise was clear: "The opposite of compromise is character."

Q 76. Which of the following ideas have been suggested in the passage?

- A. The concept of compromise is as perplexing as the meaning of the word compromise.**
- B. To compromise is easier said than done.**
- C. The conflict on compromise stems from the etymological confusion that surrounds it.**
- D. It is neither easy to explain the meaning of the term compromise nor to decide if and when to compromise.**

- (1) Only A and C
- (2) Only A, B and C
- (3) Only B and C
- (4) Only A and D
- (5) A, B, C, and D

Q 77. Edmund Burke, Roosevelt and Eisenhower, it can be understood, from the passage,

- (1) saw political merit in following a middle path.
- (2) associated the concept of compromise with conventional wisdom.
- (3) supported compromise because it made political sense.
- (4) held divergent views on the subject of compromise.
- (5) viewed compromise in favorable light.

Q 78. With respect to health care, the passage suggests that the print media is extremely disappointed with the Democrats and Republicans for

- (1) throwing their ideologies to the wind.
- (2) compromising on their principles.
- (3) sticking to their guns.
- (4) not adopting a conciliatory approach.
- (5) making an issue over non-issues.

Q 79. The sustainability of human beings and other living creatures on our planet depends largely and solely on the availability of water. Though our planet is filled with more than 70 percent of water, only 2.7 percent of it is fresh water. This shows the scarce availability of fresh water for human use. Despite that, due to excessive exploitation of ground water, and the increasing pollution of fresh water resources we are at the brink of a global water crisis.

- (1) Global warming and climate change would have a debilitating impact on the existing water resources affecting millions of people throughout the world.
- (2) Still our society, the members of which value technology more than the natural resources have turned a blind eye to this diminishing source of life.
- (3) Needless to say, it is high time to regulate the unrestrained exploitation of ground water and make water conservation a must in all parts of the country.
- (4) Throughout the country people of different states have devised their own ways for conserving water.
- (5) Conservation of this important natural resource is not something that requires huge planning or involves staggering costs.

Q 80. When justice is denied by a society, including a socialist, secular and democratic one as in India, expectations darken into depression. Then that depression turns into dread, dread transforms itself into despair and despair evolves into explosive terrorism. State violence as an instrument to suppress terrorism is futile. After a time the bitterness and revengefulness that is generated will seek to overthrow those very forces that control state power - call it fascism, naxalism, Maoism or whatever.

- (1) When the rule of the robes proves a mirage, the rule of robbery gets support and sanction.
- (2) The dangerous deterioration of democracy into bedlam terrorism is hastened when access to justice ceases to be a reality.
- (3) The system of justice, justices and justicing must be made truly accessible to the have-nots by means of radical judicial reform.
- (4) Humanism is what we need if noxious, nascent violence is to surrender to truth.
- (5) A revolution is necessary and a sense of scientific spirit and reason is needed if the judicature is not to become a caricature.

Q 81. When a mistake happens some of us instead of accepting it or trying to find out the reasons, try and justify it by saying it is not our fault or the conditions were beyond our control or that an error was bound to occur. We even justify our actions as the best way the situation could have been handled. This kind of justification blocks our thinking on better ways we could have dealt with the situation or be receptive to alternative ideas from others

- (1) Some of us are prone to believing that we keep making the same mistakes because of a personality flaw.
- (2) Believing that our action was totally reasonable prevents any learning from the mistake.
- (3) Hence we must avoid such justifications because every mistake provides a learning experience.
- (4) Mistakes often occur due to the tendency to rush things and the need to conform to a culture that appreciates speed.
- (5) Though we vow to learn from the mistakes, most of the times we find ourselves making more mistakes or repeating the same ones.

DIRECTIONS for questions 82 to 84: Read the following passage and answer the questions that follow it.

It was a tragedy of errors. Fourteen-year-old Matilda Crabtree was just playing a practical joke on her father: she jumped out of a closet and yelled "Boo!" as her parents came home at one in the morning from visiting friends.

But Bobby Crabtree and his wife thought Matilda was staying with friends that night. Hearing noises as he entered the house, Crabtree reached for his 357 caliber pistol and went into Matilda's bedroom to investigate. When his daughter jumped from the closet, Crabtree shot her in the neck. Matilda Crabtree died twelve hours later.

One emotional legacy of evolution is the fear that mobilizes us to protect our family from danger; that impulse impelled Bobby Crabtree to get his gun and search his house for the intruder he thought was prowling there. Fear primed Crabtree to shoot before he could fully register what he was shooting at, even before he could recognize his daughter's voice. Automatic reactions of this sort have become etched in our nervous system, evolutionary biologists presume, because for a long and crucial period in human prehistory they made the difference between survival and death. Even more important, they mattered for the main task of evolution: being able to bear progeny who would carry on these very genetic predispositions - a sad irony, given the tragedy at the Crabtree household.

But while our emotions have been wise guides in the evolutionary long run, the new realities civilization presents have arisen with such rapidity that the slow march of evolution cannot keep up. Indeed, the first laws and proclamations of ethics - the Code of Hammurabi, the Ten Commandments of the Hebrews, the Edicts of

Emperor Ashoka - can be read as attempts to harness, subdue, and domesticate emotional life. As Freud described in Civilization and

Its Discontents, society has had to enforce from without rules meant to subdue tides of emotional excess that surge too freely within.

Despite these social constraints, passions overwhelm reason time and again. This given of human nature arises from the basic architecture of mental life. In terms of biological design for the basic neural circuitry of emotion, what we are born with is what worked best for the last 50,000 human generations, not the last 500 generations - and certainly not the last five. The slow, deliberate forces of evolution that have shaped our emotions have done their work over the course of a million years; that last 10,000 years - despite having witnessed the rapid rise of human civilization and the explosion of the human population from five million to five billion - have left little imprint on our biological templates for emotional life.

For better or for worse, our appraisal of every personal encounter and our responses to it are shaped not just by our rational judgments or our personal history, but also by our distant ancestral past. This leaves us with sometimes tragic propensities, as witness the sad events at the Crabtree household. In short, we too often confront post-modern dilemmas with an emotional repertoire tailored to the urgencies of the Pleistocene. That predicament is at the heart of my subject.

A view of human nature that ignores the power of emotions is sadly short-sighted. The very name *Homo sapiens*, the thinking species, is misleading in light of the new appreciation and vision of the place of emotions in our lives that science now offers. As we all know from experience, when it comes to shaping our decisions and our actions, feeling counts every bit as much - and often more - than thought. We have gone too far in emphasizing the value and import of the purely rational - of what IQ measures - in human life. Intelligence can come to nothing when the emotions hold sway.

Q 82. Our interactions and reactions in daily life, according to the passage,

- (1) are not guided by rationale.
- (2) are not influenced by individual experiences.
- (3) have more to do with our evolutionary roots.
- (4) are all of the above.
- (5) are none of the above.

Q 83. How does the passage explain Bobby Crabtree's action?

- (1) A fear that is characteristic of the human psych
- (2) A spontaneous defence mechanism which is a legacy of evolution.
- (3) An instance of heart ruling the head.
- (4) The emotional instinct of all creatures to protect their offspring.
- (5) The impulsive nature of all species.

Q 84. Which of the following ideas is NOT suggested in the passage?

- (1) Emotions which helped us in our battle for survival have become outdated.
- (2) Forces of evolution have shaped our emotions over a long period of time.
- (3) Laws were framed to tame our emotional highs.
- (4) Emotions which served us in the early ages have misfired in modern-day conflicts.
- (5) Emotions tend to overpower our intellect.

DIRECTIONS for questions 85 and 86: In each question, there are five sentences/paragraphs. The sentence/ paragraph labelled A is in its correct place. The four that follow are labelled B, C, D and E, and need to be arranged in the logical order to form a coherent paragraph/passage. From the given options, choose the most appropriate option.

Q 85. A. The recent announcement by the World Health Organization that no serious and unexpected adverse effects have been seen in the nearly 65 million people who have been vaccinated for the 2009 influenza (H1N1) in 16 countries is encouraging.

B. The vaccine was seen as a new and experimental drug hurried along in fast track mode tested on small number of volunteers and followed up for an inadequate duration.

C. Reports from following up millions of people after vaccination have now put at rest the safety concerns.

D. Apprehensions about the vaccine's safety were raised by the medical fraternity in a few countries and parents were unwilling to get their children vaccinated.

E. Though fast tracking flu vaccines is routine as the basic ingredients remain the same, a frontal objection was raised by the New England Journal of Medicine in an editorial: "any association of uncommon adverse events with this vaccine cannot be ascertained in studies of this size".

- (1) DEBC
- (2) BDEC
- (3) DBE
- (4) BEDC
- (5) CDBE

Q 86. A. South Asia is perhaps the most difficult place in the world. It is the epicentre of terrorism. It's also the epicentre of Maoism.

B. India is seen as a friend by countries which take the same path of democracy, secularism, pluralism and inclusive growth. India is also seen as a threat by some countries.

C. Seen from a strategic point of view, India holds the key to political and economic stability in south Asia, and our responsibility is great because our democratic and secular credentials are underpinned by the steady-progress in the socio-economic sectors.

D. It, therefore, falls upon India to disprove the tag of a threat to any neighbor and send a message that it is ready to become the engine of change and the leader of economic development in the region.

E. Being the largest country in South Asia largest in terms of size, population, as well as the size of the economy all countries in South Asia look to India either as a friend or as a foe.

- (1) EBCD
- (2) DBCE
- (3) CEBD
- (4) ECBD
- (5) CBED

DIRECTIONS for questions 87 to 91: Each of the following questions has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

Q 87. The possibilities are truly unimaginable especially because we do not yet really understand the mysterious, boundless quality of this unique form of power. Knowledge inhabits a more ethereal realm with principles we are only now coming to grasp and purposes we can only imagine. Unlike other resources we are accustomed to, information is a fluid that constantly alters as it moves, increasing as it interacts and overflows as it crosses boundaries. Unlike other raw materials, knowledge can't be used up.

- (1) Strangely, the more you dispense, the more you generate.
- (2) Not surprisingly, it dazzles our imagination and taps talent that is limitless and especially powerful.
- (3) Predictably, the more you give, the more you get.
- (4) Therefore, forced by the necessity to cope with a complex new era, countries will become a storehouse of knowledge.

Q 88. Meat grown in a petri dish? Sounds like science fiction, but it isn't. Scientists at Windhaven University in the Netherlands have grown invitro meat using cells from a live pig to replicate growth in a petri dish. They haven't been able to actually taste the pork they have grown because of lab rules. Nevertheless, there's potential here for some huge benefits.

- (1) It would not only lead to a ban on killing animals for food, but strengthen the measures to fight poaching.
- (2) If meat can be grown in the lab rather than in farms, then people need not make sacrifices for the sake of Mother Earth.
- (3) They can, so to say, have their rack of lamb and eat it too.
- (4) It could mean not only an end to killing animals for food, but also a significant saving of energy on maintaining abattoirs.

Q 89. The question of economic growth is thrown into further confusion by the methods used to measure it. Fundamentally, economics is myopic. It measures reality by its current market price. The intrinsic value of real things, their essential character which remains unchanged even when their price on the market fluctuates, is not an issue to the economist. He is like Oscar Wild's cynic.

- (1) Someone who is consigned permanently to the present, spurring both the past and the future.
- (2) Someone, who knows the price of everything and value of nothing.
- (3) Someone, who basks in the glories of growth unmindful of the cost.
- (4) Someone, who worships price and assumes that 10% richer in monetary terms is 10% richer in happiness.

Q 90. Recent studies show exploratory play - the restless, unstoppable drive to push every button and pull every string - helps children discover how the physical world works. Their equally unstoppable "pretend" play - the parade of alternate identities, imaginary friends and wild fantasies - helps them work out all the possible ways that people would be. The picture that emerges from this research is that babies and young children are not so much defective as different from adults. They have equally complex and powerful, but very different minds and brains, suited to their distinctive evolutionary role. Babies are brilliant learners but terrible planners. They have fantastically creative and visionary imaginations, but absolutely no executive capacity.

- (1) So, human development is more like reverse metamorphosis than simple growth.
- (2) Little wonder then, that they make adults dance to their tunes.
- (3) They are the R & D guys and adults are the CEOs.
- (4) So, child indeed is the father of man.

Q 91. How different our lives are when we really know what is deeply important to us, and keeping that picture in mind, we manage ourselves each day by the way we want to be and do what really matters most. If the ladder is not leaning against the right wall, every step we take just gets us to the wrong place faster. We may be very busy. We may be very efficient.

- (1) But we will be truly effective only when we begin with the end in mind.

- (2) And we may gain new perspectives.
- (3) Perhaps fame, achievement, money, or some of the other things we strive for are not part of the wall.
- (4) But, if we are not focussed, success will always elude us.

DIRECTIONS for questions 92 to 96: Each question has a set of sequentially ordered statements. Each statement can be classified as one of the following.

- **Facts**, which deal with pieces of information that one has heard, seen or read, and which are open to discovery or verification (the answer option indicates such a statement with an 'F').

(1) **Inferences**, which are conclusions drawn about the unknown, on the basis of the known (the answer option indicates such a statement with an 'I').

(2) **Judgements**, which are opinions 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 a 'J').

Select the answer option that best describes the set of statements.

Q 92. (A) The present government has avowed goals to reduce poverty and stimulate development.

(B) The Prime Minister has acknowledged the need for focussed investment in science and technology by announcing a doubling of related spend in terms of percentage of GDP over the next couple of years.

(C) Parliament's approval for the creation of a National Science and Engineering Research Board, responsible for funding and furthering scientific research, is laudable and a significant step in the right direction.

(D) The Human Resource Development Ministry's efforts to improve the higher education system and the establishment of five new Indian Institutes of Science Education and Research in the past three years should provide a vital boost to the cause of scientific research in India.

- (1) FFJI
- (2) FIJI
- (3) FIII
- (4) JFFJ

Q 93. (A) During the 1990s, there was a spurt in demand in areas that suited the economic reforms and a tendentious turn towards professional employment in the spheres of medical and engineering education, business and hotel management, housing, tourism etc.

(B) Inevitably, higher education became part of industrial growth - hence an industry in itself.

(C) The demands began multiplying and government agencies were hard put to respond to such needs.

The deemed universities became the "ready to respond" tools to such demands and their growth increased.

(D) It was not an organized and wholesome growth, the focus was on quantity and not quality.

- (1) FJIIJ
- (2) FIFJJ
- (3) JFJFJ
- (4) FJFFJ

Q 94. (A) As cinema screens open every other month in malls across the country, cinema hall owners have to offer more than just movies to set them apart.

(B) When PVR Cinemas opened its first multiplex in Delhi, it revolutionised the way we watched movies.

(C) About a decade later, while single-screen theatres in the nation's capital are all but extinct, multiplexes have opened in virtually every major shopping mall.

(D) Clearly, the future of movie-watching is multiplexes.

(E) With the number of multiplex chains steadily increasing, the age-old question of product differentiation is becoming essential to the business.

- (1) IJFJI
- (2) IFFJI
- (3) FJIFJ
- (4) IJFFJ

Q 95. (A) In the run-up to every general election it has become a ritual for Labour and the Tories to try and outdo each other in courting the sensation-mongering *Sun*.

(B) On the eve of 1997 elections, Tony Blair famously flew half way round the world to meet media-baron Rupert Murdoch to seek his blessings.

(C) And, lo and behold, within days the Sun was shining on him - switching support from the Tories to New Labour enabling the paper, later, to claim credit for the party's landslide victory.

(D) In return for its backing, Mr. Blair effectively hypothecated his government's policies to the Murdoch press.

(E) Much of his Europe agenda, especially the decision to drop the election pledge of a referendum on joining the euro, was driven by his deal with Mr. Murdoch.

- (1) JJJJJ
- (2) JFIJJ
- (3) FIJJJ
- (4) JJJFF

Q 96. (A) Just like last year, India has ranked abysmally low in the 2009 gender gap survey conducted by the World Economic Forum.

(B) Indeed, India slipped one position to 114 out of 134 countries, with most indicators, suggesting that conditions for women have worsened rather than improved over the past year.

(C) High economic growth and an increased level of development should have improved the lot of women.

(D) The educational attainment sub-index makes for depressing reading, with almost a quarter of a billion Indian women lacking the basic capacity to read and write.

(E) India ranks remarkably high in the political empowerment sub-index, a result perhaps of a record number of women politicians having been elected to the current Lok Sabha.

(1) FFJJI

(2) JIFFI

(3) FFJJJ

(4) FFJII

DIRECTIONS for questions 97 to 100: Read the following passage and answer the questions that follow it.

We all know boys who love trains, fire trucks, tools of all kinds, throwing balls, catching balls, spinning until they fall down, chasing cats, tackling dogs, emptying the kitchen drawers of their contents, riding a tricycle, riding a carousel, pretending to be a farmer, pretending to be a cow, dancing, drumming, digging, hiding, seeking, jumping, shouting, and collapsing exhausted into bed wearing Spiderman pajamas after watching a Spiderman cartoon feature.

That doesn't make them unusual; in fact, in many ways, they couldn't be more typical. Which may be why we hear people say "He's definitely all boy." It's a statement that sounds reasonable enough until you think about it. What does "all boy" mean? Masculine? Straight? Something else? Are there partial boys? And what of the fondness some boys have for sunsets and flowers and butterflies?

These are the kinds of questions asked by anxious parents and, increasingly, academic researchers. Much of the focus so far has been on boys falling behind academically, paired with the notion that school is not conducive to the way boys learn. What motivates boys, one argument goes, is different from what motivates girls, and society should adjust accordingly. Others argue that such stereotypical thinking miscasts boys as victims and ignores the very real problems faced by girls. This debate is far from settled and has, in fact given rise to a host of deeper, more philosophical issues, all of which can be boiled down, more or less, to a single question: Just what are boys, anyway?

One of the first so-called boys' books is Michael Gurian's The Wonder of Boys. Since its publication in 1996 it has sold more than half-a-million copies, and Gurian, who has a master's degree in

writing and has worked as a family counsellor, has become a prominent speaker and consultant on boys' issues. Drawing on neuroscience research done by others, Gurian argues that boy brains and girl brains are fundamentally dissimilar, and that boys are hard-wired to desire a sense of mission. In the nature versus nurture debate, Gurian comes down squarely on the side of the former, and advises that parents and teachers need to understand "boy biology" if they want to help young men succeed. He catches flak in various quarters, however, for supposedly over interpreting neuroscience data to comport with his theories – such as the one that female brains are active even when they're bored, while male brains tend to "shut down". Gurian counters that his work has been misrepresented and that the success of his programs backs up his scientific claims.

Close on Gurian's heels was *Real Boys*, by William Pollack, an associate clinical professor of psychology at Harvard Medical School. He writes that behind their façade of toughness, boys are vulnerable and desperate for emotional connection, but are more likely to express empathy and affection through an activity, like playing together, than having a heart-to-heart talk. Pollack's view of what makes boys the way they are is less rooted in biology than Gurian's. "What neuroscientists will tell you is that nature and nurture are bonded," says Pollack. "How we nurture from the beginning has an effect."

The following year, *Raising Cain*, by Dan Kindlon, an adjunct lecturer in Harvard's School of Public Health, and Michael Thompson, a psychologist in private practice, was published. Their book ends with seven recommendations for dealing with boys, including "recognize and accept the high activity level of boys and give them safe boy places to express it." The book is partially about interacting with boys on their own terms, but it also encourages adults to help them develop "emotional literacy" and to counter the "culture of cruelty" among older boys. It goes beyond academic performance, dealing with issues like suicide, bullying, and romance.

Perhaps the most provocative book of the bunch is *The War Against Boys: How Misguided Feminism Is Harming Our Young Men*, by Christina Hoff Sommers. As the subtitle suggests, Sommers believes that she's found the villain in this story, making the case that it's boys, not girls, who are being short-changed and that they need significant help if they're going to close the distance academically. But that does not mean, according to Sommers, that they "need to be rescued from their masculinity."

Those books were best sellers and continue to attract readers and prompt spirited debate. While the authors disagree on the details, they share at least two broad conclusions: (1) Boys are not girls, and (2) Boys are in trouble. Why and how they're different from girls, what's behind their trouble, and what if anything to do about it-all that depends on whom you read.

(3) In this passage, the author raises questions and goes on to

- (1) indicate that we will never really know the answers.
- (2) analyse the answers that different writers provide.
- (3) bring out the shortcomings in the answers that different writers provide.
- (4) present the answers that different writers provide.

Q 97. The author presents, at the end of paragraphs 2 and 3 respectively, 2 questions - "And what of...." and "Just what are...". Which of the following questions would these 2 questions originate from?

- (1) Are interests gender specific?
- (2) Are boys predictable?
- (3) How should boys be dealt with as they grow?
- (4) How are boys different from girls?

Q 98. In the passage, who, among the 4 writers, implies or makes suggestions on how to deal with boys?

- (1) All four
- (2) Sommers, Gurian and Kindlon
- (3) Kindlon and Gurian
- (4) Pollack and Gurian

Q 99. Which of the following statements appropriately represents information or thoughts provided in the passage?

- (1) Pollack and Sommers both feel that the inherent nature of boys must be taken into account as we help them develop.
- (2) While Pollack feels that the way boys are brought up contributes to the way they are, Kindlon feels that they should be dealt with as they are.
- (3) Pollack and Kindlon both feel that boys lack emotional understanding.
- (4) While Gurian feels that boys should be dealt with as they are, Sommers feels that everything depends on the way they're brought up.

Q 100. Which one of the following is NOT representative of a hypothesis that is referred to in the passage?

- (1) Though seemingly tough, boys do seek to connect with others emotionally, particularly through activities such as play.
- (2) The level of mental activity in boys is directly related to their perception of external situations and circumstances.
- (3) Boys have naturally high activity levels, and can make use of and display these in all circumstances.
- (4) Excessive attention to girls can mean that boys do not get as much as they need.

