PINNACLE
THE MBA ENTRANCE COURSE

CAT 2001

(The actual CAT 2001 paper)

Test Directions

About the test

1. DO NOT OPEN THE BOOKLET UNLESS INSTRUCTED TO DO SO.
2. This test is designed to test your competence in the test areas of a standard MBA Entrance Test.
3. Total number of questions is 150. There are 3 sections without any sectional time limits.
4. Total time allowed is 120 minutes.
5. All the scratch work has to be done on the test paper itself. Extra sheets for rough work are NOT allowed. Calculators are NOT allowed.
6. Students are expected to perform equally well in all the test areas.

Marking of Answers

1. Mark your answers in the OMR Score Sheet provided separately. The proper way of marking the answers is by darkening the relevant ovals completely by an **HB pencil.** Proper marking is essential for your scores to be electronically evaluated.
2. If you wish to change an answer, rub off the old answer completely with the help of an eraser and then mark the next answer.

Evaluation of Scores

1. There will be a penalty for every wrong answer marked. Only one answer will be acceptable for a question. In case a student marks more than one answer for the same question, the same shall be considered a wrong answer, by the electronic OMR scanner.

Conduct of Students

1. Cheating will immediately disqualify you from this test. Calculators are not allowed.
2. Please switch off Pagers & Cell-phones during the test.
3. Do not leave the hall until instructed to do so. OMR Scoresheets have to be deposited; Test Paper & Solutions are take-aways.

Do NOT open along this side

→ To open this booklet, ↑ TEAR ↑ along this side →

Test Form Number

111

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PT Education

CAT 2001

SECTION I

Number of Questions : 50

DIRECTIONS : *Choose the best alternative.*

1. A student took five papers in an examination, where the full marks were the same for each paper. His marks in these papers were in the proportion of 6 : 7 : 8 : 9 : 10. In all papers together, the candidate obtained 60% of the total marks. Then the number of papers in which he got more than 50% marks is

   (1) 2 (2) 3 (3) 4 (4) 5

2. A square, whose side is 2 metres, has its corners cut away so as to form an octagon with all sides equal. Then the length of each side of the octagon, in metres is

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

3. Let x, y and z be distinct integers. x and y are odd and positive, and z is even and positive. Which one of the following statements cannot be true?

   (1) $(x - z)^2y$ is even (2) $(x - z)y^2$ is odd (3) $(x - y)y$ is odd (4) $(x - y)^2z$ is even

4. If $x > 5$ and $y < -1$, then which of the following statements is true?

   (1) $(x + 4y) > 1$ (2) $x > -4y$ (3) $-4x < 5y$ (4) None of these

5. A red light flashes 3 times per minute and a green light flashes 5 times in two minutes at regular intervals. If both lights start flashing at the same time, how many times do they flash together in each hour?

   (1) 30 (2) 24 (3) 20 (4) 60

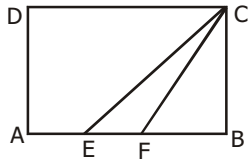
6. Of 128 boxes of oranges, each box contains at least 120 and at most 144 oranges. The number of boxes containing the same number of oranges is at least

   (1) 5 (2) 103 (3) 6 (4) Cannot be determined

7. A certain city has a circular wall around it, and this wall has four gates pointing north, south, east and west. A house stands outside the city, three km north of the north gate, and it can just be seen from a point nine km east of the south gate. What is the diameter of the wall what surrounds the city?

   (1) 6 km (2) 9 km (3) 12 km (4) None of these

8.



In the above diagram, ABCD is a rectangle with AE=EF=FB. What is the ratio of the area of the triangle CEF and that of the rectangle?

(1) $\frac{1}{6}$ (2) $\frac{1}{8}$ (3) $\frac{1}{9}$ (4) None of these

9. A can complete a piece of work in 4 days. B takes double the time taken by A, C takes double that of B, and D takes double that of C to complete the same task. They are paired in groups of two each. One pair takes two thirds the time needed by the second pair to complete the work. Which is the first pair?

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

10. In a 4-digit number, the sum of the first two digits is equal to that of the last two digits. The sum of the first and last digits is equal to the third digit. Finally, the sum of the second and fourth digits is twice the sum of the other two digits. What is the third digit of the number?

(1) 5 (2) 8 (3) 1 (4) 4

11. Two men X and Y started working for a certain company at similar jobs on January 1, 1950. X asked for an initial salary of Rs.300 with an annual increment of Rs. 30. Y asked for an initial salary of Rs.200 with a rise of Rs. 15 every six months. Assume that the arrangements remained unaltered till December, 1959. Salary is paid on the last day of the month. What is the total amount paid to them as salary during the period?

(1) Rs. 93,300 (2) Rs. 93,200 (3) Rs. 93,100 (4) None of these

12. Anita had to do a multiplication. Instead of taking 35 as one of the multiplies, she took 53. As a result, the product went up by 540. What is the new product?

(1) 1050 (2) 540 (3) 1440 (4) 1590

13. A college has raised 75% of the amount it needs for a new building by receiving an average donation of Rs. 600 from the people already solicited. The people already solicited represent 60% of the people the college will ask for donations. If the college is to raise exactly the amount needed for the new building, what should be the average donation from the remaining people to be solicited?

(1) Rs.300 (2) Rs. 250 (3) Rs. 400 (4) Rs. 500

14. x and y are real numbers satisfying the conditions $2<x<3$ and $-7<y<-7$. Which of the following expressions will have the least value?

(1) x^2y (2) xy^2 (3) $5xy$ (4) None of these

15. m is the smallest positive integer such that for any integer $n > m$, the quantity $n^3 - 7n^2 + 11n - 5$ is positive. What is the value of m?

(1) 4 (2) 5 (3) 8 (4) None of these

16. A ladder leans against a vertical wall. The top of the ladder is 8m above the ground. When the bottom of the ladder is moved 2m farther away from the wall, the top of the rests against the foot of the wall. What is the length of the ladder?
(1) 10 m (2) 15 m (3) 20 m (4) 17 m

17. Three friends, returning from a movie, stopped to eat at a restaurant. After dinner, they paid their bill and noticed a bowl of mints at the front counter. Sita took 1/3 of the mints, but returned four because she had a momentary pang of guilt. Fatima then took 1/4 of what was left but returned three for similar reasons. Eswari then took half of the remainder but threw two back into the bowl. The bowl had only 17 mints left when the raid was over. How many mints were originally in the bowl?
(1) 38 (2) 31 (3) 41 (4) None of these

18. If 09/12/2001 happens to be Sunday, then 09/12/1971 would have been a
(1) Wednesday (2) Tuesday (3) Saturday (4) Thursday

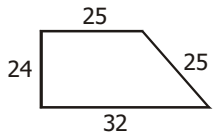
19. In a number system the product of 44 and 11 is 1034. The number 3111 of this system, when converted to the decimal number system, becomes
(1) 406 (2) 1086 (3) 213 (4) 691

20. At his usual rowing rate, Rahul can travel 12 miles downstream in a certain river in six hours less than it takes him to travel the same distance upstream. But if he could double his usual rowing rate for this 24 miles round trip, the downstream 12 miles would then take only one hour less than the upstream 12 miles. What is the speed of the current in miles per hour?
(1) 7/3 (2) 4/3 (3) 5/3 (4) 8/3

21. Every ten years the Indian government counts all the people living in the country. Suppose that the director of the census has reported the following data on two neighbouring villages Chota hazri and Mota hazri .
Chota hazri has 4,522 fewer males than Mota hazri.
Mota hazri has 4,020 more females than males.
Chota hazri has twice as many females as males.
Chota hazri has 2,910 fewer females than Mota hazri.
What is the total number of males in Chota hazri?
(1) 11264 (2) 14174 (3) 5632 (4) 10154

22. Three math classes : X, Y, and Z, take an algebra test.
The average score in class X is 83.
The average score in class Y is 76.
The average score in class Z is 85.
The average score of all students in classes X and Y together is 79.
The average score of all students in classes Y and Z together is 81.
What is the average for all three classes?
(1) 81 (2) 81.5 (3) 82 (4) 84.5

23. Two sides of a plot measure 32 metres and 24 metres and the angle between them is a perfect right angle. The other two sides measure 25 metres each and the other three are not right angles.



What is the area of the plot?

(1) 768 (2) 534 (3) 696.5 (4) 684

24. All the page numbers from a book are added, beginning at page 1. However, one page number was mistakenly added twice. The sum obtained was 1000. Which page number was added twice?

(1) 44 (2) 45 (3) 10 (4) 12

25. Shyama and Vyom walk up an escalator (moving stairway). The escalator moves at a constant speed. Shyama takes three steps for every two of Vyom's steps. Shyama gets to the top of the escalator after having taken 25 steps. While Vyom (because his slower pace lets the escalator do a little more of the work) takes only 20 steps to reach the top. If the escalator were turned off, how many steps would they have to take to walk up?

(1) 40 (2) 50 (3) 60 (4) 80

26. At a certain fast food restaurant, Brian can buy 3 burgers, 7 shakes, and one order of fries for Rs. 120 exactly. At the same place it would cost Rs. 164.5 for 4 burgers, 10 shakes, and one order of fries. How much would it cost for an ordinary meal of one burger, one shake, and one order of fries?

(1) Rs. 31 (2) Rs.41 (3) Rs. 21 (4) Cannot be determined

27. If a, b, c and d are four positive real numbers such that abcd = 1, what is the minimum value of (1 + a) (1 + b) (1 + c) (1 + d)?

(1) 4 (2) 1 (3) 16 (4) 18

28. There's a lot of work in preparing a birthday dinner. Even after the turkey is in oven, there's still the potatoes and gravy, yams, salad, and cranberries, not to mention setting the table.

Three friends, Asit, Arnold, and Afzal, work together to get all of these chores done. The time it takes them to do the work together is six hours less than Asit would have taken working alone, one hour less than Arnold would have taken, and half the time Afzal would have taken working alone.

How long did it take them to do these chores working together?

(1) 20 minutes (2) 30 minutes (3) 40 minutes (4) 50 minutes

29. Euclid has a triangle in mind, Its longest side has length 20 and another of its sides has length 10. Its area is 80. What is the exact length of its third side?

(1) $\sqrt{260}$ (2) $\sqrt{250}$ (3) $\sqrt{240}$ (4) $\sqrt{270}$

30. For a Fibonacci sequence, from the third term onwards, each term in the sequence is the sum of the previous two terms in that sequence. If the difference in squares of seventh and sixth terms of this sequence is 517, what is the tenth term of this sequence?

(1) 147 (2) 76 (3) 123 (4) Cannot be determined

31. Fresh grapes contain 90% water by weight while dry grapes contain 20% water by weight. What is the weight of dry grapes available from 20kg of fresh grapes?

(1) 2 kg (2) 2.4 kg (3) 2.5 kg (4) None of these

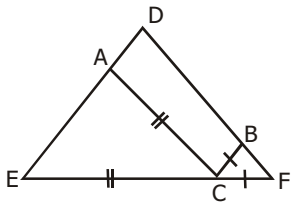
32. A train X departs from station A at 11.00 a.m. for station B, which is 180 km away. Another train Y departs from station B at 11.00 a.m. for station B, which is 180 km away. Another train Y departs from station B at 11.00 a.m. for station A. Train X travels at an average speed of 70 km/hr and does not stop anywhere until it arrives at station B. Train Y travels at an average speed of 50 kms/hr, but has to stop for 15 minutes at station C, which is 60 kms away from station B enroute to station A. Ignoring the lengths of the trains, what is the distance, to the nearest km, from station A to point where the trains cross other?

(1) 112 (2) 118 (3) 120 (4) None of these

33. A set of consecutive positive integers beginning with 1 is written on the blackboard. A student came along and erased one number. The average of the remaining numbers is $35\frac{7}{17}$. What was the number erased?

(1) 7 (2) 8 (3) 9 (4) None of these

34. In triangle DEF shown below, points A, B, and C are taken on DE, DF and EF respectively such that EC = AC and CF = BC. If angle D = 40 degrees, then what is angle ACB in degrees?



(1) 140 (2) 70 (3) 100 (4) None of these

35. The owner of an art shop conducts his business in the following manner : Every once in a while he raises his prices by X%, then a while later he reduces all the new prices by X%. After a second up-down cycle the painting was sold for Rs. 1944.81. What was the original price of the painting?

(1) Rs.2756.25 (2) Rs.2256.25 (3) Rs.2500 (4) Rs.2000

36. Three runners A, B and C run a race, with runner A finishing 12 metres ahead of runner B and 18 metres ahead of runner C, while runner B finishes 8 metres ahead of runner C. Each runner travels the entire distance at a constant speed.
What was the length of the race?

(1) 36 metres (2) 48 metres (3) 60 metres (4) 72 metres

37. Let x, y be two positive numbers such that x + y = 1. Then, the minimum value of $\left(x+\frac{1}{x}\right)^2+\left(y+\frac{1}{y}\right)^2$ is

(1) 12 (2) 20 (3) 12.5 (4) 13.3

For Q.38 & 39 :

The batting average (BA) of a test batsman is computed from runs scored and innings played-completed innings and incomplete innings (not out) in the following manner

r_1 = number of runs scored in completed innings

n_1 = number of completed innings

r_2 = number of runs scored in incomplete innings

n_2 = number of incomplete innings

$$BA = \frac{r_1 + r_2}{n_1}$$

To better assess batsman's accomplishments, the ICC is considering two other measures MBA_1 and MBA_2 defined as follows

$$MBA_1 = \frac{r_1}{n_1} + \frac{n_2}{n_1} \max\left[0, \left(\frac{r_2}{n_2} - \frac{r_1}{n_1}\right)\right]$$

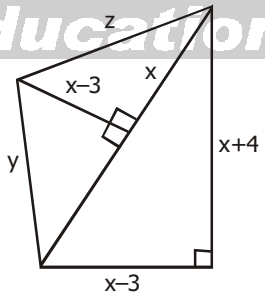
$$MBA_2 = \frac{r_1 + r_2}{n_1 + n_2}.$$

38. Based on the information provided which of the following is true?
(1) $MBA_1 \le BA \le MBA_2$ (2) $BA \le MBA_2 \le MBA_1$
(3) $MBA_2 \le BA \le MBA_1$ (4) None of these

39. An experienced cricketer with no incomplete innings has a BA of 50. The next time he bats, the innings is incomplete and he scores 45 runs. It can be inferred that
(1) BA and MBA_1 will both increase
(2) BA will increase and MBA_2 will decrease
(3) BA will increase and not enough data is available to asses change in MBA_1 and MBA_2
(4) None of these

DIRECTIONS : *Choose the best alternative.*

40. Based on the figure below, what is the value of x, if y = 10?



(1) 10 (2) 11 (3) 12 (4) None of these

41. A rectangular pool 20 metres wide and 60 metres long is surrounded by a walk way of uniform width. If the total area of the walkway is 516 square metres, how wide, in metres, is the walkway?

(1) 43 (2) 4.3 (3) 3 (4) 3.5

42. Let b be a positive integer and $a = b^2 - b$. If $b \geq 4$, then $a^2 - 2a$ is divisible by

(1) 15 (2) 20 (3) 24 (4) None of these

43. Ashish is given Rs. 158 in one rupee denominations. He has been asked to allocated them into a number of bags such that any amount required between Re.1 and Rs. 158 can be given by handing out a certain number of bags without opening them. What is the minimum number of bags required?

(1) 11 (2) 12 (3) 13 (4) None of these

44. In some code, letters, a, b, c, d and e represents numbers 2,4,5,6 and 10, We just don't know which letter represent which number. Consider the following relationships

(i) a + c = e, (ii) b – d = d and

(iii) e + a = b

Which statement below is true?

(1) b = 4, d = 2 (2) a = 4, e = 6 (3) b = 6, e = 2 (4) a = 4, c = 6

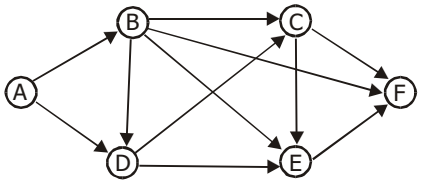
45. Ujakar and Keshab attempted to solve a quadratic equation. Ujakar made a mistake in writing down the constant term. He ended up with the roots (4, 3). Keshab made a mistake in writing down the coefficient of x. He got the root as (3, 2). What will be the exact roots of the original quadratic equation?

(1) (6, 1) (2) (–3, –4) (3) (4, 3) (4) (–4, –3)

46. A change making machine contains 1 rupee, 2 rupee and 5 rupee coins. The total number of coins is 300. The amount is Rs. 960. If the number of 1 rupee coins and the number of 2 rupee coins are interchanged, the value comes down by Rs.40. The total number of 5 rupee coins is

(1) 100 (2) 140 (3) 60 (4) 150

47. The figure below shows the network connecting cities A,B,C,D, E and F. The arrows indicate permissible direction of travel. What is the number of distinct paths from A to F?



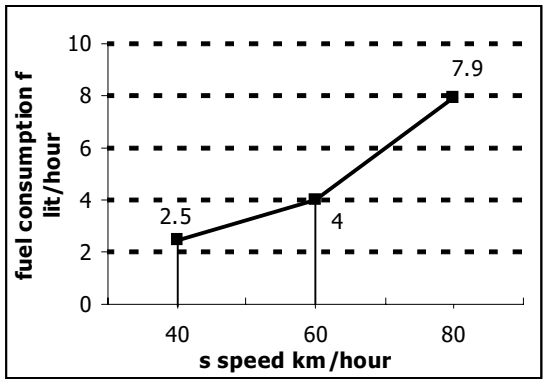
(1) 9 (2) 10 (3) 11 (4) None of these

48. Let n be the number of different 5 digit numbers, divisible by 4 with the digits 1, 2, 3, 4, 5 and 6, no digit being repeated in the numbers What is the value of n?

(1) 144 (2) 168 (3) 192 (4) None of these

For Q.49 & 50:

The petrol consumption rate of a new model car 'Palto' depends on its speed and may be described by the graph below



49. Manasa makes the 200 km trip Mumbai to Pune at a steady speed of 60 km per hour. What is the amount of petrol consumed for the journey?
    (1) 12.5 litres (2) 13.33 litres (3) 16 litres (4) 19.75 litres

50. Manasa would like to minimize the fuel consumption for the trip by driving at the appropriate speed. How should she change the speed?
    (1) Increase the speed (2) Decrease the speed
    (3) Maintain the speed at 60 km/hour (4) Cannot be determined

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SECTION II

Number of Questions : 50

DIRECTIONS : *For the word given at the top of each table, match the dictionary definitions on the left (A, B C, D) with their corresponding usage on the right (E, F, G, H). Out of the four possibilities given in the boxes below the table, select the one that has all has definitions and their usages correctly matched.*

51. **Exceed**

	Dictionary definition		Usage
A.	To extend outside of or enlarge beyond used chiefly in strictly physical relations	E.	The mercy of God exceeds our finite minds.
B.	To be greater than or superior to	F.	Their accomplishments exceeded our expectation
C.	Be beyoned the comprehension of	G.	He exceeded his authority when he paid his brother's gambling debts with money from the trust
D.	To go beyond a limit set by (as an authority or privilege)	H.	If this rain keeps up, the river will exceed its banks by morning.

1	
A	H
B	F
C	E
D	G

2	
A	H
B	E
C	F
D	G

3	
A	G
B	F
C	E
D	H

4	
A	F
B	G
C	H
D	E

52. **Infer**

	Dictionary definition		Usage
A.	To derive by reasoning or implication	E.	We see smoke and infer fire.
B.	To surmise	F.	Given some utterance, a listener may infer from it all sorts of things which neither the utterence nor the utterer implied.
C.	To point out	G.	I waited all day to meet him. From this you can infer my zeal to see him.
D.	To hint	H.	She did not take part in the debate except to ask a question inferring that she was not interested in the debate.

1	
A	G
B	E
C	H
D	F

2	
A	F
B	H
C	E
D	G

3	
A	H
B	G
C	F
D	E

4	
A	E
B	F
C	G
D	H

53. **Mellow**

	Dictionary definition		Usage
A.	Adequately and properly aged so as to be free of harshness	E.	He has mellowed with age.
B.	Freed from the rashness of yough	F.	The tones of the old violin were mellow.
C.	Of soft and loamy consistency	G.	Some wines are mellow.
D.	Rich and full but free from stridency	H.	Mellow soil is found in the Gangetic plains.

1	
A	E
B	G
C	F
D	H

2	
A	E
B	F
C	G
D	H

3	
A	G
B	E
C	H
D	F

4	
A	H
B	G
C	F
D	E

54. **Relief**

	Dictionary definition		Usage
A.	Removal or lightening of something distressing	E.	A ceremony follows the relief of a sentry after the morning shift.
B.	Aid in the form of necessities for the indigent	F.	It was a relief to take off the tight shoes.
C.	Diversion	G.	The only relief I get is by playing cards.
D.	Release from the performance of duty	H.	Disaster relief was offered to the victims.

1	
A	F
B	H
C	E
D	G

2	
A	F
B	H
C	G
D	E

3	
A	H
B	F
C	G
D	E

4	
A	G
B	E
C	H
D	F

55. **Purge**

	Dictionary definition		Usage
A.	Remove a stigma from the name of	E.	The opposition was purged after the coup.
B.	Make clean by removing whatever is superfluous, foreign	F.	The committee heard his attempt to purge himself of a charge of heresy.
C.	Get rid of	G.	Drugs that purge the bowels are often bad for the brain.
D.	To cause evacuation of	H.	It is recommended to purge water by distillation.

1	
A	E
B	G
C	F
D	H

2	
A	F
B	E
C	H
D	G

3	
A	H
B	F
C	G
D	E

4	
A	F
B	H
C	E
D	G

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DIRECTIONS : *The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a latter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.*

56. A. Although there are large regional variations, it is not infrequent to find a large number of people sitting here and there and doing nothing.
    B. Once in office, they receive friends and relatives who feel free to call any time without prior appointment.
    C. While working, one is struck by the slow and clumsy actions and reactions, indifferent attitudes, procedure rather than outcome orientation, and the lack of consideration for others.
    D. Even those who are employed often come late to the office and leave early unless they are forced to be punctual.
    E. Work is not intrinsically valued in India.
    F. Quite often people visit ailing friends and relatives or go out of their way to help them in their personal matters even during office hours.
    (1) ECADBF (2) EADCFB (3) EADBFC (4) ABFCBE

57. A. But in the industrial era destroying the enemy's productive capacity means bombing the factories which are located in the cities.
    B. So in the agrarian era, if you need to destroy the enemy's productive capacity, what you want to do is burn his fields, or if you're really vicious, salt them.
    C. Now in the information era, destroying the enemy's productive capacity means destroying the information infrastructure.
    D. How do you do battle with your enemy?
    E. The idea is to destroy the enemy's productive capacity, and depending upon the economic foundation, that productive capacity is different in each case.
    F. With regard to defence, the purpose of the military is to defend the nation and be prepared to do battle with its enemy.
    (1) FDEBAC (2) FCABED (3) DEBACF (4) DFEBAC

58. A. Michael Hofman, a poet and translator, accepts this sorry fact without approval or complaint.
    B. But thanklessness and impossibility do not daunt him.
    C. He acknowledges too in fact he returns to the point often that best translators of poetry always fail at some level.
    D. Hofman feels passionately about his work, and this is clear from his writings.
    E. In terms of the gap between worth and rewards, translators come somewhere near nurses and street cleaners.
    (1) EACDB (2) ADEBC (3) EACBD (4) DCEAB

59. A. Passivity is not, of course, universal.
    B. In areas where there are no lords or laws, or in frontier zones where all men go armed, the attitude of the peasantry may well be different.
    C. So indeed it may be on the fringe of the un-submissive.
    D. However, for most of the soil-bound peasants the problem is not whether to be normally passive or active, but when to pass from one state to another.
    E. This depends on an assessment of the political situation.
    (1) BEDAC (2) CDABE (3) EDBAC (4) ABCDE

60. A. The situations in which violence occurs and the nature of that violence tends to be clearly defined at least in theory, as in the proverbial Irishman's question 'Is this a private fight or can anyone join in?'
    B. So the actual risk to outsiders, though no doubt higher than our societies, is calculable.
    C. Probably the only uncontrolled applications of force are those of social superiors to social inferiors and even here there are probably some rules.
    D. However binding the obligation to kill, members of feuding families engaged in mutual massacre will be genuinely appalled if by some mischance a bystander or outsider is killed.
    (1) DABC (2) ACDB (3) CBAD (4) DBAC

DIRECTIONS : *In each of the following sentences, parts of the sentence are left blank. Beneath each sentence, four different ways of completing the sentence are indicated. Choose the best alternative from among the four.*

61. But ..... are now regularly written not just for tools, but well-established practices, organisations and institutions, not all of which seem to be ..... away.
(1) reports, withering (2) stories, trading (3) books, dying (4) obituaries, fading

62. The Darwin who ..... is most remarkable for the way in which he ..... the attributes of the world class thinker and head of the household.
(1) comes, figures (2) arises, adds (3) emerges, combines (4) appeared, combines

63. Since her face was free of ..... there was no way to ..... if she appreciated what had happened.
(1) makeup, realise (2) expression, ascertain
(3) emotion, diagnose (4) scars, understand

64. In this context, the ..... of the British labor movement is particularly ..... .
(1) affair, weird (2) activity, moving
(3) experience, significant (4) atmosphere, gloomy

65. Indian intellectuals may boast, if they are so inclined, of being ..... to the most elitist among the intellectual ..... of the world.
(1) subordinate, traditions (2) heirs, cliques
(3) ancestors, societies (4) heir, traditions

DIRECTIONS : *For each of the words below, a contextual usage is provided. Pick the word from the alternatives given that is most inappropriate in the given context.*

66. Specious : A specious argument is not simply a false one but one that has the ring of truth.
(1) Deceitful (2) Fallacious (3) Credible (4) Deceptive

67. Obviate : The new mass transit system may obviate the need for the use of personal cars.
(1) Prevent (2) Forestall (3) Preclude (4) Bolster

68. Disuse : Some words fall into disuse as technology makes objects obsolete.
(1) Prevalent (2) Discarded (3) Obliterated (4) Unfashionable

69. Parsimonious : The evidence was constructed from very parsimonious scraps of information.
(1) Frugal (2) Penurious (3) Thrifty (4) Altruistic

70. Facetious : When I suggested that war is a method of controlling population, may father remarked that I was being facetious.
(1) Jovian (2) Jovial (3) Jocular (4) Joking

CAT 2001

DIRECTIONS : *Each of the six passages given below is followed by questions. Choose the best answer for each question.*

PASSAGE I

The union government's present position vis-a-vis the upcoming United Nations conference on racial and related discrimination world-wide seems to be the following: discuss race please, not caste; caste is our very own and not at all as bad as you think. The gross hypocrisy of that position has been lucidly underscored by *Kancha Ilaiah*. Explicitly, the world community is to be cheated out of considering the matter on the technicality that caste is not as a concept, tantamount to a racial category. Internally, however, allowing the issue to be put on agenda at the said conference would, we are patriotically admonished, damage the country's image. Somehow, India's virtual beliefs elbow out concrete actualities. Inverted representations, as we know, have often been deployed in human histories as balm for the forsaken– religion being the most persistent of such inversions. Yet, we would humbly submit that if globalising our markers are thought good for the 'national' pocket, globalising our social inequities might not be so bad for the mass of our people. After all, racism was as uniquely institutionalised in South Africa as caste discrimination has been within our society; why then can't we permit the world community to express itself on the latter with a fraction of the zeal with which, through the years, we pronounced on the former?

As to the technicality about whether or not caste is admissible into an agenda about race (that the conference is also about 'related discriminations' tends to be forgotten), a reputed sociologist has recently argued that where race is a 'biological' category caste is a 'social' one. Having earlier fiercely opposed implementation of the Mandal Commission Report, the said sociologist is at least to be complemented now for admitting, however tangentially, that caste discrimination is a reality, although, in his view, incompatible with racial discrimination. One would like quickly to offer the hypothesis that biology, in important ways that affect the lives of many millions, is in itself perhaps a social construction. But let us look at the matter in another way.

If it is agreed-as per the positions today at which anthropological and allied scientific determinations rest-that the entire race of *homo sapiens* derived from an originally black African female (called 'Eve') then one is hard put to understand how, on some subsequent ground, ontological distinctions are to be drawn either between races or castes. Let us also underline the distinction between the supposition that we are all god's children and the rather more substantiated argument about our descent from 'Eve', lest both positions are thought to be equally diversionary. It then stands for reason that all subsequent distinctions are, in modern parlance, 'constructed' ones, and, like all ideological constructions, attributable to changing equations between knowledge and power among human communities through contested histories here, there, and elsewhere.

This line of thought receives, thankfully, extremely consequential buttress from the findings of the Human Genome Project. Contrary to earlier (chiefly 19th century colonial) persuasions on the subject of race, as well as, one might add, the somewhat infamous Jensen offerings in the 20th century from America, those findings deny genetic difference between 'races'. If anything, they suggest that environmental factors impinge on gene-function, as a dialectic seems to unfold between nature and culture. It would thus seem that 'biology' as the constitution of pigmentation enters the picture first only as a part of that dialectic. Taken together, the originally mother stipulation and the Genome findings ought indeed to furnish ground for human equality across the board, as well as yield policy initiatives towards equitable material dispensations aimed at building a global order where, in Hegel's stirring formulation, only the rational constitutes the right. Such, sadly, is not the case as everyday fresh arbitrary grounds for discrimination are constructed in the interests of sectional dominance.

71. *When the author writes "globalising our social inequities", the reference is to*
    (1) going beyond an internal deliberation on social inequity.
    (2) dealing with internal poverty through the economic benefits of globalisation.
    (3) going beyond an internal delimitation of social inequity.
    (4) achieving disadvantaged people's empowerment, globally.

72. *According to the author, 'inverted representations as balm for the forsaken'*
    (1) is good for the forsaken and often deployed in human histories.
    (2) is good for the forsaken, but not often deployed historically for the oppressed.
    (3) occurs often as a means of keeping people oppressed.
    (4) Occurs often to invert the status quo.

73. *Based on the passage, which broad areas unambiguously fall under the purview of the UN conference being discussed?*
    (A) Racial prejudice.
    (B) Racial pride.
    (C) Discrimination, racial or otherwise.
    (D) Caste-related discrimination.
    (E) Race-related discrimination.
    (1) A, E (2) C, E (3) A, C, E (4) B, C, D

74. *According to the author, the sociologist who argued that race is a 'biological' category and caste is a 'social' one*
    (1) generally shares the same orientation as the author's on many of the central issues discussed.
    (2) tangentially admits to the existence of "caste" as a category.
    (3) admits the incompatibility between the people of different race and caste.
    (4) admits indirectly that both caste-based prejudice and racial discrimination exist.

75. An important message in the passage, if one accepts a dialectic between nature and culture, is that
    (1) the results of the Human Genome Project reinforces racial differences.
    (2) race is at least partially a social construct.
    (3) discrimination is at least partially a social construct.
    (4) caste is at least partially a social construct.

PASSAGE II

Studies of the factors governing reading development in young children have achieved a remarkable degree of consensus over the past two decades. This consensus concerns the causal role of phonological skills in young children's reading progress. Children who have good phonological skills, progress more poorly. In particular, those who have a specific phonological deficit the likely to be classified as dyslexic by the time that they are 9 or 10 years old.

Phonological skills in young children can be measured at a number of different levels. The term phonological awareness is a global one, and refers to a deficit in recognising smaller units of sound within spoken words. Developmental work has shown that this deficit can be at the level of syllables, of onsets and rimes, or of phonemes. For example, a 4-year old child might have difficulty in recognising that a word that a word like valentine has three syllables, suggesting a lack of syllabic awareness. A 5–years old might have difficulty in recognising that the odd word out in the set of words fan, cat, hat, mat is fan. This task requires an awareness of the sub-syllabic units of the onset and the rime. The onset corresponds to any initial consonants is a syllable, and the rime corresponds to the vowel and to any following consonants. Rimes correspond to rhyme in single-syllable words, and so the rime in fan differs from the rime in cat, hat, and mat. In longer words, rime and rhyme may differ. The onsets in val : en : tine are /v/ and /t/, and the rimes correspond to the spelling patterns 'al', 'en', and 'ine'.

A 6-year-old might have difficulty in recognising that plea and pray begin with the same initial sound. This is a phonemic judgement. Although the initial phoneme /p/ is shared between the two words, in plea it is part of onset 'pl', and in pray it is part of the onset 'pr'. Until children can segment the onset (or the rime), such phonemic judgements are difficult for them to make. In fact, a recent survey of different developmental studies has shown that the different levels of phonological awareness appear to emerge sequentially. The awareness of syllables, onsets, and rimes appears to emerge at around the ages of 3 and 4, long before most children go to school. The awareness of phonemes, on the other hand, usually emerges at around the age of 5 or 6, when children have been taught to read for about a year. An awareness of onsets and rimes thus appears to be a precursor of reading, whereas as awareness of phonemes at every serial position in a word only appears to develop as reading is taught. The onset-rime and phonemic levels of phonological structure, however, are not distinct. Many onsets in English are single phonemes, and so are some rimes (e.g. sea, go, zoo).

The early availability of onsets the rimes is supported by studies that have compared the development of phonological awareness of onsets, rimes, and phonemes in the same subjects using the same phonological awareness tasks. For example, a study by Treiman and Zudowski used a same/different judgement task based on the beginning or the end sounds of words. In the beginning sound task. the words either began with the same onset, as in plea and plank, or shared only and initial phoneme, as in plea and pry. In the end-sound task, the same onset, as in plea and plank, or shared only the initial phoneme, as in plea and pray. In the end-sound task, the words either shared the entire rime, as in spit and wit, or shared only the final phoneme, as in rat and wit. Treiman and Zudowski showed that 4–and 5–year old children found the onset-rime version of the same/different task significantly easier than the version based on phonemes. Only the 6-year-olds, who had been learning to read for about a year, were able to perform both versions of the tasks with an equal level of success.

76. *From the following statements, pick out the true statement according to the passage*
   (1) A mono-syllabic word can have only one onset.
   (2) A mono-syllabic word can have only one rhyme but more than one rime.
   (3) A mono-syllabic word can have only one phoneme.
   (4) All of the above.

77. *Which one of the following is likely to emerge last in the cognitive development of a child?*
   (1) Rhyme (2) Rime (3) Onset (4) Phoneme

78. *A phonological deficit in which of the following is likely to be classified as dyslexia?*
   (1) Phonemic judgement (2) Onset judgement
   (3) Rime judgement (4) Any one or more of the above

79. *The Treiman and Zudowski experiment found evidence to support the following*
   (1) at age 6, reading instruction helps children perform, both, the same-different judgement task.
   (2) the development of onset-rime awareness precedes the development of an awareness of phonemes.
   (3) at age 4-5 children find the onset-rime version of the same/different task significantly easier.
   (4) the development of onset-rime awareness is a necessary and sufficient condition for the development of an awareness of phonemes.

80. *The single-syllable words Rhyme and Rime are constituted by the exact same set of*
   (A) rime (s) (B) onset (s)
   (C) rhyme (s) (D) phonemes (s)
   (1) A, B (2) A, C (3) A, B, C (4) B, C, D

PASSAGE III

Billie Holiday died a few weeks ago. I have been unable until now to write about her, but since she will survive many who receive longer obituaries, a short delay in one small appreciation will not harm her or us. When she died we the musicians, critics, all who were ever transfixed by the most heart-rending voice of the past generation–grieved bitterly. There was no reason to. Few people pursued self-destruction more wholeheartedly then she, and when the pursuit was at an end, at the age of forty-four, she had turned herself into a physical and artistic wreck. Some of us tried gallantly to pretend otherwise, taking comfort in the occasional moments when she still sounded like a ravaged echo of her greatness. Others had not even the heart to see and listen any more. We preferred to stay home and, if old and lucky enough to own the incomparable records of her heyday from 1937 to 1946, many of which are not even available on British LP, to recreate those coarse-textured, sinuous, and unbearable sad noises which gave her a sure corner of immortality. Her physical death called, if anything, for relief rather than sorrow. What sort of middle age would she have faced without the voice to earn money for her drinks and fixes, without the looks and in her day she was hauntingly beautiful- to attract the men she needed, without business sense, without anything but the disinterested worship of ageing men had heard and seen her in her glory?

And yet, irrational though it is, our grief expressed Billie Holiday's art, that of a woman for whom one must be sorry. The great blues singers, to whom she may be justly compared, played their game from strength. Lionesses, though often wounded or at bay (did not Bessie Smith call herself 'a tiger, ready to jump'?), their tragic equivalents were Cleopatra and Phaedra; Holida's was an embittered Ophelia. She was the Puccini heroine among blues singers, or rather among jazz singers, for though she sang a cabaret version of the blues incomparably, her natural idiom was the pop song. Her unique achievement was to have twisted this into a genuine expression of the major passions by means of a total disregard of its sugary tunes, or indeed or any tune other than her own few delicately crying elongated notes, phrased like Bessie Smith or Louis Armstrong in sackcloth, song in a thin, gritty, haunting voice whose natural mood was an unresigned and voluptuous welcome for the pains of love. Nobody has sung, or will sing, Bess's songs from Porgy as she did. It was this combination of bitterness and physical submission, as of someone lying still while watching his legs being amputated, which gives such a bloodcurdling quality to her Strange Fruit, the antilynching poem which she turned into an unforgettable art song. Suffering was her profession; but she did not accept it.

Little need be said about her horrifying life, which she described with emotional, though hardly with factual, truth in her autobiography Lady Sings the Blues. After an adolescence in which self-respect was measured by a girl's insistence on picking up the coins thrown no her by clients with her hands, she was plainly beyond help. She did not lack it, for she had the flair and scrupulous honesty of John Hammond to launch her, the best musicians of the 1030s to accompany her-notably Teddy Wilson, Frankie Newton and Lester Young- the boundless devotion of all serious connoisseurs, and much public success. It was too late to arrest a career of systematic

embittered self-immolation. To be born with both beauty and self-respect in the Negro ghetto of Baltimore in 1915 was too much of a handicap, even without rape at the age of ten and drug-addiction in her teens. But, while she destroyed herself, she sang, unmelodious, profound and heartbreaking. It is impossible not to weep for her, or not to hate the world which made her what she was.

81. *Why will-Billie holiday survive many who receive longer obituaries?*
    (1) Because of her blues creations.
    (2) Because she was not as self-destructive as some other blues exponents.
    (3) Because of her smooth and mellow voice.
    (4) Because of the expression of anger in her songs.

82. *According to the author, if Billie Holiday had not died in her middle age*
    (1) she would have gone on to make a further mark.
    (2) she would have become even richer than what she was when she died.
    (3) she would have led a rather ravaged existence.
    (4) she would have led a rather comfortable existence.

83. *Which of the following statements is not representative of the author's opinion*
    (1) Billie Holiday had her unique brand of melody.
    (2) Billie Holiday's voice can be compared to other singers in certain ways.
    (3) Billie Holiday's voice had a ring of profound sorrow.
    (4) Billie Holiday welcomed suffering in her profession and in her life.

84. *According to the passage, Billie Holiday was fortunate in all but one of the following ways*
    (1) she was fortunate to have been picked up young by an honest producer.
    (2) she was fortunate to have the likes of Louis Armstrong and Bessie Smith accompany her.
    (3) she was fortunate to posses the looks.
    (4) she enjoyed success among the public and connoisseurs.

PASSAGE IV

The narrative of Dersu Uzala is divided into two major sections, set in 1902 and 1907, that deal with separate expeditions which Arseniev conducts into the Ussuri region. In addition, a third time frame forms a prologue to the film. Each of the temporal frames has a different focus and by shifting them Kurosawa is able to describe the encroachment of settlements upon the wilderness and the consequent erosion of Dersu's way of life. As the film opens, that erosion has already begun. The first image is a long shot of a huge forest, the trees piled upon one another by the effects of the telephoto lens so that the landscape becomes an abstraction and appears like a huge curtain of green. A title informs us that the year is 1910. This is as late into the century as Kurosawa will go. After this prologue, the events of the film will transpire even farther back in time and will presented as Arseniev's recollections. The character of Dersu Uzala is the heart of the film, his life the example that Kurosawa wishes to affirm. Yet the formal organisation of the film works to contain to close, to circumscribe that life by erecting a series of obstacles around it. The film itself is circular, opening and closing by Dersu's grave, thus sealing off the character from the modern world to which Kurosawa once so desperately wanted to speak. The multiple time frames also work to maintain a separation between Dersu and the contemporary world. We must go back farther even than 1910 to discover who he was. But this narrative structure has yet another implication. It safeguards Dersu's example, inoculates it from contamination with history, and protects it from contact with the industrialised, urban world. Time is organised by the narrative into a series of barriers, which enclose Dersu in a kind of vacuum chamber, protecting him from the social and historical dialectics that destroyed the other Kurosawa heroes. Within the film, Dersu does die, but the narrative structure attempts to immortalise him and his example, as Dersu passes from history into myth.

We see all this at work in the enormously evocative prologue. The camera down to reveal felled trees littering the landscape and an abundance of construction. Roads and houses outline the settlement that is being built. Kurosawa cuts to a medium shot of Arseniev standing in the midst of the clearing, looking uncomfortable and disoriented. A man passing in a wagon asks him what he is done, and the explorer says he is looking for a grave. The driver replies than no one has died here, the settlement is too recent. These words enunciate the temporal rupture that the film studies. It is the beginning of things (industrial society) and the end of things (the forest), the commencement of one world so young that no one has had time yet to die and the eclipse of another, in which Dersu has died. It is his grave for which the explorer searches. His passing symbolises the new order, the development that now surrounds Arseniev. The explorer says he buried his friend three years ago, next to huge cedar and fir trees, but now they are all gone. The man on the wagon replies they were probably chopped down when the settlement was build, and he drives off. Arseniev walks to a

barren, treeless spot next to a pile of bricks. As he moves, the camera tracks and pans to follow, revealing a line of freshly built houses and a woman hanging her laundry to dry. A distant train whistle is heard, and the sounds of construction in the clearing vie with the cries of birds and the rustle of wind in the trees. Arseniev pauses, looks around for the grave that once was, and murmurs desolately, "Dersu". The image now cuts farther into the past, to 1902, and the first section of the film commences, which describes Arseniev's meeting with Dersu and their friendship.

Kurosawa defines the world of the film initially upon a void, a missing presence. The grave is gone, brushed aside by a world rushing into modernism, and now the hunter exists only in Arseniev's memories. The hallucinatory dreams and visions of Dodeskaden are succeeded by nostalgic, melancholy ruminations. Yet by exploring these ruminations, the film celebrates the timelessness of Dersu's wisdom. The first section of the film has two purposes: to describe the magnificence and inhuman vastness of nature and to delineate the code of ethics by which Dersu lives and which permits him to survive in these conditions. When Dersu first appears, the other soldiers treat him with condescension and laughter, but Arseniev watches him closely and does not share their derisive response. Unlike them, he is capable of immediately grasping Dersu's extraordinary qualities. In camp, Kurosawa frames Arseniev by himself, sitting on the other side of the fire from his soldiers. While they sleep or joke among themselves, he writes in his diary and Kurosawa cuts in several point-of-view shots from his perspective of trees that appear animated and sinister as the fire light dances across their gnarled, leafless outlines. This reflective dimension, this sensitivity to the spirituality of nature, distinguishes him from the others and forms the basis of his receptivity to Dersu and their friendship. It makes his a fit pupil for the hunter.

85. *How is Kurosawa able to show the erosion on Dersu's way of life?*
    (1) By documenting the ebb and flow of modernisation.
    (2) By going back farther and father in time.
    (3) By using three different time frames and shifting them.
    (4) Through his death in a distant time.

86. *Arseniev's search for Dersu's grave*
    (1) is part of the beginning of the film.
    (2) symbolises the end of the industrial society.
    (3) is misguided since the settlement is too new.
    (4) symbolises the rediscovery of modernity.

87. *The film celebrates Dersu's wisdom*
    (1) by exhibiting the moral vacuum of the pre-modern world.
    (2) by turning him into a mythical figure.
    (3) through hallucinatory dreams and visions.
    (4) through Arseniev's nostalgic, melancholy ruminations.

88. *According to the author the section of the film following the prologue*
    (1) serves to highlight the difficulties that Dersu faces that eventually kills him.
    (2) shows the difference in thinking between Arseniev and Dersu.
    (3) shows the code by which Dersu lives that allows him to survive his surroundings.
    (4) serves to criticize the lack of understanding of nature in the pre-modern era.

89. *In the film, Kurosawa hints at Arseniev's reflective and sensitive nature*
    (1) by showing him as not being derisive towards Dersu, unlike other soldiers.
    (2) by showing him as being aloof from other soldiers.
    (3) through shots of Arseniev writing his diary, framed by trees.
    (4) all of the above.

90. *According to the author, which of these statements about the film are correct?*
    (1) The film makes its arguments circuitously.
    (2) The film highlights the insularity of Arseniev.
    (3) The film begins with the absence of its main protagonist.
    (4) None of the above

PASSAGE V

Democracy rests on a tension between two different principles. There is, on the one hand, the principle of equality before the law, or, more generally, of equality, and, on the other, what may be described as the leadership principle. The first gives priority to rules and the second to persons. No matter how skilfully we contrive our schemes, there is a point beyond which the one principle cannot be promoted without some sacrifice of the other.

Alexis de Tocqueville, the great nineteenth century writer on democracy, maintained that the age of democracy, whose birth he was witnessing, would also be the age of mediocrity: in saying this he was thinking primarily of a regime of equality governed by impersonal rules. Despite his strong attachment to democracy, he took great pains to point out what he believed to be its negative side: a dead level plane of achievement in practically every sphere of life. The age of democracy would, in his view, be an unheroic age; there would not be room in it for either heroes or hero-worshippers.

But modern democracies have not been able to do without heroes: this too was foreseen, with much misgiving, by Tocqueville. Tocqueville viewed this with misgiving because he believed, rightly or wrongly, that unlike in aristocratic societies there was no proper place in a democracy for heroes and, hence, when they arose they would sooner or later turn into despots. Whether they require heroes or not, democracies certainly require leaders, and, in the contemporary age, breed them in great profusion; the problem is to know what to do with them.

In a world preoccupied with scientific rationality the advantages of a system based on an impersonal rule of law should be a recommendation with everybody. There is something orderly and predictable about such a system. When life is lived mainly in small, self-contained communities, men are able to take finer personal distinctions into account in dealing with their fellow men. They are unable to do this in a large and amorphous society, and organised living would be impossible here without a system of impersonal rules. Above all, such a system guarantees a kind of equality to the extent that everybody, no matter in what station of life, is bound by the same explicit, often written, rules, and nobody is above them.

But a system governed solely by impersonal rules can at best ensure order and stability; it cannot create any shining vision of a future in which mere formal equality will be replaced by real equality and fellowship. A world governed by impersonal rules cannot easily change itself, or when it does, the change is so gradual as to make the basic and fundamental feature of society appear unchanged. For any kind of basic or fundamental change, a push is needed from within, a kind of individual initiative which will create new rules, new terms and conditions of life.

The issue of leadership thus acquires crucial significance in the context of change. If the modern age is preoccupied with scientific rationality, it is no less preoccupied with change. To accept what exists on its own terms is traditional, not modern, and it may be all very well to appreciate tradition in music, dance and drama, but for society as a whole the choice has already been made in favour of modernisation and development. Moreover, in some countries the gap between ideal and reality has become so great that the argument for development and change is now irresistible.

In these countries no argument for development has greater appeal to urgency than the one which shows development to be the condition for the mitigation, if not the elimination, of inequality. There is something contradictory about the very presence of large inequalities in a society which professes to be democratic. It does not take people too long to realise that democracy by itself can guarantee only formal equality; beyond this, it can only whet people's appetite for real or substantive equality. From this arises their continued preoccupation with plans and schemes that will help to bridge the gap between the ideal of equality that the reality which is so contrary to it.

When pre-existing rules give no clear directions of change, leadership comes into its own. Every democracy invests its leadership with a measure of charisma, and expects from it a corresponding measure of energy and vitality. Now, the greater the urge for change in a society the stronger the appeal of a dynamic leadership in it. A dynamic leadership seeks to free itself from the constrains of existing rules; in a sense that is the test of dynamism. In this process it may take a turn at which it ceases to regard itself as being bound by these rules, placing itself above them. There is always a tension between 'charisma' and 'discipline' in the case of a democratic leadership, and when this leadership puts forward revolutionary claims, the tension tends to be resolved at the expense of discipline.

Characteristically, the legitimacy of such a leadership rests on its claim to be able to abolish or at least substantially reduce the existing inequalities in society. From the argument that formal equality or equality before the law is but a limited good, it is often one short step to the argument that it is a hindrance or an obstacle to the establishment of real or substantive equality. The conflict between a 'progressive' executive and a 'conservative' judiciary is but one aspect of this larger problem. This conflict naturally acquires added piquancy when the executive is elected and the judiciary appointed.

91. *Dynamic leaders are needed in democracies because*
    (1) they have adopted the principles of 'formal' equality rather than 'substantive' equality.
    (2) 'formal' equality whets people's appetite for 'substantive' equality.
    (3) systems that rely on the impersonal rules of 'formal' equality loose there ability to make large changes.
    (4) of the conflict between a 'progressive' executive and a 'conservative' judiciary.

92. *What possible factor would a dynamic leader consider a 'hindrance' in achieving the development goals of a nation?*
    (1) Principle of equality before the law.
    (2) Judicial activism.
    (3) A conservative judiciary.
    (4) Need for discipline.

93. *Which of the following four statements can be inferred from the above passage?*
    (A) Scientific rationality is an essential feature of modernity.
    (B) Scientific rationality results in the development of impersonal rules.
    (C) Modernisation and development have been chosen over traditional music, dance and drama.
    (D) Democracies aspire to achieve substantive equality.
    (1) A, B, D but not C
    (2) A, B but not C, D
    (3) A, D but not B, C
    (4) A, B, C but not D

94. *Tocqueville believed that the age of democracy would be an unheroic age because*
    (1) democratic principles do not encourage heroes.
    (2) there is no urgency for development in democratic countries.
    (3) heroes that emerged in democracies would become despots.
    (4) aristocratic society had a greater ability to produce heroes.

95. *A key argument the author is making is that*
    (1) in the context of extreme inequality, the issue of leadership had limited significance.
    (2) democracy is incapable of eradicating inequality.
    (3) formal equality facilitates development and change.
    (4) impersonal rules are good for avoiding instability but fall short of achieving real equality.

96. *Which of the following four statements can be inferred from the above passage?*
    (A) There is conflict between the pursuit of equality and individuality.
    (B) The disadvantages of impersonal rules can be overcome in small communities.
    (C) Despite limitations, impersonal rules are essential in large systems.
    (D) Inspired leadership, rather than plans and schemes, is more effective in bridging inequality.
    (1) B, D but not A, C
    (2) A, B but not C, D
    (3) A, D but not B, C
    (4) A, C but not B, D

PASSAGE VI

In the modern scientific story, light was created not once but twice. The first time was in the Big Bang, when the universe began its existence as a glowing, expanding, fireball, which cooled off into darkness after a few million years. The second time was hundreds of millions of years later, when the cold material condensed into dense nuggets under the influence of gravity, and ignited to become the first stars.

Sir Martin Rees, Britain's astronomer royal, named the long interval between these two enlightenments the cosmic "Dark Age". The name describes not only the poorly lit conditions, but also the ignorance of astronomers about that period. Nobody knows exactly when the first stars formed, or how they organised themselves into galaxies-or even whether stars were the first luminous objects. They may have been preceded by quasars, which are mysterious, bright spots found at the centres of some galaxies.

Now, two independent groups of astronomers, one led by Robert Becker of the University of California, Davis, and the other by George Djorgovski of the Caltech, claim to have peered far enough into space with their telescopes (and therefore backwards enough in time) to observe the closing days of the Dark Age.

The main problem that plagued previous efforts to study the Dark Age was not the lack of suitable telescopes, but rather the lack of suitable things at which to point them. Because these events took place over 13 billion years ago, if astronomers are to have any hope of unraveling them they must study objects that are at least 13 billion light years away. The best prospects are quasars, because they are so bright and compact that they can be seen across vast stretches of space. The energy source that powers a quasar is unknown, although it is suspected to be the intense gravity of a giant black hole. However, at the distances required for the study of Dark Age, even quasars are extremely rare and faint.

Recently some members of Dr. Becker's team announced their discovery of the four most distant quasars known. All the new quasars are terribly faint, a challenge that both teams overcome by peering at them through one of the twin Keck telescopes in Hawaii. These are the world's largest, and can therefore collect the most light. The new work by Dr. Becker's team analysed the light from all four quasars. Three of them appeared to be similar to ordinary, less distant quasars. However, the fourth and most distant, unlike any other quasar ever seen, showed unmistakable signs of being shrouded in a fog of hydrogen gas. This gas is leftover material from the Big Bang that did not condense into stars or quasars. It acts like fog because new-born stars and quasars emit mainly ultraviolet light, and hydrogen gas is opaque to ultraviolet. Seeing this fog had been the goal of would-be Dark Age astronomers since 1965, when James Gunn and Bruce Peterson spelled out the technique for using quasars as backlighting beacons to observe the fog's ultraviolet shadow.

The fog prolonged the period of darkness until the heat from the first stars and quasars had the chance to ionise the hydrogen (breaking it into its constituent parts, protons and electrons). Ionised hydrogen is transparent to ultraviolet radiation, so at that moment the fog lifted and the universe became the well-lit place it is today. For this reason, the end of the Dark Age is called the "Epoch of Re-ionisation". Because the ultraviolet shadow is visible only in the most distant of four quasars, Dr. Becker's team concluded that the fog had dissipated completely by the time the universe was about 900 million years old, and one-seventh of its current size.

97. *In the passage, the Dark Age refers to*
    (1) the period when the universe became cold after the Big Bang.
    (2) a period about which astronomers know very little.
    (3) the medieval period when cultural activity seemed to have come to an end.
    (4) the time that the universe took to heat up after the Big Bang.

98. *Astronomers find it difficult to study the Dark Age because*
    (1) suitable telescopes are few.
    (2) the associated events took place aeons ago.
    (3) the energy source that powers a quasar is unknown.
    (4) their best chance is to study quasars, which are faint object to begin with.

99. *The four most distant quasars discovered recently*
    (1) could only be seen with the help of large telescopes.
    (2) appear to be similar to other ordinary, quasars.
    (3) appear to be shrouded in a fog of hydrogen gas.
    (4) have been sought to be discovered by Dark Age astronomers since 1965.

100. *The fog of hydrogen gas seen through the telescopes*
    (1) is transparent to hydrogen radiation from stars and quasars in all states.
    (2) was lifted after heat from stars and quasars ionised it.
    (3) is material which eventually became stars and quasars.
    (4) is broken into constituent elements when stars and quasars are formed.

CAT 2001

SECTION III

Number of Questions : 50

DIRECTIONS : *Answer each of the questions independent of each other.*

The following is a table describing garments manufactured based upon the colour and size each lay. There are four sizes : M-Medium, L-Large, XL-Extra Large and XXL-Extra-Extra Large. There are three colours: Yellow, Red and White.

Lay	Number of Garments											
	Yellow				Red				White			
Lay No.	M	L	XL	XXL	M	L	XL	XXL	M	L	XL	XXL
1	14	14	7	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	42	42	21	0
3	20	20	10	0	18	18	9	0	0	0	0	0
4	20	20	10	0	0	0	0	0	30	30	15	0
5	0	0	0	0	24	24	12	0	30	30	15	0
6	22	22	11	0	24	24	12	0	32	32	16	0
7	0	24	24	12	0	0	0	0	0	0	0	0
8	0	20	20	10	0	2	2	1	0	0	0	0
9	0	20	20	10	0	0	0	0	0	22	22	11
10	0	0	0	0	0	26	26	13	0	20	20	10
11	0	22	22	11	0	26	26	13	0	22	22	11
12	0	0	2	2	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	20	20
14	0	0	0	0	0	0	0	0	0	0	22	22
15	0	0	10	10	0	0	2	2	0	0	22	22
16	0	0	0	0	1	0	0	0	1	0	0	0
17	0	0	0	0	0	5	0	0	0	0	0	0
18	0	0	0	0	0	32	0	0	0	0	0	0
19	0	0	0	0	0	32	0	0	0	0	0	0
20	0	0	0	0	0	5	0	0	0	0	0	0
21	0	0	0	18	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	26	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	22
24	0	0	0	8	0	0	0	1	0	0	0	0
25	0	0	0	8	0	0	0	0	0	0	0	12
26	0	0	0	0	0	0	0	1	0	0	0	14
27	0	0	0	8	0	0	0	2	0	0	0	12
Production	76	162	136	97	67	194	89	59	135	198	195	156
Order	75	162	135	97	67	194	89	59	135	197	195	155
Surplus	1	0	1	0	0	0	0	0	0	1	0	1

101. How many lays are used to produce Yellow coloured fabrics?

(1) 10 (2) 11 (3) 12 (4) 14

102. How many lays are used to produce Extra-Extra Large fabrics?
(1) 15 (2) 16 (3) 17 (4) 18

103. How many lays are used to produce Extra-Extra Large Yellow or Extra-Extra Large White fabrics?
(1) 8 (2) 9 (3) 10 (4) 15

104. How many varieties of fabrics, which exceed the order, have been produced?
(1) 3 (2) 4 (3) 5 (4) 6

DIRECTIONS : *Answer these questions based on the table given below concerning the busiest twenty international airports in the world.*

No	Name	International Airport Type	Code	Location	Passengers
1	Hartsfield	A	ATL	Atlanta, Georgia, USA	77939536
2	Chicago-O'Hare	A	ORD	Chicago, Illinois, USA	72568076
3	Los Angles	A	LAX	Los Angeles, California, USA	63876561
4	Heathrow Airport	E	LHR	Londan, United Kingdom	62263710
5	DFW	A	DFW	Dallas/Ft. Worth, Texas, USA	60000125
6	Haneda Airport	F	HND	Tokyo, Japan	54338212
7	Frankfurt Airport	E	FRA	Frankfurt, Germany	45858315
8	Roissy-Charles de Gaulle	E	CDG	Paris, France	43596943
9	San Francisco	A	SFO	San Francisco, California, USA	40387422
10	Denver	A	DIA	Denver, Colorado, USA	38034231
11	Amsterdam Schiphol	E	AMS	Amsterdam, Netherlands	36781015
12	Minneapolis-St. Paul	A	MSP	Minneapolis-St.Paul, USA	34216331
13	Detroit Metropolitan	A	DTW	Detroit, Michigan, USA	34038381
14	Miami	A	MIA	Miami, Florida, USA	33899246
15	Newark	A	EWR	Newark, New Jersey, USA	33814000
16	McCarran	A	LAS	Las Vegas, Nevada, USA	33669185
17	Phoenix Sky Harbor	A	PHX	Phoenix, Arizona, USA	33533353
18	Kimpo	FE	SEL	Seoul, Korea	33371074
19	George Bush	A	IAH	Houston, Texas, USA	33089333
20	John F.Kennedy	A	JFK	New York, New York, USA	32003000

105. How many international airports of type 'A' account for more than 40 million passengers?
(1) 4 (2) 5 (3) 6 (4) 7

106. What percentage of top ten busiest airports is in the United States of America?
(1) 60 (2) 80 (3) 70 (4) 90

107. Of the five busiest airports, roughly what percentage of passengers is handled by Heathrow airport?
(1) 30 (2) 40 (3) 20 (4) 50

108. How many international airports not located in the USA handle more than 30 million passengers?
(1) 5 (2) 6 (3) 10 (4) 14

CAT 2001

DIRECTIONS : *Answer these questions based on the two graphs shown below.*

Figure 1 shows the amount of work distribution, in man-hours, for a software between offshore and onsite activities. Figure 2 shows the estimated and actual work effort involved in the different offshore activities in the same company during the same period. [Note : Onsite refers to work performed at the customer's premise and offshore refers to work performed at the developer's premise].

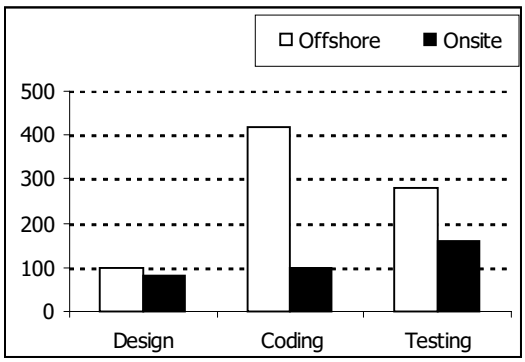


Figure - 1

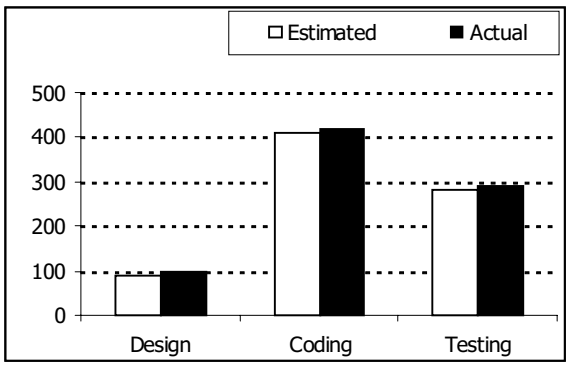


Figure - 2

109. Which of the work requires as many man-hours as that spent in coding?
(1) Offshore, design and coding (2) Offshore coding
(3) Testing (4) Offshore, testing and coding

110. Roughly what percentage of the total work is carried out onsite?
(1) 40 percent (2) 20 percent (3) 30 percent (4) 50 percent

111. The total effort in man-hours spent onsite is nearest to which of the following?
(1) The sum of the estimated and actual effort for offshore design
(2) The estimated man-hours of offshore coding
(3) The actual man-hours of offshore testing
(4) Half of the man-hours of estimated offshore coding

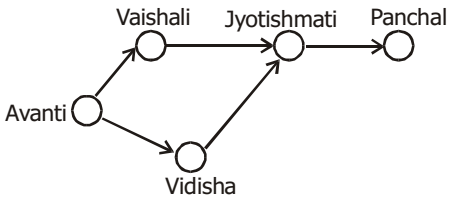
112. If the total working hours were 100, which of the following tasks will account for approximately 50 hours?
(1) Coding (2) Design
(3) Offshore testing (4) Offshore testing plus design

113. If 50 percent of the offshore work were to be carried out onsite, with the distribution of effort between the tasks remaining the same, the proportion of testing carried out offshore would be
(1) 40 percent (2) 30 percent (3) 50 percent (4) 70 percent

114. If 50 percent of the offshore work were to be carried out onsite, with the distribution of effort between the tasks remaining the same, which of the following is true of all work carried out onsite?
(1) The amount of coding done is greater than that of testing.
(2) The amount of coding done onsite is less than that of design done onsite.
(3) The amount of design carried out onsite is greater than that of testing.
(4) The amount of testing carried out offshore is greater than that of total design.

DIRECTIONS : *Answer these questions based on the pipeline diagram below*

The following sketch shows the pipelines carrying material from one location to another. Each location has a demand for material. The demand at Vaishali is 400, at Jyotishmati is 400, at Panchal is 700, and at Vidisha is 200. Each arrow indicates the direction of material flow through the pipeline. The flow from Vaishali to Jyotishmati is 300. The quantity of material flow is such that the demands at all these locations are exactly met. The capacity of each pipeline is 1000.



115. The quantity moved from Avanti to Vidisha is
(1) 200 (2) 800 (3) 700 (4) 1000

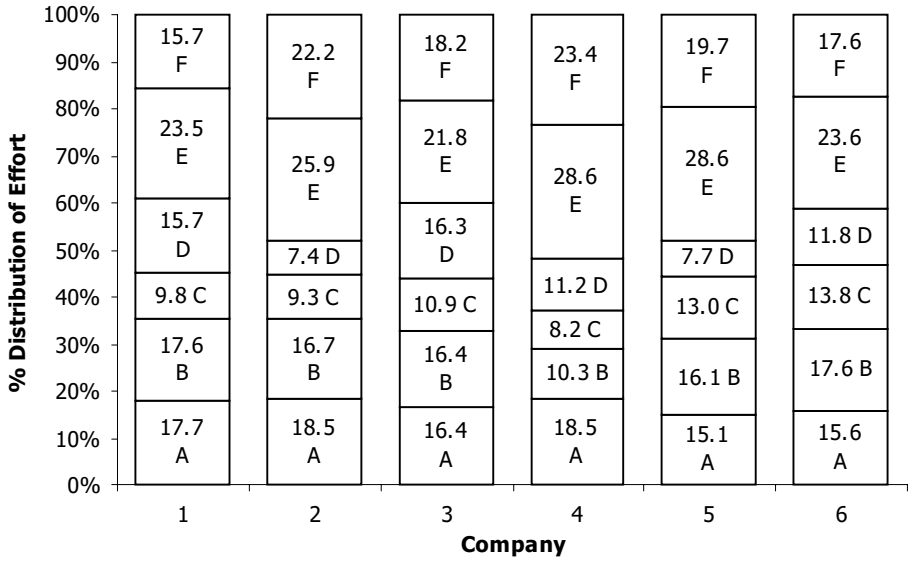
116. The free capacity available at the Avanti-Vaishali pipeline is
(1) 0 (2) 100 (3) 200 (4) 300

117. What is the free capacity available in the Avanti-Vidisha pipeline?
(1) 300 (2) 200 (3) 100 (4) 0

CAT 2001

DIRECTIONS : *Answer these questions based on the data given below*

There are six companies, 1 through 6. All of these companies use six operations, A through F. The following graph shows the distribution of efforts put in by each company in these six operations.



118. Suppose effort allocation is interchanged between operation B and C, then C and D, and then D and E. If companies are then ranked in ascending order of effort in E, what will be the rank of company 3?

(1) 2 (2) 3 (3) 4 (4) 5

119. A new technology is introduced in company 4 such that the total effort for operations B through F get evenly distributed among these. What is the change in the percentage of effort in operation E?

(1) Reduction of 12.3 (2) Increase of 12.3

(3) Reduction of 5.6 (4) Increase of 5.6

120. Suppose the companies find that they can remove operations B, C and D and redistribute the effort released equally among the remaining operations. Then, which operation will show the maximum across all companies and all operations?

(1) Operation E in company 1 (2) Operation E in Company 4

(3) Operation F in company 5 (4) Operation E in company 5

DIRECTIONS : *Each item is following by two statements, A and B. Answer each question using the following instructions.*

Choose 1; if the question can be answered by one of the statements alone and not by the other.
Choose 2; if the question can be answered by using either statement alone.
Choose 3; if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.
Choose 4; if the question cannot be answered even by using both statements together.

121. What are the values of m and n?
   (A) n is an even integer, m is an odd integer, and m is greater than n.
   (B) Product of m and n is 30.

122. Is Country X's GDP higher than country Y's GDP?
   (A) GDPs of the countries X and Y have grown over the past five years at compounded annual rate of 5% and 6% respectively.
   (B) Five years ago, GDP of country X was higher than that of country Y.

123. What is the value of X?
   (A) X and Y are unequal even integers, less than 10, and X/Y is an odd integer.
   (B) X and Y are even integers, each less than 10, and product of X and Y is 12.

124. On a given day a boat ferried 1500 passengers across the river in twelve hours. How many round trips did it make?
   (A) The boat can carry two hundred passengers at any time.
   (B) It take 40 minutes each way and 20 minutes of waiting time at each terminal.

125. What will be the time for downloading software?
   (A) Transfer rate is 6 Kilobytes per second.
   (B) The size of the software is 4.5 megabytes.

126. A square is inscribed in a circle. What is the difference between the area of the circle and that of the square?
   (A) The diameter of the circle is $25\sqrt{2}$ cm.
   (B) The side of the square is 25 cm.

127. Two friends, Ram and Gopal, bought apples from a wholesale dealer. How many apples did they buy?
   (A) Ram bought one-half the number of apples that Gopal bought.
   (B) The wholesale dealer had a stock of 500 apples.

CAT 2001

DIRECTIONS : *The questions are based on the pie charts given below.*

Chart 1 shows the distribution of twelve million tons of crude oil transported through different modes over a specific period of time. Chart 2 shows the distribution of the cost of transporting this crude oil. The total cost was Rs.30 million.

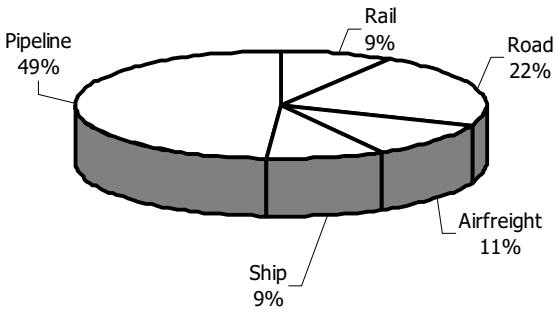


Chart 1 : Volume Transported

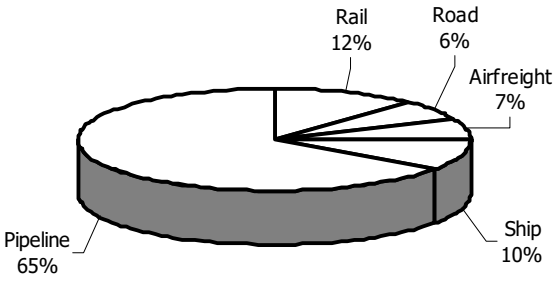


Chart 2 : Cost of Transportation

128. The cost in rupees per ton of oil moved by rail and road happens to be roughly

(1) 3 (2) 1.5 (3) 4.5 (4) 8

129. From the charts given, it appears that the cheapest mode of transport is

(1) Road (2) Rail (3) Pipeline (4) Ship

130. If the costs per ton of transport by ship, air and road are represented by P, Q and R respectively, which of the following is true?

(1) R > Q > P (2) P > R > Q (3) P > Q > R (4) R > P > Q

DIRECTIONS : *Answer the questions independent of each other.*

131. At a village mela, the following six nautankis (plays) are scheduled as shown in the table below.

No.	Nautanki	Duration	Show Times
1.	Sati-Savitri	1 hour	9:00 a.m. and 2:00 p.m.
2.	Joru ka Ghulam	1 hour	10:30 a.m. and 11:30 a.m.
3.	Sundar Kand	30 minutes	10:00 a.m. and 11:00 a.m.
4.	Veer Abhimanyu	1 hour	10:00 a.m. and. 11:00 a.m.
5.	Reshma aur Shera	1 hour	9:30 a.m. 12:00 noon and 2:00p.m.
6.	Jhansi ki Rani	30 minutes	11:00 a.m. and 1:30 p.m.

You wish to see all the six nautankis. Further, you wish to ensure that you get a lunch break from 12.30 p.m. to 1 : 30 p.m. Which of the following way can you do this?

(1) Sati-Savitri is viewed first; Sundar Kand is viewed third and Jhansi ki Rani is viewed last.
(2) Sati-Savitri is viewed last; Veer Abhimanyu is viewed third and Reshma aur Shera is viewed first.
(3) Sati-Savitri is viewed first; Sundar Kand is viewed third and Joru ka Ghulam is viewed fourth.
(4) Veer-Abhimanyu is viewed third; Reshma aur Shera is viewed fourth and Jhansi ki Rani is viewed fifth.

132. Mrs. Ranga has three children and has difficulty remembering their ages and the months of their birth. The clues below may help her remember.

- The boy, who was born in June, is 7 years old.
- One of the children is 4 years old, but it is not Anshuman.
- Vaibhav is older than Suprita.
- One of the children was born in September, but it was not Vaibhav.
- Suprita's birthday is in April.
- The youngest child is only 2 years old.

Based on the above clues, which one of the following statements is true?

(1) Vaibhav is the oldest, followed by Anshuman who was born in September, and the youngest in Suprita who was born in April.

(2) Anshuman is the oldest being born in June, followed by Suprita who is 4 years old, and the youngest is Vaibhav who is 2 years old.

(3) Vaibhav is the oldest being 7 years old, followed by Suprita who was born in April, and the youngest is Anshuman who was born in September.

(4) Suprita is the oldest who was born in April, followed by Vaibhav who was born in June, and Anshuman who was born in September.

133. The Banerjees, the Sharmas, and the Pattabhiramans each have a traditions of eating Sunday lunch as a family. Each family serves a special meal at a certain time of day. Each family has a particular set of chinaware used only for this meal. Use the clues below to answer the following question.

- The sharma family eats at noon.
- The family that serves fried brinjal uses blue chinaware.
- The Banerjee family eats at 2 o'clock.
- The family that serves sambar does not use red chinaware.
- The family that eats at 1 o'clock serves fried brinjal.
- The Pattabhiraman family does not use white chinaware.
- The family that eats last likes makkai-ki-roti.

Which one of the following statements is true?

(1) The Banerjees eat makkai-ki-roti at 2 o'clock, the Sharmas eat fried brinjal at 12 o'clock and the Pattabhiramans eat sambar from red chinaware.

(2) The Sharmas eat sambar served in white chinaware, the Pattabhiramans eat fried brinjal at 1 o'clock, and the Banerjees eat makkai-ki-roti served in blue chinaware.

(3) The Sharmas eat sambar at noon, the Pattabhiramans eat fried brinjal served in blue chinaware, and the Banerjees eat makkai-ki-roti served in red chinaware.

(4) The Banerjees eat makkai-ki-roti served in white chinaware, the Sharmas eat fried brinjal at 12 o'clock and the Pattabhiramans eat sambar from red chinaware.

134. While Balbir had his back turned, a dog ran into his butcher shop, snatched a piece of meat off the counter and ran out. Balbir was mad when he realised what had happened. He asked three other shopkeepers, who had seen the dog, to describe it. The shopkeepers really didn't want to help Balbir. So each of them made a statement which contained one truth and one lie.

- Shopkeeper Number 1 said : "The dog had black hair and a long tail."
- Shopkeeper Number 2 said : "The dog has a short tail and wore a collar."
- Shopkeeper Number 3 said : "The dog had white hair and no collar."

Based on the above statements, which of the following could be a correct description?

(1) The dog had white hair, short tail and no collar.

(2) The dog had white hair, long tail and a collar.

(3) The dog had black hair, long tail and a collar.

(4) The dog had black hair, long tail and no collar.

CAT 2001

DIRECTIONS : *Answer the following questions based on the information given below .*

Elle is three times older than Yogesh. Zaheer is half the age of Wahida. Yogesh is older than Zaheer.

135. Which of the following can be inferred?
(1) Yogesh is older than Wahida.
(2) Elle is older than Wahida.
(3) Elle may be younger than Wahida.
(4) None of the above.

136. Which of the following information will be sufficient to estimate Elle's age?
(1) Zaheer is 10 years old.
(2) Both Yogesh and Wahida are older than Zaheer by the same number of years.
(3) Both 1 and 2 above.
(4) None of the above

DIRECTIONS : *Answer the following questions based on the passage below.*

A group of three or four has to be selected from seven persons. Among are two women: Fiza and Kavita, and five men: Ram, Shyam, David, Peter and Rahim. Ram would not like to be in the group if Shyam is also selected. Shyam and Rahim want to be selected together in the group. Kavita would like to be in the group only if David is also there. David, if selected, would not like Peter in the group. Ram would like to be in the group only if Peter is also there. David insists that Fiza be selected in case he is there in the group.

137. Which of the following is a feasible group of three?
(1) David, Ram, Rahim
(2) Peter, Shyam, Rahim
(3) Kavita, David, Shyam
(4) Fiza, David, Ram

138. Which of the following is a feasible group of four?
(1) Ram, Peter, Fiza, Rahim
(2) Shyam, Rahim, Kavita, David
(3) Shyam, Rahim, Fiza, David
(4) Fiza, David, Ram, Peter

139. Which of the following statements is true?
(1) Kavita and Ram can be part of a group of four
(2) A group of four can have two women
(3) A group of four can have all four men
(4) None of the above

DIRECTIONS : *Answer each of the questions independent of each other.*

140. On her walk through the park, Hansa collected 50 coloured leaves, all either maple or oak. She sorted them by category when she got home, and found the following

The number of red oak leaves with spots is even and positive.
The number of red oak leaves without any spot equals the number of red maple leaves without spots.
All non-red oak leaves have spots, and there are five times as many of them as there are red spotted oak leaves.
There are no spotted maple leaves that are not red.
There are exactly 6 red spotted maple leaves.
There are exactly 22 maple leaves that are neither spotted nor red.

How many oak leaves did she collect?
(1) 22 (2) 17 (3) 25 (4) 18

141. Eight people carrying food baskets are going for a picnic on motorcycles. Their names A, B, C, D, E, F, G, and H. They have four motorcycles, M1, M2, M3 and M4 among them. They also have four food baskets O, P, Q and R of different sizes and shapes and each can be carried only on motorcycles M1, M2, M3, or M4, respectively. No more than two persons can travel on a motorcycle and no more than one basket can be carried on a motorcycle. There are two husband-wife pairs in this group of eight people and each pair will ride on a motorcycle together. C cannot travel with A or B. E cannot travel with B or F. G cannot travel with F, or H, or D. The husband-wife pairs must carry baskets O and P. Q is with A and P is with D. F travels on M1 and E travels on M2 motorcycles. G is with Q, and B cannot to with R. Who is travelling with H?

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

142. In a family gathering there are two males who are grandfathers and four males who are fathers. In the same gathering there are two females who are grandmothers and four females who are mothers. There is at least one grandson or a granddaughter present in this gathering. There are two husband-wife pairs in this group. These can either be a grandfather and a grandmother, or a father and a mother. The single grandfather (who wife is not present) has two grandsons and a son present. The single grandmother (whose husband is not present) has two grand daughters and a daughter present. A grandfather or a grandmother present with their spouses does not have any grandson or granddaughter present. What is the minimum number of people present in this gathering?

(1) 10 (2) 12 (3) 14 (4) 16

143. I have a total of Rs. 1000. Item A costs Rs. 110, item B costs Rs. 90, item C costs Rs. 70, item D costs Rs. 40 and item E costs Rs. 45. For every item D than I purchase, I must also buy two of item B. For every item A, I must buy one of item C. For every item E, I must also buy two of item D and one of item B. For every item purchased I earn 1000 points and for every rupee not spent I earn a penalty of 1500 points. My objective is to maximise to points I earn. What is the number of items that I must purchase to maximise my points?

(1) 13 (2) 14 (3) 15 (4) 16

144. Four friends Ashok, Bashir, Chirag and Deepak are out shopping. Ashok has less money than three times the amount that Bashir has. Chirag has more money than Bashir. Deepak has an amount equal to the difference of amounts with Bashir and Chirag. Ashok has three times the money with Deepak. They each have to buy at least one shirt, or one shawl, or one sweater, or one jacket that are priced Rs. 200, Rs.400, Rs. 600, and Rs. 1000 a piece, respectively. Chirag borrows Rs. 300 from Ashok and buys a jacket. Bashir buys a sweater after borrowing Rs.100 from Ashok and is left with no money. Ashok buys three shirts. What is the costliest item the Deepak could buy with his own money?

(1) A shirt (2) A shawl (3) A sweater (4) A jacket

145. In a "keep-fit" gymnasium class there are fifteen females enrolled in a weight-loss program. They all have been grouped in any one of the five weight-groups W1, W2, W3, W4, or W5. One instructor is assigned to one weight-group only. Sonali, Shalini, Shubhra, and shahira belong to the same weight-group. Sonali and Rupa are in one weight-group, Rupali and Renuka are also in one weight-group. Rupa, Radha, Renuka, Ruchika, and Ritu belong to different weight-groups. Somya cannot be with Ritu, and Tara cannot be with Radha. Komal cannot be with Radha, Somya, or Ritu. Shahira is in W1 and Somya is in W4 with Ruchika. Sweta and Jyotika cannot be with Rupali, but are in a weight-group with total membership of four. No weight-group can have more than five or less than one member. Amita, Babita, Chandrika, Deepika, and Elina are instructors of weight-groups with membership sizes 5, 4, 3, 2 and 1, respectively. Who is the instructor of Radha?

(1) Babita (2) Elina (3) Chandrika (4) Deepika

146. A king has unflinching loyalty from eight of his ministers M1 to M8, but he has to select only four to make a cabinet committee. He decides to choose these four such that each selected person shares a liking with at least one of the other three selected. The selected persons must also hate one of the likings of any of the other three persons selected.

M1 likes fishing and smoking, but hates gambling,
M2 likes smoking and drinking, but hates fishing,
M3 likes gambling, but hates smoking,
M4 likes mountaineering, but hates drinking,
M5 likes drinking, but hates smoking and mountaineering,
M6 likes fishing, but hates smoking and mountaineering,
M7 likes gambling and mountaineering, but hates fishing, and
M8 likes smoking and gambling, but hates mountaineering.

Who are the four people selected by the king?

(1) M1, M2, M5, M6
(2) M3, M4, M5, M6
(3) M4, M5, M6, M8
(4) M1, M2, M4, M7

DIRECTIONS : *Refer to the following information and answer the questions that follow.*

A and B are two sets (e.g. A = mothers, B = women). The elements that could belong to both the sets (e.g., women who are mothers) is given by the set C = A.B. The elements which could belong to either A or B, or both, is indicated by the set D = A∪ B. A set that does not contain any elements is known as a null set, represented by φ (for example, if none of the women in the set B is a mother, they C = A.B is a null set, or C = φ).

Let 'V' signify the set of all vertebrates; 'M' the set of all mammals; 'D' dogs; 'F' fish; 'A' Alsatian and 'P', a dog named Pluto.

147. Given that X = M.D is such that X = D, which of the following is true?

(1) All dogs are mammals.
(2) Some dogs are mammals.
(3) X = φ
(4) All mammals are dogs.

148. If Y = F. (D.V), is not a null set, it implies that

(1) All fish are vertebrates
(2) All dogs are vertebrates
(3) Some fish are dogs
(4) None of the above

149. If Z = (P.D) ∪ M, then

(1) The elements of Z consist of Pluto the dog or any other mammal.
(2) Z implies any dog or mammal.
(3) Z implies Pluto or any dog that is a mammal.
(4) Z is a null set.

150. If P.A. = φ and P ∪ A = D, then which of the following is true?

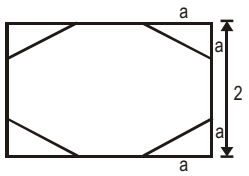
(1) Pluto and Alsatians are dogs.
(2) Pluto is an alsatian.
(3) Pluto is not an alsatian.
(4) D is a null set.

SOLUTIONS

CAT-2001

DETAILED SOLUTIONS

1. Let the maximum marks in each the paper be 100. Let the student get 6x, 7x, 8x, 9x and 10x in each of the papers respectively. Then 60% of total marks = 40x $\Rightarrow$ 300 = 40x $\Rightarrow$ x = 7.5. Hence the percentage marks in each paper is 45%, 52.5%, 60%, 67.5% and 75% respectively. Hence in 4 papers he got more than 50% marks. **Ans.(3)**

2. 

Let the side of the triangle be 'a' units. From the figure we can say that side of the octagon = $a\sqrt{2} = 2 - 2a$. Solving this we get $(2 + \sqrt{2})a = 2$

$\Rightarrow a = \frac{2}{2+\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}+1}$. **Ans.(1)**

3. Let x = 1, y = 3 and z = 2. Check the options, you will find that only option (1) is false. **Ans.(1)**

4. As no upper limit or lower limits are defined for the numbers X or Y respectively, we cannot be sure which of the options can be true. You can check the options, this is a typical DS type question, where no fixed values are given, thus you will find that only option (4) is correct. **Ans.(4)**

5. Red light flashes once in every 1/3 of a minute.

Green light flashes once in every 2/5 of a minute

Taking LCM of both the figures, we can find the time required by both to flash together = LCM of (1/3) and (2/5)

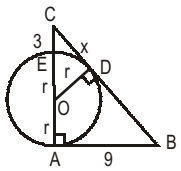
$= \frac{\text{LCM of Numerator}}{\text{HCF of Denominator}} = 2$. Hence they both flash together every two minutes.

Hence in 1 hour, they will flash 60/2 = 30 times. **Ans.(1)**

6. This is a typical Pigeon-hole principle problem. We have 128 boxes that can have 120, 121..... 144 oranges.

If we start filling the boxes with 120, 121, 122..... 144 oranges, we will be able to fill 25 boxes with distinct number of oranges. The remaining boxes will have a non-distinct number of oranges. Hence, we can fill 25 × 5 = 125 boxes with the number of oranges from 120 to 144 (both inclusive), i.e. 5 boxes having the same number of oranges. There are however 3 more boxes. If we start from 120 oranges again, we will have 6 boxes containing 120, 121 and 122 oranges each. $\therefore$ the minimum number of boxes is 6. **Ans.(3)**

7. The given data can be represented as :



BD and BA are tangents to the circle from B and are $\therefore$ of equal length $\Rightarrow$ BD = 9 km.

Further in the circle, $CD^2 = CE \times CA$

$\Rightarrow x^2 = 3 \times (3 + 3r) = 9 + 6r$ ..... (1)

Also, in Δ ABC, $(x + 9)^2 = (3 + 2r)^2 + 9^2$

$\Rightarrow x^2 + 9^2 + 18x = (3 + 2r)^2 + 9^2$

$\Rightarrow x^2 + 18x = (3 + 2r)^2$ ..... (2)

Now, start substituting 'r' from the options. Only $r = \frac{9}{2}$ km i.e. option (2) shall satisfy both the equations. **Ans.(2)**

8. EF = DC/3

{Area of (EBF)/(area of (ABCD)} = 1/6. **Ans.(1)**

9. If A takes 4 days then B takes 8 days, C takes 16 days and D takes 32 days.

A & D together take (4 × 32)/36 = 32/9 days,

B & C together take (8 ×16)/24 = 16/3 days.

$\therefore$ (32/9) / (16/3) = 2/3. So, the pairs are (A & D) and (B & C). **Ans.(3)**

Short-cut : Choose from the options. The only option that gives the correct answers is option (3).

10. Let the four digit number be abcd. Then as per the data available we can form the following equations :

a + b = c + d ...(1)

a + d = c ...(2)

b + d = 2 × (a + c) ...(3)

Solving these equations together we get the following results :

b = 2d; d = 4a; c = 5a. This is where we get our clue. c has to be a multiple of 5 as a has to be integral. The only single digit number multiple of 5 is 5. Hence c, the third digit has to be 5. **Ans.(3)**

11. The given data can help us form two sequences, they are :

FOR X : The first term = 300 × 12 = 3600 (salary received in the first year)

Thereafter, he receives an increment of Rs. 30, i.e., an annual increment in salary of Rs. 360. Thus the common difference = Rs. 360.

Summing the values for 10 year period, we get the total income of X

= (10/2) [7200 + 9 × 360] = 52200.

FOR Y : The first term = 200 × 6 = 1200 (salary received in the first six months). Thereafter, he receives an increment of Rs. 15, i.e. a six monthly increment of Rs.90.

Thus the common difference = Rs.90.

Summing the values for 20 terms (10 years, two periods of 6 months each). Using the same formula, we get the total income of Y as
(20 / 2) [1200 × 2 + 19 × 90] = 41100.

Summing both the values we get = Rs.93,300. **Ans.(1)**

12. Let the number to be multiplied be X. Then we can say 53X – 35X = 540. Solving we get X = 30. Thus the new product she would have obtained is

$\therefore$ Required product = 30 × 53 = 1590. **Ans.(3)**

13. Let the total population be X.

Then amount received right now is = 0.6X × 600 = 360X.

This is 75% of the amount. Thus the total amount required is 480X. Hence, remaining amount = 480X – 360X = 120X

$\therefore$ Required contribution per head = 300. **Ans.(1)**

14. Starting from the options, (2) can be easily eliminated since $y < 0 \Rightarrow y^2 > 0$ while both (1) and (3) will be negative.

Now x^2 shall fall in the range $4 < x^2 < 9$.

However, 5x shall fall between $10 < 5x < 15$. Clearly, $5x > x^2$.

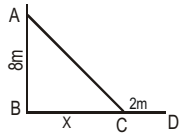
Since both x^2y and 5xy are negative, and $5x > x^2$, $\therefore$ 5xy represents the least value. **Ans.(3)**

SOLUTIONS

15. Option (2) is correct. Check the question, using options, we do not get a positive value of the given equation for m = 4, thus check the next higher value. **Ans.(2)**

16. AC = BC + 2, $\sqrt{(8^2 + x^2)} = x + 2$

$\Rightarrow 64 + x^2 = x^2 + 4x + 4 \Rightarrow 4x = 60 \Rightarrow x = 15$.



Length of ladder = 15 + 2 = 17m. **Ans.(2)**

17. Sita takes 1/3 of the total mints kept there..... which means total number of mints in the bowl should be a multiple of 3. There is no option, that satisfies this logic. **Ans.(4)**

18. Total difference in years = 30.

These 30 years contain 8 leap years (Note that 1972 is a leap years) and 22 ordinary years.

$\therefore$ No. of odd days = (8 × 2) + 22 = 38 odd days

or 38 (mod 7) = 3 odd days.

Now, since we are counting backwards, hence 09.12.1971 will be the $7 - 3 = 4^{th}$ day i.e. a Thursday. **Ans.(4)**

19. Let the base be n, then $(4n + 4)(n + 1) = n^3 + 3n + 4$

$\Rightarrow 4n^2 + 8n + 4 = n^3 + 3n + 4$

$\Rightarrow n^3 - 4n^2 - 5n = 0 \Rightarrow n = 0, -1, 5$.

Hence base is 5. Therefore

$(3111)_5 = 3 \times 125 + 25 + 5 + 1 = 406$. **Ans.(1)**

20. Let speed of Rahul be x and of current be y miles per hour. Then $12/(x + y) = \{12/(x - y) - 6\} \Rightarrow y^2 - x^2 + 4y = 0$ ...(1)

and $12/(2x + y) = \{12/(2x - y) - 1\} \Rightarrow 4x^2 - y^2 - 24y = 0$ ...(2)

eq. (1) × 4 + eq. (2) $\Rightarrow 3y^2 - 8y = 0 \Rightarrow y = 8/3$. **Ans.(4)**

21. M_c = no. of males in Chota hazri.

M_m = no. of males in Mota hazri.

F_c = no. of females in Chota hazri.

F_m= no. of females in Mota hazri.

Then $M_c + 4522 = M_m$....(1), $F_m = M_m + 4020$....(2),

$F_c = 2M_c$ .... (3), $F_c = F_m - 2910$ ....(4)

From (1) $M_m - M_c = 4522$ ....(5) and from (2), (3), (4)

$2M_c = M_m + 4020 - 2910 \Rightarrow M_m - 2M_c = -1110$ ....(6)

Solving (5) and (6) for M_c we get $M_c = 5632$. **Ans.(3)**

22. Let the no. of students in the classes are x, y, z respectively then $83x + 76y = 79(x + y) \Rightarrow 4x - 3y = 0 \Rightarrow x : y = 3 : 4$

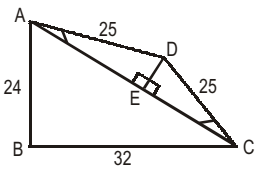
and $76y + 85z = 81(y + z) \Rightarrow 5y - 4z = 0 \Rightarrow y : z = 4 : 5$.

Hence x : y : z = 3 : 4 : 5 $\Rightarrow$ x = 3k, y = 4k and z = 5k.

Now average for all the three classes is

$(83 \times 3k + 76 \times 4k + 85 \times 5k)/(3k + 4k + 5k) = 81.5$. **Ans.(2)**

23.



AC = $\sqrt{(24^2 + 32^2)} = 40$, DE = $\sqrt{(25^2 - 20^2)} = 15$ (Since Δ ADC is isosceles, therefore its median and altitude coincide.)

Therefore area required = ½ × 24 × 32 + ½ × 40 × 15

= 384 + 300 = $684m^2$. **Ans.(4)**

24. The first thing we will have to find out is the total number of pages in the book. Thus we need to find the sum of the first few natural numbers, such that we reach to a number just short of 1000. For this we will have to go for hit and trial. Assume total number of pages as 44. Then sum of all the pages is 990, thus we can say that 990 + 10 = 1000. The page number added twice was 10. **Ans.(3)**

25. Let the escalator move 'x' steps in the time Shyama goes up 25 steps.

When Shyama goes up 25 steps, Vyom goes up $25 \times \frac{2}{3} = \frac{50}{3}$ steps.

However, he had taken 20 steps $(> \frac{50}{3})$

$\therefore$ Vyom needs to take $20 - \frac{50}{3} = \frac{10}{3}$ more steps.

Now, the escalator goes up 'x' steps when Vyom moves up $\frac{50}{3}$ setps (i.e. the same time in which Shyama takes 25 steps)

Further, the escalator will go up $\frac{x}{5}$ steps while Vyom moves up $\frac{10}{3}$ move steps.

$\therefore$ Total height of escalator $= \frac{50}{3} + x + \frac{10}{3} + \frac{x}{5} = 20 + \frac{6}{5}x$.

$\Rightarrow 20 + \frac{6x}{5} = 25 + x$ (Since both Shyama and Vyom move through equal distance.) $\therefore$ x = 25

$\therefore$ No. steps = $20 + \frac{6}{5}(25) = 50$. **Ans.(2)**

26. From the question: 3B + 7S + 1F = 120 ...(I)

and 4B + 10 S + 1F = 164.5 ...(II)

from (II) – (I) we get 1B + 3S = 44.5

Now from (I) we get 3B + 7S + 1F = 120

$\Rightarrow$ 1B + 1S + 1F + 2B + 6S = 120

$\Rightarrow$ 1B + 1S + 1F + 2(1B + 3S) = 120

$\Rightarrow$ 1B + 1S + 1F + 2 × 44.5 = 120

$\Rightarrow$ 1B + 1S + 1 F = 120 – 89 $\Rightarrow$ 1B + 1S + 1F = Rs.31. **Ans.(1)**

27. For minimum value of product, let us assume that

a = b = c = d = 1, then we get our answer as 16. **Ans.(3)**

28. Let the three together take x hours to do the work.

Then Asit, Arnold, & Afzal will take respectively x + 6, x + 1 & 2x hr.

So $1/x = 1/(x + 6) + 1/(x + 1) + 1/2x$

$$\Rightarrow 1/x = \frac{2x^2 + 2x + 2x^2 + 12x + x^2 + 7x + 6}{(x+6)(x+1)(2x)} \Rightarrow 1 = \frac{5x^2 + 21x + 6}{2x^2 + 14x + 12}$$

$\Rightarrow 2x^2 + 14x + 12 = 5x^2 + 21x + 6 \Rightarrow 3x^2 + 7x - 6 = 0$

$\Rightarrow$ x = 2/3 or –3 (irrelevant) so x = 2/3 hr = 40 minutes. **Ans.(3)**

29. Let third side be x.

S = (20 + 10 + x) / 2 = (30 + x) / 2

$$\text{Area of triangle} = 80 = \sqrt{\frac{30+x}{2} \times \frac{x-10}{2} \times \frac{x+10}{2} \times \frac{30-x}{2}}$$

$$\Rightarrow 80^2 = \frac{(30^2 - x) \times (x^2 - 100)}{4 \times 4}$$

$\Rightarrow (900 - x^2)(x^2 - 100) = 6400 \times 16 = 102400$

On checking options we get $x = \sqrt{260}$

$(900 - 260) \times 160 = 102400$. **Ans.(1)**

30. Let the nth term be a_n.

Given $(a_7)^2 - (a_6)^2 = 517$

$\Rightarrow (a_7 + a_6)(a_7 - a_6) = 517 \Rightarrow (a_7 + a_6)(a_7 - a_6) = 11 \times 47$

$\Rightarrow a_8 \times (a_6 + a_5 - a_6) = 11 \times 47 \Rightarrow a_8 \times a_5 = 11 \times 47$

$\Rightarrow a_8 = 47, a_5 = 11 \Rightarrow a_8 = a_7 + a_6 = 2a_6 + a_5 = 3a_5 + 2a_4$.

So $a_4 = 7$. Now solve 7, 11, 18, 29, 47, 76, 123.

So 10th term will be 123. **Ans.(3)**

31. Total weight of fresh grapes = 20 kg.

Weight of solid part = (20 ×10) /100 = 2kg.

In dried grapes, water is 20%. So, solid part is 80%.

∴ Total weight of dried grapes = (2/80) × 100 = 2.5kg. **Ans.(3)**

32. Let us assume that they meet after X hours. So

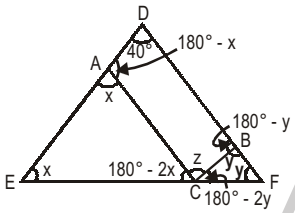
$70 \times X + 50 (X - 1/4) = 180$

$\Rightarrow 120X = 192.5 \Rightarrow X = (192.5/120)$. Thus the trains should meet at (192.5/120)×70 km. from A = 112km (approximately). **Ans.(1)**

33. The given average can be written as 602/17. As 602 and 17 are co-prime, we can say that we have taken the first 18 numbers, of which one of the numbers has been erased and the remaining 17 average to be 602/17. Thus the sum has to be 602. Thus the sum of the first 18 natural numbers is 18 × 19/2 = 173. This is far from what we have. Thus the other possibility could be that the sum is 602 × 2 = 1204, and the total number of numbers chosen are 34. This will also not fit, using the same concept. Iterating the same way, we reach to the sum being 602 × 4 = 2408, and the number of numbers being 17 × 4 = 68. This means the sum of first 69 natural numbers should help us reach to the answer. Of this sum one number was removed. So the number removed has to be 2415 – 2408 = 7. **Ans.(1)**

34. From quadrilateral ADBC. $(180° - x) + 40° + (180° - y) + z = 360°$

$\Rightarrow -x - y + z + 40° = 0 \Rightarrow x + y - 40° = z$



Also in ΔEDF ∠D = 180° – ∠E – ∠F $\Rightarrow$ 40° = 180 – x – y

$\Rightarrow x + y = 140°$. ∴ $z = 100°$. **Ans.(3)**

35. Let the initial price be p.

$$\therefore \text{After first cycle, price } = p\left(1+\frac{x}{100}\right)\left(1-\frac{x}{100}\right) = p\left(\frac{1-x^2}{100^2}\right)$$

$$\Rightarrow \text{Drop in price} = \frac{p \times x^2}{100^2} = 441.$$

$$\text{After second cycle, price } = p\left(\frac{1-x^2}{100^2}\right)\left(\frac{1-x^2}{100^2}\right)$$

$$\Rightarrow 1944.8 = p\left(\frac{1-x^2}{100^2}\right)^2 \text{ or } (44.1)^2 = p\left(1-\frac{441}{p}\right)^2$$

$$\text{or } \frac{1-441}{p} = \frac{44.1}{\sqrt{p}} \Rightarrow 1 = 441\left(\frac{1}{10\sqrt{p}} + \frac{1}{p}\right)$$

$$\Rightarrow 10\ p = \left(\sqrt{p} + 10\right)441.$$

On keeping values from the options, we get p = Rs. 2756.25. **Ans.(1)**

36. Let length of track be X metres.

Then

A	B	C
X	X – 12	X – 18
	X	X – 8

Thus solving we get X = 48m. **Ans.(1)**

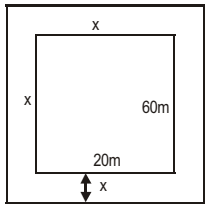
37. For minimum value, both x and y have to be equal and therefore x = y = 0.5. Thus the value, of $(x + 1/x)^2$ is 6.25, and similarly for the other term, the value is 6.25. Thus answer is 12.5. **Ans.(2)**

38. **Ans.(4)**

39. **Ans.(2)**

40. We are given two right angles here. Using the options, if we take option (2), then only we get all the Pythagorean triplets. **Ans.(2)**

41. Let the width of walkway = x m



Area of walkway

$516 = (60 + 2x) \times (20 + 2x) - 60 \times 20$

$516 = 1200 + 120x + 40x + 4x^2 - 1200$

$516 = 4x^2 + 160x \Rightarrow x^2 + 40x - 129 = 0$

$(x + 43)(x - 3) = 0$

x = 3, – 43 (–ve value is not possible)

x = 3m. **Ans.(3)**

42. We can write $a^2 - 2a = a(a - 2) = (b^2 - b)\{(b^2 - b) - 2\}$. This can be solved and re-written as (b – 2)(b – 1) b (b + 1). This is a series of 4 consecutive numbers of which 2 will be definitely even (one definitely divisible by 4, the other by 2) and one has to be definitely divisible by 3. Thus we get factors of 2 × 3 × 4 = 24. **Ans.(3)**

43. We shall need to break up the 158 Re. 1 coins as: 1, 2, 4, 8, 16, 32, 64 (totalling to 127)

Now, we are left with 31 coins which will have to be broken-up as: 1, 2, 4, 8, 16 (totalling to 31)

∴ Total number of bags = 7 + 5 = 12 bags. **Ans.(2)**

44. a + c = e ..... (1)

b – d = d $\Rightarrow$ b = 2 d ..... (2)

e + a = b ..... (3)

From (2), we get that either b = 4, a = 2, or b = 10, d = 5.

From (1) and (3), we get 2a + c = b.

∴ b = 4 can be easily rejected.

∴ b = 10 and d = 5 $\Rightarrow$ Options (1) and (3) are eliminated.

Using the options, we get a = 4, c = 2 and e = 6. **Ans.(2)**

45. In first case, constant term is wrong so,

Sum of the roots = 7 = a + b. In second case, coefficient of x is wrong so product of roots = 3 × 2 = 6.

$\Rightarrow$ The required quadratic equation is $x^2 - 7x + 6 = 0$

(x – 6) (x – 1) = 0 $\Rightarrow$ x = 6, 1. **Ans.(1)**

SOLUTIONS

46. Given, there are coins of denomination of Re.1, Rs. 2 and Rs.5 . Total number of coins 300. Total amount = Rs.960. Let the number of coins of Re.1, Rs.2, Rs. 5 be X, Y, and Z respectively.

Then X + Y + Z = 300 .... (1)

X + 2Y + 5Z = 960 .... (2)

Y + 2X + 5Z = 920 .... (3)

Solving equation (1) ,(2) and (3) we get X = 60, Y = 100, Z = 140. **Ans.(2)**

47. ADEF, ABCF, ABF, ADCF, ADCEF, ABDEF, ABEF, ABCEF, ABDCF, ABDCEF 10 ways. **Ans.(2)**

48. For divisibility by four, the last two digits should be divisible by 4. There eight such two digit combinations – 12, 16, 24, 36, 44, 52, 56, 64 – i.e. 8 ways to fill the last two places.

$\Rightarrow$ For the other three places, there are ${}^4C_3 \times 3!$ ways i.e. 24 ways.

$\therefore$ total no. of ways = 24 × 8 = 192. **Ans.(3)**

49. Time taken in the given journey = $\frac{200}{60} = \frac{20}{6}$ hrs.

Required fuel = $\frac{20}{6} \times 4 = \frac{40}{3} = 13.33$ litres. **Ans.(2)**

50. If speed is 40 km/hr, required fuel consumption

= (200/40) × 2.5 = 12.5 litres. (<13.33 litres)

So, for reducing fuel consumption, she should reduce speed from 60 km/hr. **Ans.(2)**

51. (A) i.e. 'to extend outside of' goes with (H) as it states that if the rains continue the river will overflow. (B), 'to be greater than or superior to' goes with (F) as it stated that the accomplishments were greater than their expectations. (C), 'be beyond the comprehension of' goes with (E) as it talks about the mercy of God which is far beyond the comprehension of our finite minds. (D), 'to go beyond our limit as an authority' goes with (G) which states that he went beyond his authority to pay his brother's debts. **Ans.(1)**

52. (A), 'to derive by reasoning' goes with (E) which states that smoke is an implication of fire. (B), 'to surmise' goes with (F) which states that a listener may assume or surmise a lot of things which are no implied. (C), 'to point out' goes with (G) which states that I waited all day to meet him, from this you can understand or deduce my zeal to see him. (D), 'to hint' goes with (H) which states that the question that she asked gave a hint that she was not interested in the debate. Thus, the correct answer is 4. **Ans.(4)**

53. (C) has a perfect link with (H) which says that soil of soft and loamy consistency is found in Gangetic plains. The best way to go about this question is by eliminating options. The only option with C - H pair is (3) and is the correct answer. **Ans.(3)**

54. (A), 'removal' or 'lightening of something distressing' goes with (F) which states that it is a feeling of relief and in the form of necessities to remove the tight shoes. (B) goes with (H) which states that aid in the form of necessities was offered to the victims. (C) 'diversion' goes with (G) which states that playing cards gave me a feeling of relaxation. (D), 'release' from the performance of duty goes with (E) which states the ceremony follows the placement of a sentry after the morning shift. Thus the correct answer would be (2). **Ans.(2)**

55. (B) goes well with (H). In fact this gives you a clue to the answer. (B), 'make clean by removing whatever is foreign or superfluous' goes with (H) which states to clean water by removing foreign particles. Thus the answer is (4). **Ans.(4)**

56. (E, A) and (D, B) are the clues. (E) begins the paragraph by giving a macro picture of India. It says that in India people have no real regard for honest work. (A) follows (E) by saying that in different parts of India work is viewed from different angles, yet all over the country a large group of people are lazy. (D) follows (A) by adding a new dimension to the paragraph. It narrows down the argument by saying that the employed too take their work very lightly by coming late or going early. (B) is a continuation of (D) as it says how they kill time in the pretext of being generous to others. And (C) concludes the paragraph by stating that employees are more procedure oriented than result oriented. Hence option (3) is the apt answer. **Ans.(3)**

57. (F, D) and (A, C) are the clues. (F) introduces the paragraph by making a general statement. It explains the purpose of the military by and large. (D) continues (F) by stating the question as how to fight with the enemy. (E) follows (D) by answering the stated question. It says that the enemy can be defeated by destroying their productive capacity. (B), (A) and (C) respectively follow (E) by stating the agrarian, the productive and the information era. In each of these era the enemy was destroyed differently. Hence the apt answer is (1). **Ans.(1)**

58. The most apparent link is (E, A) and (B, D). (E) starts the paragraph by introducing the subject of the paragraph, the translators and states that they are similar to the nurses and the street-cleaners in terms of the rewards. (A) continues the same by introducing Michael Hofman, a poet and translator and his views on this thankless attitude towards the translators. (C) correctly continues the idea further quoting Hofman's acknowledgment that even the best of the translators always fail at some level. (B) then states that Hofman remains undaunted by such thanklessness. (D) sums up the paragraph by stating how Hofman feels about his work. **Ans.(3)**

59. (A) provides an apt opening to the passage by introducing the theme of the paragraph - Passivity and its non-universal nature. (B) continues the idea further and states the attitude of the peasantry in lawless or frontier zones. (C) correctly follows it by stating that the attitude (of the peasantry, that is) may at times fringe upon unsubmissiveness. (D) then returns the focus to the majority - the soil-bound peasants and discusses their dilemma as to when should they pass from passive to active. (E) attempts to attribute a possible reason for this dilemma. Hence, ABCDE i.e. option (4) is the most appropriate solution. **Ans.(4)**

60. (D) makes the best opening for the paragraph by initiating the discussion on the subject of the paragraph and stating the concern of the feuding families for the lives of some bystander or outsider who is not involved in their affairs. (A) continues the idea and elaborates the situations in which violence occurs and defines the role of the bystanders and outsiders as to whether can they join in as well. (B) furthers the discussion and states that due to this demarcation of roles, though there is a high risk for the bystanders, it is calculable. (C) concludes the passage by indicating a possible exclusion to this clear-cut demarcation - that of the upper class massacring the lower ones - but says that there are probably, some rules applicable here as well. Thus, the correct sequence is DBAC i.e. option (1). **Ans.(1)**

61. Option (4) is the most appropriate answer. In the light of continuous changes, the sentence talks of the burial that the old tools, practices and organizations are getting. The apparent link is that we write obituaries for those who are no more. Since using the word 'dying' in context of tools is inappropriate, option (3) can be safely eliminated. In option (1) and option (2) - 'withering' and 'trading' respectively do not fit into the context of the sentence. **Ans.(4)**

62. Only 'emerges' in option (3) can go with most remarkable. Hence it fits into the first blank. In option (1) 'comes', in option (2) 'arises' and in option (4) 'appeared' are contextually incorrect and they do not go with the general sense of the sentence. The second part of the sentence talks about attributes of the world class thinker and head of the household. Darwin could synthesize both these attributes in his life equally. His contribution to the world did not prevent him from becoming a responsible parent. Hence, in option (3) 'combines' fits well into the second blank, supporting the sentence earnestly. In option (1) 'figures', option (2) 'adds' do not go with 'attributes'. Hence they are incorrect. In option (4) 'combines' goes with 'attributes but as already discussed it does not go with the first blank. So options (1), (2) and (4) are incorrect and option (3) is the most appropriate answer. **Ans.(3)**

63. The clue to the answer is 'free of' and 'appreciated'. In option (2) free of 'expression' is the correct usage contextually in the first blank. It is wrong to use 'free of make-up' or 'free or scars' as the second part talks about appreciating something. In option (3) free of 'emotion' though can be used, fades away in front of option (2) free of 'expression'. In option (1) 'realize' and in option (3) 'diagnose' are contextually and structurally incorrect. Though in option (4) 'understand' is suitable for the second blank 'scars' as already seen does not fit into the first blank. 'Ascertain' in option (2) fits perfectly into the second blank and complete the meaning of the sentence. So, options (1), (3) and (4) are incorrect and option (2) is the only appropriate answer. **Ans.(2)**

64. It is evident that the given statement is used to substantiate something already spoken by the speaker. Therefore we find the usage 'in this context'. In option (3) 'experience' goes well in the first blank and 'significant' fit into the second blank. Hence, option (3) is the apt answer. In option (1) 'affair' and 'weird' is contextually incorrect. In option (2) 'activity' and 'moving' is incorrect grammatically and contextually. In option (4) 'atmosphere' and 'gloomy' are contextually incorrect in both blanks. **Ans.(3)**

65. The clue to the answer is 'boast' and 'elitist among the intellectual'. One cannot boast of intellectual 'subordination'. Hence option (1) is incorrect. One can boast of being a 'heir' goes with the first blank. The use of 'ancestors' is factually and contextually incorrect in the fist blank. Neither 'traditions' of option (1) nor 'societies' of option (3) can fit into the second blank of the sentence. But 'cliques' of option (2) meaning 'a small exclusive group of people' completes the meaning of the sentence by fitting itself into the second blank. Hence the apt answer is (2). Options (1), (3) and (4) are incorrect answers. **Ans.(2)**

66. The word, 'specious' means 'apparently true or right though lacking real merit'; 'not genuine'. So, a word which means 'reliable or capable of being believed' should be the answer, option (3) 'credible' is thus the answer. All the other options are very close in meaning to 'specious'. In option (1), 'deceitful' means 'intended to deceive' or 'misleading'; in option (2), 'fallacious' means 'logically unsound'; and in option (4) 'deceptive' means 'perceptually misleading'. **Ans.(3)**

67. The word 'obviate' means 'to anticipate and prevent or render unnecessary by effective measures'; 'prohibit' and option (1), (2) and (3) are close in meaning to 'obviate'. 'Prevent' means 'to keep from occurring'; 'stop'. 'Forestall' means 'to prevent or hinder', and 'preclude' means 'to prevent the presence or occurrence of; make impossible'. Option (4) is exactly opposite. 'Bolster' means 'to add to, support or uphold'. Thus the correct option is (4). **Ans.(4)**

68. The word 'disuse' means 'discontinuance of use or practice'. Option (1) 'prevalent', means 'in general use or acceptance of widespread', which is exactly opposite of 'disuse'. The correct option thus is (1). All the other options are close in meaning to 'disuse', in option (2) 'discard' means 'to cast aside', in option (3) 'obliterate' means 'to remove or destroy all traces of' and in option (4) 'unfashionable' means 'outdated or outmoded'. **Ans.(1)**

69. 'Parsimonious' means 'stingy'. Options (1), (2), and (3) are very close in meaning to 'parsimonious'. In option (1), 'frugal' means 'economical in use or expenditure'; in option (2), 'penurious' means 'extremely stingy'; and in option (3) 'thrifty' means 'practicing thrift or economical management'. In option (4), 'altruistic' means 'the principle or practice of unselfish concerns for the welfare of others'; 'generous', is opposite to 'parsimonious' and is thus the correct answer. **Ans.(4)**

70. 'Facetious' means 'lacking serious intent or not meant to be taken seriously'. Option (1) 'jovian' is 'of or pertaining to the Roman God Jupiter' which is by no way related to 'facetious' is thus the right choice. In option (2), 'jovial' means 'endowed with or characterized by hearty', 'joyous humor'; in option (3) 'jocular' means 'given to or characterized by jesting'; 'waggish'; in option (4) 'joking' means 'anything said or done to provoke laughter'. Option (2), (3), and (4) are closely related to 'facetious'. Option (1), thus would be the inappropriate word out here. **Ans.(1)**

71. 'Globalizing our social inequalities' obviously refers to option (1). It means taking the debate on caste to the international fora, beyond the national boundaries. So the apt answer is (1). **Ans.(1)**

72. In the passage, the inverted representations are made out to be good for the masses, while they actually are nothing but the means to suppress the masses. Religions figures topmost on the list of such representations. Hence, option (3) is the correct answer. **Ans.(3)**

73. The passage, in the second para, mentions of the debate going on the technicalities about whether or not caste is admissible into the agenda about race. It therefore gives a hint of ambiguousness about the caste-related discrimination being part of the agenda for the UN conference. Hence, statement C can be safely removed. This rules out option (2), (3) and (4). Further, the title of the conference itself makes it absolutely clear that racial prejudice and race-related discrimination is definitely on its agenda. **Ans.(1)**

74. The very fact that the sociologist made a distinction between 'race' and 'caste' implies that he acknowledges its existence of both racial and caste-based discriminations. Hence the answer is (4). **Ans.(4)**

75. The author says that there is a dialectic between nature and culture, and racial discrimination is constructed in the interests of sectional dominance. Therefore race is at least partially a social construct. Hence the apt answer is (2). **Ans.(2)**

76. Option (1) is true as per the passage. It can be traced at the last few lines of the second paragraph. **Ans.(1)**

77. This is evident from the study conducted by Treiman and Zudowski. Children below 6 years had difficulty in doing a phonemes based version but children above 6 could do it easily. So the answer is (4). **Ans.(4)**

78. The author states that those who have a deficit of phonemic judgement, onset judgement or rime judgement or any combination of the above are classified as dylexia. So (4) is the apt answer. **Ans.(4)**

79. Through the experiment they found out that 6-year olds were able to perform onset-rime version and version based on phonemes, whereas children below this age could do the onset-rime version only. So the conclusion drawn in option (2) is correct. **Ans.(2)**

80. The apt answer is (2) as it can be deduced from the second paragraph. **Ans.(2)**

81. Billie Holiday was known for her blues creations. She did it differently from all others which made her famous. So the apt answer is (1). **Ans.(1)**

82. In the first paragraph the author states that she would have had a ravage existence without her voice, looks or money. So option (3) is the best pick. **Ans.(3)**

83. Options (1), (2) and (3) are mentioned by the author in the passage. But option (4) does not find a mention anywhere in the passage. So it is the apt pick. **Ans.(4)**

84. Options (1), (3) and (4) are correct as per the passage. But option (2) stands out to be incorrect as the passage does not mention about it. So it is the apt answer. **Ans.(2)**

85. Kurosawa uses three different time frames and keeps on shifting them in the film in order to show the erosion of Dersu's way of life. So the apt answer is (3) and options (1), (2) and (4) are inappropriate. **Ans.(3)**

86. Only option (1) as the passage says that the 'film itself is circular opening and closing by Dersu's grave'. Options (2), (3) and (4), though find a mention in the passage, are not the sought options. Hence they can be side lined. **Ans.(1)**

87. Options (1), (2) and (3) can neither be inferred nor are they mentioned in the passage. So they can be sidelined. The author takes pains to emphasize on Dersu's traits through Arseniev's nostalgic, melancholy ruminations. So the apt answer is (4). **Ans.(4)**

88. The last few sentences of the first para mention the same. So the apt answer is (3). **Ans.(3)**

89. Arseniev's reflective and sensitive nature is projected through options (1), (2) and (3). So, option (4) a combination of all these is the apt answer. **Ans.(4)**

90. Option (3) would be the best pick as the film revolves around Dersu's, the main protagonist, who is absent in the first part of the film. The author would least agree with options (1), (2) and (4). **Ans.(3)**

91. Dynamic leaders are needed in democracies because, it seeks to free itself from constraints of existing rules. They try to abolish or at least substantially reduce the existing inequalities in society. There are looked upon as instruments of change. So option (3) is the apt answer. **Ans.(3)**

92. In the last line of the concluding paragraph it can be seen that there is a tug of war between the dynamic leader and the conservative judiciary, the latter obstructing the path of the former by enforcing the law severely. So the apt answer is (3). **Ans.(3)**

93. A, B and D can be inferred from the passage. C can neither be inferred nor is it implied in the passage. So options (2), (3) and (4) can be sidelined. **Ans.(1)**

94. Tocqueville believed that in democracy there was no place for heroes, and in case there was one, they sooner or later turned into despots. Democracy encouraged leaders and not heroes. So the apt answer is (1). **Ans.(1)**

95. Option (4) emerges to be the strongest point on which the author bases his argument. Though options (1), (2) and (3) are not incorrect in themselves they fade away in front of option (4). **Ans.(4)**

96. A and D can be inferred from the passage as the author focuses his attention on scientific rationality and equality. B is incorrect as it goes against the spirit of the passage and C is incorrect as it cannot be inferred from the passage. **Ans.(3)**

97. In the second paragraph it is stated that 'Dark Age' referred not only to the poorly lit conditions, but also to the ignorance of astronomers about the period. So the apt answer is (2). **Ans.(2)**

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98. The astronomers find it difficult to study the 'Dark Age' because the events took place over 13 billion years ago, and if they want to unravel it they must study objects that are at least 13 billion light-years away. So the apt answer is (2). **Ans.(2)**

99. In the fourth paragraph it is mentioned that the four distant quasars discovered recently can only be seen through the twin keck telescope in Hawaii. Options (2), (3) and (4) are factually incorrect as per the passage. **Ans.(1)**

100. The heat from the first stars and quasars ionized the hydrogen breaking it into its constituent parts, protons and electrons and thus lifted the lifted the fog of the hydrogen gas. **Ans.(2)**

101. Direct from the table. **Ans.(4)**

102. Direct from the table, count the number of lays for Extra-Extra Large. **Ans.(2)**

103. Count the number of lays required for producing yellow or Extra-Extra Large White fabrics. **Ans.(4)**

104. Direct from the table. **Ans.(2)**

105. **Ans.(2)**

106. There are 6 airports of USA in top ten busiest airports. **Ans.(1)**

107. Heathrow has traffic of approx. 62500000 and forms approx. 20% of the total traffic of the five most busiest airports. **Ans.(3)**

108. **Ans.(2)**

109. Check each option and compare it with the quantity given in the question. **Ans.(1)**

110. Total man hours spent onsite = 290 hrs. Total man-hours for all projects = 1100 hrs. So, the required percent

$= \frac{290}{1100} \times 100 = 26\%$. **Ans.(3)**

111. Total man-hours spent onsite = 290 hrs. By checking every option we will get the option 3 as the answer as man hrs. needed for actual offshore testing is 290 hrs. **Ans.(3)**

112. When total man-hrs is 1100, then coding takes 520 hrs. So coding will take (approx.) 52 hrs in the project of 100 hrs. **Ans.(1)**

113. Checking each option we will get answer 4 because : man-hours for testing offshore = 145 hrs. (50% of 290 hrs.)

man hours for testing onsite = 150 + 145 = 265 hrs.

Total man-hours of testing = 145 + 295 = 440 hrs.

$\therefore$ required percentage = $\frac{145}{440} \times 100 = 33\%$ **Ans.(2)**

114. Total offshore work = 800 man-hrs approx.

$\therefore$ 50% is now carried out onsite i.e. 400 man-hrs.

$\Rightarrow \therefore$ Approx. 50 man-hrs. of design, 210 man-hrs. of coding and 140 man-hrs. of testing will now be transferred to onsite.

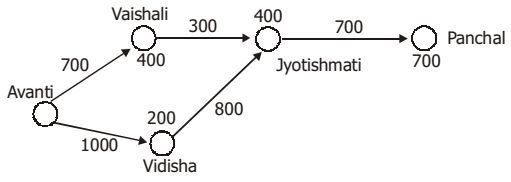
$\therefore$ Onsite design $\approx$ 100 man-hrs.

$\therefore$ Onsite coding $\approx$ 310 man-hrs.

$\therefore$ Onsite testing $\approx$ 290 man-hrs.

$\Rightarrow \therefore$ **Ans. (1)**

115.



Quantity moved from Avanti to Vidisha = 1000. **Ans.(4)**

116. From the above information we get oil quantity in pipeline from Avanti to Vaishali is 700 hence free capacity = 300. **Ans.(4)**

117. From the above information we get oil quantity in pipeline from Avanti to Vidisha is 1000, hence free capacity = 0. **Ans.(4)**

118. From the given information, if we will interchange the efforts allocated to various operations then finally we will get B = E. So according to B, the rank of company 3 is third. **Ans.(2)**

119. Total of B, C, D, E and F for company 4 = 81.5. After introducing the new technology the value of E will be = 16.3 $\Rightarrow$ E will decrease by 28.6 – 16.3 = 12.3. **Ans.(1)**

120. From the table it is very clear that after this cycle company 5 will gain highest in operation E. **Ans.(4)**

121. Statement (A) is not sufficient to give the answer. We will get the pairs (15,2), (10,3), (6,5). But using this data and data of statement (B) we can say the answer is m = 15, n = 2. **Ans.(3)**

122. From the first statement we cannot know that what were their GDPs 5 years ago. From second statement we know that GDP of country X is greater than that of Y but we do not know by how much. **Ans.(4)**

123. Considering statement (A) the possible pairs are (5,1), (7,1), (9,1), (2, 6), (9, 3). So there is only one pair with both even numbers (2, 6). Considering statement (B) the possible pairs are (2, 6) and (6, 2). So there is no unique solution using (B) alone. We can get direct answer from statement (A) alone. **Ans.(1)**

124. We cannot make out the number of rounds using statement (A) alone. However, we can find out the trip time using statement (B) and can thus calculate the total number of trips. **Ans.(1)**

125. Statement (A) alone is not sufficient because it gives only the data transfer rate but does not give the size of the software. Statement (B) alone is not sufficient because it gives only the size of software but does not give the rate of data transfer. Combining both the statements, we get the answer. **Ans.(3)**

126. If diameter is given, then side of square can be found. Similarly if side of the square is given then the radius of circle can be found. Hence, both the statements individually can provide the difference in areas. **Ans.(2)**

127. Both statements are not sufficient to get the number of apples bought by Ram and Gopal. **Ans.(4)**

128. Required cost = (cost by rail & road)/(total tonnage)

$= \frac{(12+6)\times 30}{(9+22)\times 12} = \frac{3}{2} \times \frac{30}{31} = 1.45 \approx$ Rs.1.5 **Ans.(2)**

129. The cheapest mode of transportation is by road i.e. Rs. 0.68 per tonne. **Ans.(1)**

130. The cost incurred per ton of crude oil;

by Ship $= \frac{10}{9} \times \frac{30}{12} =$ Rs.2.78

by Road $= \frac{6}{22} \times \frac{30}{12} =$ Rs.0.68

by Airfreight $= \frac{7}{11} \times \frac{30}{12} =$ Rs.1.59

by Pipeline $= \frac{65}{49} \times \frac{30}{12} =$ Rs.3.32

by Rail $= \frac{12}{9} \times \frac{30}{12} =$ Rs.3.33

So, P = Rs 2.78, Q = Rs 1.59, R = Rs 0.68 $\Rightarrow$ P > Q > R. **Ans.(3)**

131. From the above given schedule we get the order as : Sati Savitri, Veer Abhimanyu, Sunder Kand, Joru Ka Gulam, Lunch, Jhansi ki Rani and then Reshma Aur Shera. **Ans.(3)**

132. From above information we can deduce following relation among children and their ages and their birth dates. Vaibhav $\rightarrow$ boy $\rightarrow$ born in June $\rightarrow$ 7 years old .....(1)

Suprita $\rightarrow$ girl $\rightarrow$ born in April $\rightarrow$ 4 years old .....(2)

Anshuman $\rightarrow$ boy $\rightarrow$ born in September $\rightarrow$ 2 years old .....(3). **Ans.(3)**

133. From above information we can deduce following relation between family and their dinner and their colour of chinaware:

At 12 noon $\rightarrow$ Sharma family $\rightarrow$ sambar $\rightarrow$ white chinaware.

At 1 PM $\rightarrow$ Pattabhiramans $\rightarrow$ fried brinjal $\rightarrow$ blue chinaware.

At 2 PM $\rightarrow$ Bannerjees $\rightarrow$ makkai ki roti $\rightarrow$ red chinaware. **Ans.(3)**

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134. We have three sets of two statement each – one of which is false and the other is true.

Starting from N1 : Let the dog not have black hair ⇒ The dog has white hair). ∴ The dog has a long tail.

∴ from N2, the dog wore a collar

∴ from N3, the dog had white hair.

Since there is no contradiction from any of the three sets of statements. Our assumption is correct. Thus, the dog has white hair, long tail and wears a collar. **Ans.(2)**

For Q.135 & 136 :

Arranging the given data we get the following equations :

Elle = 3 Zaheer ...(1)

Zaheer = 0.5 Waheeda ...(2) and

Yogesh > Zaheer ...(3)

135. Combining the equations (1) and (2), we can say that Elle is older than Waheeda. **Ans.(2)**

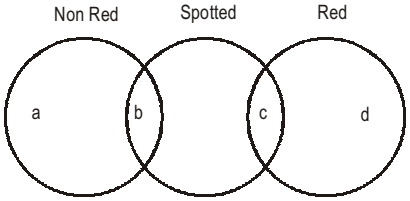
136. Option (1) and (2) both are required to get the Elle's age. Hence **Ans.(3)**

137. Only option (2) satisfies all the given conditions. **Ans.(2)**

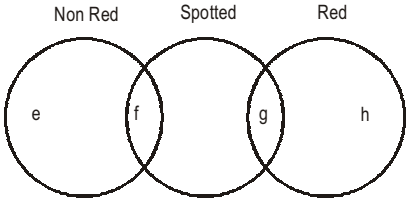
138. David and Peter cannot be in the same team so option (4) must be eliminated. If Rahim is selected then Shyam must be selected so option (1) must be eliminated. David and Fiza must be in the same team so option (2) must be eliminated. **Ans.(3)**

139. Working from the given data we see that none of the given options satisfy all the conditions. **Ans.(4)**

140. For Oak leaves :



For Maple leaves :



c must be even and positive, d = h, a = 0, b = 5c f = 0, g = 6, e = 22

Given :

a + b + c + d + e + f + g + h = 50

Using above datas in the above equation :

d + 3c = 11

Since c is even positive so c must be 2

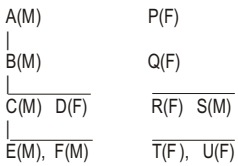
c = 2 and d = 5 Total oak leaves = a + b + c + d = 17. **Ans.(2)**

141. On the basis of given information we can make the following table :

Motorcycle	Tiffin Box	Persons
M1	O	F+B
M2	P	E+D
M3	Q	A+G
M4	R	C+H

Since B cannot go with R and E, so he must go with O, thus C will be with H. **Ans.(3)**

142. The diagram will be like :



There will be minimum 12 people in the gathering and they will satisfy all the constraints of the problem. **Ans.(2)**

143. In this question our first priority will be to spend full amount of Rs 1000 so there should not be any penalty. Given :

D + 2B (220 Rs.)

A + C (180 Rs.)

E (2B, D)

Now I will buy the articles in the following way to earn maximum points.

(2D + 4B) = 440

B = 90

C = 70

(A + 2B + C + D) = 400

So the total money spent is Rs. 1000 and Item will be 13. **Ans.(1)**

144. Given :

A < 3B

C > B

D = C – B

A = 3D

Basheer has total amount = Rs. 500 (because he bought a sweater costing Rs. 600 and borrowed Rs. 100 from Ashok and left with no amount). So Ashok has total amount less than Rs. 1500 (A < 3B) Ashok has atleast Rs 1000 amount. So we can write: 333.34 < D < 500. So Deepak can buy a shawl. **Ans.(2)**

145. Radha, Rupa, Renuka, Ruchika and Ritu are in different weight groups. Rupa is in group W1 with Sonali, Shubra, Shahira and instructor Amita, Kamal and Tara cannot be with Radha. Soumya and Ruchika are in same group so Soumya cannot be in the group as Radha. Renuka and Rupali are in same group so Rupali and Radha cannot be in the same group. So with the above conclusion it is clear that no any females except Jyotika and Shweta can be with Radha in same group. Now Jyotika and Shweta are in weight group with total four members so at least one female must be in this group and who cannot be with Radha. So Radha must be alone in her group and her instructor must be Elina. **Ans.(2)**

146. From the given information we can make a table having information about liking and disliking of various persons by table we get the solutions that is option no. (4). **Ans.(4)**

	Smoking	Drinking	Gambling	Mountaineering	Fishing
M1	√		X		√
M2	√	√			X
M3	X		√		
M4			X	√	
M5	X	√		X	
M6	X			X	√
M7			√	√	X
M8	√		√	X	

For Q.147 to Q.150:

147. **Ans.(1)** 148. **Ans.(3)**

149. **Ans.(1)** 150. **Ans.(3)**

SOLUTIONS

Objective Key

1. (3)	2.(1)	3.(1)	4.(4)	5.(1)	6.(3)	7.(2)	8.(1)	9.(4)	10.(1)
11. (1)	12.(4)	13.(1)	14.(3)	15.(4)	16.(4)	17.(4)	18.(4)	19.(1)	20.(4)
21. (3)	22.(2)	23.(4)	24.(3)	25.(2)	26.(1)	27.(3)	28.(3)	29.(1)	30.(3)
31. (3)	32.(1)	33.(1)	34.(3)	35.(1)	36.(2)	37.(3)	38.(4)	39.(2)	40.(2)
41. (3)	42.(3)	43.(2)	44.(2)	45.(1)	46.(2)	47.(2)	48.(3)	49.(2)	50.(2)
51. (1)	52.(4)	53.(3)	54.(2)	55.(4)	56.(3)	57.(1)	58.(3)	59.(4)	60.(1)
61. (4)	62.(3)	63.(2)	64.(3)	65.(4)	66.(3)	67.(4)	68.(1)	69.(4)	70.(1)
71. (1)	72.(3)	73.(1)	74.(4)	75.(2)	76.(1)	77.(4)	78.(4)	79.(2)	80.(2)
81. (1)	82.(3)	83.(4)	84.(2)	85.(3)	86.(1)	87.(4)	88.(3)	89.(4)	90.(3)
91. (3)	92.(3)	93.(1)	94.(1)	95.(4)	96.(3)	97.(2)	98.(2)	99.(1)	100.(2)
101. (4)	102.(2)	103.(4)	104.(2)	105.(2)	106.(1)	107.(3)	108.(2)	109.(1)	110.(3)
111. (3)	112.(1)	113.(2)	114.(1)	115.(4)	116.(4)	117.(4)	118.(2)	119.(1)	120.(4)
121. (3)	122.(1)	123.(2)	124.(1)	125.(3)	126.(2)	127.(4)	128.(2)	129.(1)	130.(3)
131. (3)	132.(3)	133.(3)	134.(2)	135.(2)	136.(3)	137.(2)	138.(3)	139.(4)	140.(2)
141. (3)	142.(2)	143.(2)	144.(2)	145.(2)	146.(4)	147.(1)	148.(3)	149.(1)	150.(3)