CAT - 3

INSTRUCTIONS FOR THE TEST

1. The total time for the test is **120 minutes**.
2. This test is divided into **three parts** totally comprising 50 questions each. All question in the test carry equal marks.
3. You may work **on any part of the test** at any time during the test.
4. For each question, four suggested answers are given of which only one is correct. There are four circles against each question number in the answer sheet. Each circle is designated as 1, 2, 3, 4 corresponding to your answer choices. Mark your response to each question by **darkening the circle** completely.
5. The last part of this test booklet comprises a **sample bubble sheet**. It is suggested that you answer all questions by shading the relevant oval in the bubble sheet.
6. Confine all rough work to whatever blank space is available in this test booklet. **No additional paper** may be used.
7. Using a HB pencil only. Use of calculators, scales and other measuring instruments is **not permitted**.
8. You will be required to demonstrate **adequate competence** on each of the three parts.
9. Wrong answers carry negative marks. The **negative marking scheme** is 1/4 of the marks allotted to the question. Hence desist from guessing wildly.

Section 1
Questions 50

1. Consider 4 (dimensionless) flies, 2 males and 2 females. They are situated at the four corners of a square of side 10 meters, the two males at diagonally opposite ends. At any time, each fly tries to reach the male/female fly in front of her/him using the shortest possible route. Since the flies are flying towards another, they will meet each other at a certain time at the center of the square. What is the length of the path that each has traveled at the moment they reach each other?
   1] 12.5 mts 2] 10 mts 3] 7.5 mts 4] 5 mts

2. A man is going to a car auction. All purchases must be paid for in cash. He goes to the bank and draws out Rs. 25,000.
   Since the man does not want to be seen carrying that much money, he places it in 15 envelopes numbered 1 through 15 such that he could count any amount from 1 to 25000 using combinations of some envelopes. Each envelope contains the least number of bills possible of any available currency. (for example, no two tens instead of a twenty). The possible currency denominations are 1,2,5,10, 20, 50 and 100.
   At the auction he makes a successful bid of Rs. 8322 for a car. He hands the auctioneer envelopes 2, 8, and 14. After opening the envelopes the auctioneer finds exactly the right amount. How many ones (one rupee notes) did the auctioneer find in the envelopes.
   1] 1 2] 2 3] 3 4]Indeterminate

3. A traveler, on his way to a certain village A, reaches a road junction, where he can turn left or right. He knows that only one of the two roads leads to village A, but unfortunately, he does not know which one. Fortunately, he sees two twin-brothers standing at the road junction, and he decides to ask them for directions.
   The traveler knows that one of the two brothers always tells the truth and the other one always lies. Unfortunately, he does not know which one always tells the truth and which one always lies.
   With which of the following questions can the traveler find out the way to village A by asking just this one question to one of the two brothers?
   1] "Does the left road lead to village A according to your brother?"
   2] "Which road leads to village A according to your brother?"
   3] "If I were to take the left road then what according to your brother will be the answer to the question “Am I on the right road ?”
   4] None of the above

4. On Madagascar Island, there are x dodos in a particular year. 30 dodos in a thousand of the original population die every year and 25 dodos in a thousand of the original population are born every year. In how many years will the population of dodos halve itself ?
   1] 200 2] 125 3] 100 4]Indeterminate

5. A cube is divided into 8 equal cubes. Each of these cubes is further sub-divided into 8 equal cubes. If the original cube’s sides are painted blue, then what is the probability that exactly 2 sides of a small cube is painted blue ?
   1] 3/8 2] 1/16 3] 1/4 4] 3/4

6. Balancing cards on one another where some are placed horizontally and others diagonally (slant fashion) is a popular trick of all magicians. 30 playing cards of length 12 cm and breadth 6 cm are used to build a pyramidal structure with 4 horizontal cards at the base. 8 cards are then put diagonally on these cards to give four peaks. 3 cards are then put on the 4 peaks. The process continues till the top is a peak made by 2 cards. Find the area covered by the front side of the pyramid.
   1] 288 $\sqrt{3}$ cm^2 2] 180 $\sqrt{3}$ cm^2 3] 360 $\sqrt{3}$ cm^2 4] 576 $\sqrt{3}$ cm^2

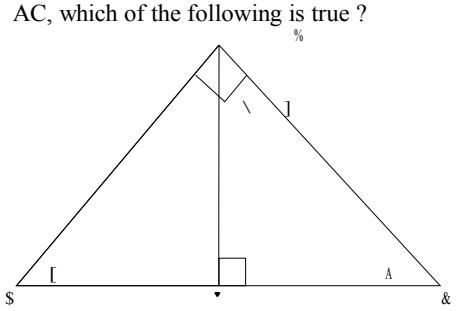
7. A man buys shares at a discount of Rs.x. Later he sells all but 10 of the shares he purchased at a premium of Rs.x. If his investment was Rs.4500 and proceeds from the sale were Rs.6250, how many shares did he buy originally ? [Assume face value of shares as Rs.100.]
1] 50 2] 40 3] 60 4] 90

8. ABCD is a rectangle with AB = 6 cm and AD = 8 cm. QR is an arc which cuts the extension of AD at Q and AB at R. What is the length of the arc QR if C is a point on it ?
1] 10 π 2] 5 π 3] 20 π 4] 24 π

9. The diameter of the smaller circle is equal to the side of the square and the diagonal of the square is equal to the diameter of the bigger circle. If the circles are concentric, then their areas are in the ratio...
1] 1 : 2 2] 2 : 3 3] 1 : $\sqrt{2}$ 4] 1 : 4

10. An artist has a canvas of length 10 inches and breadth 7 inches. He divides the canvas into 70 squares of area 1 inch by drawing lines parallel to the edges. He paints a corner square with green colour. He then paints the two adjacent squares that share the side with the existing green square with blue colour. He continues to paint the entire canvas in such a way that no green square is adjacent (i.e. share the same side) to another green and no blue square adjacent to another blue. What is the ratio of number of blue squares on the canvas to the number of green squares ?
1] 10 : 7 2] 5 : 7 3] 1 : 1 4] 7 : 10

11. If AB ⊥ BC and BD ⊥ AC, which of the following is true ?

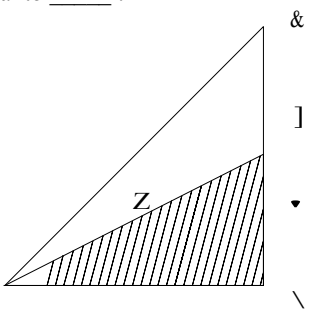


1] x = A 2] x = z 3] y = z 4] None of these

12. If x is a number satisfying 2 < x < 3 and y is such that 7 < y < 8, which of the following expressions will have the largest value ?
1] x^2y 2] xy^2 3] 5xy 4] $\frac{x^2}{y}$

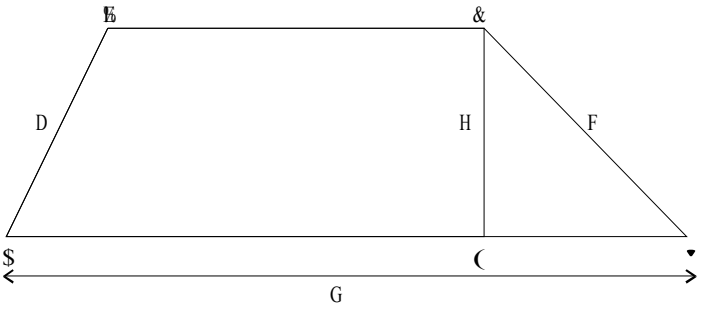
13. There are 4 quarts in a gallon. A gallon of petrol sells for Rs.12 and a quart of the same petrol sells for Rs.5. The owner of a rental agency has 6 machines and each machine needs 5 quarts of petrol. What is the minimum amount of money he must spend to purchase enough petrol?
1] Rs.84 2] Rs.94 3] Rs.96 4] Rs.102

14. If the shaded area is one half the area of the triangle ABC below and triangle ABC is a right angled at B, then the length of AD is equal to _____ .



1] $\frac{1}{2}w$ 2] $\frac{1}{2}(w+x)$ 3] $\frac{3}{2}w$ 4] $\frac{3}{2}x$

15. If in the figure, BC is parallel to AD and CE is perpendicular to AD, then what is the area of ABCD?



1] 0.5eb + 0.5ed 2] bd + ac 3] ed 4] e(b + d)

16. The entry following a_n in a sequence is given by $(a_n - 1)^2$. If 1 is an entry in the sequence, the next 3 entries are _____ .

1] 0, –1, 2 2] 0, –1, 1 3] 0, 1, 2 4] 0, 1, 0

17. If $x + y > 4$ and $x < 3$, then $y > 1$ is true. Is this statement true ?

1] Always 2] Only if $x < 0$ 3] Only if $x > 0$ 4] Never

18. If α, β are the roots of $(x - \sqrt{3})(x - \sqrt{5}) = \sqrt{7}$, the roots of $(x-\alpha)(x-\beta) + \sqrt{7} = 0$ are

1] $\sqrt{3}, \sqrt{7}$ 2] $\sqrt{3}, \sqrt{5}$
3] $\sqrt{5}, \sqrt{7}$ 4] $\sqrt{3}+\sqrt{5}, \sqrt{5}+\sqrt{7}$

19. If $x^3 + ax^2 + bx + 6$ has $(x - 2)$ as a factor and leaves a remainder 3 when divided by $(x - 3)$, the value of a and b respectively are

1] 1, 3 2] 3,1 3] –3, –1 4] –1, –3

20. The side of a square is equal to 100 cm. The midpoints of its sides are joined to form a new square. Again, the midpoints of the sides of this new square are joined to form another square. This process is continued indefinitely. Find the sum of the areas of the squares.

1] 20000 cm^2 2] 10000 cm^2 3] $20000\sqrt{2}$ cm^2 4] $10000\sqrt{2}$ cm^2

21. If A_1, A_2 are two arithmetic means between two numbers a and b and G_1 G_2 be two geometric means between the same two numbers, then $\frac{A_1 A_2}{G_1 G_2}$ is equal to

1] $\frac{a+b}{2ab}$ 2] $\frac{a+b}{ab}$ 3] $\frac{2ab}{a+b}$ 4] $\frac{ab}{a+b}$

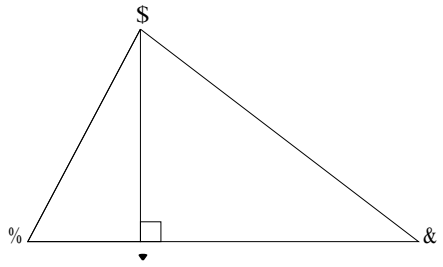
22. The value of $2117 \times 1883 - 1113 \times 887$ is
1] 2999080 2] 3009080 3] 2889080 4] 2898080

23. If $x + y + z = 8$ and $x^2 + y^2 + z^2 = 50$, then the value of $xy + yz + zx$ is
1] 14 2] 10 3] 7 4] $7\sqrt{2}$

24. 36 identical chairs must be arranged in rows with the same number of chairs in each row. Each row must contain at least 3 chairs and there must be at least 3 rows. A row is parallel to the front of the room. How many different arrangements are possible ?
1] 2 2] 4 3] 5 4] 6

25. The operation * applied to a number gives as its result 10 subtracted from twice the number. What is * (*(*9) ?
1] –11 2] 2 3] 0 4] –2

26. 3 times BD = 4 times AD and 5 times DC = 12 times AD. BD = 56 – DC. What is the length of AC in the diagram below ?



1] 39 2] 36 3] 49 4] 26

27. If x, y, z are chosen from the 3 numbers –3, $\frac{1}{2}$, 2 without repetition. What is the largest possible value of $\frac{x}{y} z^2$?
1] 214 2] 144 3] 432 4] 168

DIRECTIONS for questions 28 to 30: Read the information below.
4 piles of books are placed on 4 different tables. Pile A consisting of 15 books of thickness 7 cm, each is placed on a table of height 95 cm. Pile B having 12 books of thickness 8 cm, each is placed on a table of height 1 m. Pile C having 9 books of thickness 12 cm, each is placed on a table of height 90 cm. Pile D having 8 books of thickness 11 cm, each is placed on a table of height 1.1 m.

28. Excluding the top book in each pile, which two piles are of the same height above the ground?
1] C, A 2] A, B 3] B, C 4] None of these

29. Excluding the top book, which pile is the highest above the ground ?
1] B 2] D 3] A 4] C

30. Taking all the books together, which 2 piles have the same height above the ground ?
1] B, C 2] C, D 3] A, B 4] B, D

31. A man bought 35 books at Rs.200 each and sold them at Rs.209 each. He bought another set of 30 books at a total cost of Rs.5000 and by selling them, got a total of Rs.5225. He also bought another 37 books at various prices between Rs.800 and Rs.1200 each and sold all of them at 4.5% profit. What is his total profit percentage ?
1] 4% 2] 4.5% 3] 5% 4]Indeterminate

32. The area of the largest triangle determined and the largest rectangle that can be inscribed in a semicircle of radius 'r' are 'T' and 'R' respectively. Which one is greater ?
1] T > R 2] T < R 3] T = R 4]Indeterminate

33. The pressure of a given volume of gas varies directly as the temperature. When the temperature is constant, the product of the pressure and volume is constant. When the volume is 200 and pressure is 250, temperature is 100. What will the temperature be when pressure is 300 and volume is 400 ?
1] 120 2] 240 3] 360 4] 480

34. The incomes of two people are in the ratio 4 : 5 and expenditures in the ratio 7 : 8 respectively. The total savings between the two of them is Rs.3000 and that is split in the ratio 1 : 2. Find their total income.
1] Rs.15,000 2] Rs.18,000 3] Rs.22,500 4] Rs.27,000

35. 8 gallons of milk are taken out of a cask filled with milk and replaced by water. Later 6 gallons of the mixture are taken out of the cask and replaced with water, with the result that the cask now contains equal proportions of milk and water. What is capacity of the cask ?
1] 28 gallons 2] 16 gallons 3] 24 gallons 4] 36 gallons

36. The cost of production in a factory has a fixed component and an amount that varies directly with the number of units produced. The units are sold at 20% profit. When 250 units are produced, the price is Rs.120, and the price drops to Rs.96 when the production is doubled. What will the price be when 1000 units are produced?
1] Rs.70 2] Rs.80 3] Rs.86.8 4] Rs.84

37. If $a + \frac{1}{b + \frac{1}{c}} = 1$, find $abc + \left(\frac{1}{c} + \frac{1}{a}\right)$
1] –1 2] 0 3] 1 4] 2

38. The perimeter of a right angled triangle is 60 cm and the area of the rectangle contained by the two sides that include the right angle is 300 cm^2. What are the 3 sides ?
1] 10, 24, 26 2] 15, 20, 25 3] 10, 20, 30 4] 18, 20, 22

39. What is the largest number of pipes of the shape of right circular cylinders with length 10 cm and radius 1 cm that can be fitted into a box, all of whose sides are 20 cm in length?
1] 800 2] 400 3] 200 4] None of these

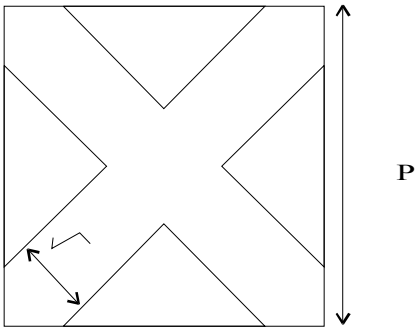
40. A certain amount of money has been invested to earn a simple interest of 10% per annum. The interest earned every year is again invested at the same rate. After how many years will the amount become the square of itself ?

1]7 2] 14 3] 22 4]Indeterminate

41. If $x = 7 - 4\sqrt{3}$, find $\sqrt{x} + \frac{1}{\sqrt{x}}$.

1] 0 2] 1 3]2 4] 4

42. There is a square park with sides 20 m, and there are 2 diagonal paths that are $\sqrt{2}$ m wide. Find the area of the park without the paths.



1] 324 m^2 2] 320 m^2 3] 322 m^2 4] 326 m^2

43. What is the minimum length of a string with which one can surround a triangle of area 36 $\sqrt{3}$ cm ?

1] 8 cm 2] 36 cm 3] 72 cm 4] 56 cm

44. If shortest side of a right angled triangle was 5 cm longer and the longest side was 5 cm shorter, the triangle would be equilateral. What is the area of the original right angled triangle ?

1] 300 cm^2 2] 250 cm^2 3] 200 cm^2 4] 150 cm^2

45. The internal bisector of $\angle A$ and the external bisector of $\angle B$ of triangle ABC meet at D. If $\angle ACB = 40^0$, find $\angle ADB$.

1] 20^0 2] 50^0 3] 80^0 4] Indeterminate

46. The function f(x) is given by $2x^2 + bx + c$, b and c having specific numerical values. On replacing x by a number 2 greater than itself, f(x) increases by 12. What was x ?

1] –1 2] 0 3] 1 4] Indeterminate

47. A semicircular piece of paper (with radius 7 cm) is folded along the diameter to form a cone such that the centre of the semicircle becomes the vertex of the cone. If the base of the cone is covered by a circular paper lid, what is the total surface area of the cone ? [$\pi = \frac{22}{7}$]

1] 231 cm^2 2] 115.5 cm 3] 346.5 cm 4] None of these

48. If x is an odd positive integer and y is an even positive integer, then, which of the following statements are true?

i. $(x + 1)y$ is even ii. $(x - 1)(y + 1)$ is odd

iii. $(x + 1)(y - 1)$ is even iv. $x(y - 1)$ is even

1] i and ii only 2]ii and iv only 3] i and iii only 4] iii and iv only

49. Sridhar Krishnan bought 100 shares each of 4 different companies. The purchase prices of the shares are Rs.20, Rs.19.50, Rs.27.50 and Rs.26.00 per share on a certain date. In due course of time he sold off all the shares of all the 4 companies, but the transactions took place on different dates. The sale transactions fetched him Rs.12.3, Rs.37.4, Rs.28.6 and Rs.21.7 per share, but it is not known which company's shares were sold when. What is his net profit or loss ?

1] Profit Rs.7 2] Loss Rs.700 3] Profit Rs.700 4] Profit Rs.400

50. The answer-sheet for an objective type test with 25 questions is in the form of a 5×5 matrix as shown below. The respondent answered the questions such that exactly one question in each row and each column is left blank and exactly one answer in each row and each column is wrong. If each correct answer carries 1 mark and no negative marks are awarded for a wrong answer, then what is the score of the respondent ?

1. O O O O	2. O O O O	3. O O O O	4. O O O O	5. O O O O
6. O O O O	7. O O O O	8. O O O O	9. O O O O	10. O O O O
11. O O O O	12. O O O O	13. O O O O	14. O O O O	15. O O O O
16. O O O O	17. O O O O	18. O O O O	19. O O O O	20. O O O O
21. O O O O	22. O O O O	23. O O O O	24. O O O O	25. O O O O

1] 5 2] 15 3] 10 4] 20

Section 2
Questions 50

Instructions for questions 51-54: The fist sentence of a paragraph is given. Arrange the sentences A, B, C, D and E after 1 so as to form a coherent paragraph.

51. 1. Intuition: The ability to understand something immediately, without the need for conscious reasoning.
A. That seemingly uncanny ability to tell what'll work and what won't, or what the next big thing in the industry would be, or why an otherwise perfectly crafted project will come a cropper.
B. What's made it so, of course, the unprecedented complexity and speed of change that corporations are faced with in the new networked, borderless, and technology-buffeted era of business.
C. Call it gut feel, hunch, intuition, or right side reasoning.
D. That's what some of the world's best CEOs have.
E. The point is managing by intuition is the most sought after skill in organizations across the world.
1] ACBED 2] DACEB 3] DEABC 4] BCDAE

52. 1. I knew we were right, Neil Simon thought to himself as the steward brought him a glass of Cardhu single malt.
A. Simon, the Director incharge of international franchise operations at Smith & Robin, a $8-billion marquee garment retailer, had arrived in India exactly seven days back with mixed feelings.
B. The whiskey felt good after a week when he was allowed to drink nothing but champagne by his hosts in India.
C. Simon signaled to the steward that he'd like a refill – he planned to take his time over the second one – and thought about the week that had been.
D. Ah, but then they had had a reason to celebrate.
E. He'd been at S & R less than eight months – he had been hired when the company decided to abandon its twenty-year-old strategy of expanding geographically through owned outlets as against franchised ones – but he knew the India trip was one of those things that could make or break his career.
1] ABCDE 2] CDAEB 3] ECBDA 4] BDCAE

53. 1. He may be 5 feet 6 inches tall, but NR Narayana of Infosys is easily corporate India's biggest heavyweight.
A. For, the man has been praised, feted, and almost worshipped for the institution and wealth he has created.
B. Justifying their choice of the only Indian winner the judges said Murthy "is vigilant about his employees' well-being – granting stock potions, building exercise facilities, and spreading values as much as wealth".
C. Last fortnight, Time CNN reporters named Narayana Nurthy as one of the 25 most influential global executives.
D. To the people who have known the principal founder of the software giant, that comes as no surprise.
E. And that recognition is pouring in from all parts of the world.
1] ACBDE 2] CBEDA 3] ECBDA 4] CDEAB

54. 1. It's half past two on a Wednesday afternoon and Siddhartha Lal is seated in his corner office, trying to pull out a number from his laptop to prove a point.
A. His critics say that bullet doesn't have one and Lal has set about to prove them wrong. What's worrying however is that two CEOs prior to him have tried and failed in the past decade.
B. He fidgets with the keyboard, stops to scratch his head, goes "oops" when he clicks on a wrong icon, and when he finally finds the data, his boyish face resurfaces from behind the palmtop screen, beaming.
C. A delay in getting to the right files makes him nervous.
D. For one the subject under discussion is the future of Bullet – the best-known flagship motorcycle marque at Royal Enfield Motor.
E. It's easy to see why the 28 year-old Lal is part nervous and part excited.
1] EABCD 2] CBEDA 3] CDAEB 4] BEADC

Instructions for the questions 55 to 64: Fill in the blanks to complete the paragraph.

Passage I

It is doubtful whether any change in the composition of the government at the centre can lift the ___55___. But the present batch of changes could easily __56__ governance and deepen it further. Jaswant Singh has been shifted from external affairs and a completely inexperienced minister put in his place at a time when the country is ___57__ in the middle of an unresolved ___58___ with Pakistan. This has ___59___ a whole range of vital personal equations that Jaswant had established with various world leaders when India needs the latter to make Pakistan live up on its commitments.

55. 1] idealism 2] absurdity 3] disenchantment 4] prospects
56. 1] quaver 2] revamp 3] worsen 4] transfigure
57. 1] appallingly 2] brusquely 3] smack 4] set
58. 1] commemoration 2] amity 3] confrontation 4] consensus
59. 1] plowed 2] secluded 3] disrupted 4] regulated

Passage II

The long awaited ___60__ of the Union cabinet and the BJP, meant to __61__ a new look to the government and dynamism to the party, turned out to be a halfway house. Although it was __62__ as a performance-oriented reshuffle, clearly no premium was put on ___63__ and efficiency. Once again politics won over performance. For the most part, it was an exercise in musical chairs between the same old players, with few meaningful ___64__; fueling expectations of another exercise soon.

60. 1] overhaul 2] reawakening 3] facelift 4] re-jig
61. 1] provide 2] display 3] demonstrate 4] impart
62. 1] belittled 2] disparaged 3] shaped 4] touted
63. 1] competence 2] rework 3] corroboration 4] effectiveness
64. 1] glances 2] contemplations 3] exercises 4] inductions

Instructions for questions 65-68: The last sentence of a paragraph is given. Arrange the sentences A, B, C, D and E before 6 so as to form a coherent paragraph.

65. A. As families have become more mobile, activities have become more diverse.
B. In today's society, where two incomes are often necessary, the quality of what was once seen as home life may seem to have diminished.
C. This certainly allows each person within the unit to develop his own skills, attitudes and behaviours, but inevitably leads to less interaction between family members.
D. This is a subjective interpretation, however, because people's needs over the last two generations have changed significantly.
E. Whereas formerly more was done together as a family group, there now tends to be more individual activity.
6. As working patterns change there are more single-person households than ever before.
1] ACDEB 2] BDAEC 3] ADCBE 4] BCEDA

66. A. Most companies start losing grounds slowly and the slide accelerates only when the management refuses to read the writing on the wall.
B. This is understandable if the CEO fails to see his own limitations and is therefore unwilling to concede that he is no longer the right man for the job.
C. The malaise appears to be more pronounced in family owned companies because the owners are at full liberty to change the CEO and his team without having to go through a formality of consulting the board.
D. His desire to continue on the hot seat thus becomes a problem.
E. It never ceases to amaze me as to how-long a rope is given to the top management team of a company that is hurtling down towards bankruptcy.
6. The problem gets exacerbated when his senior colleagues begin to see him as an object of sympathy.
1] ABCDE 2] ECBAD 3] ACDBE 4] EACBD

67. A. All of these ideas will need reassessment in the light of the relationship they have formed.
B. They will have formed ideas about themselves and their function in the world, about what is right or what is wrong, about what they can do and what they can't do.
C. When two people decide hey love each other enough to live together and get married, they bring to that relationship a fair amount of 'baggage'.
D. They may discover that their assumptions are wrong or that they are capable of doing unimagined things.
E. The aspect of family life that appears to give the most problem is that of relationships.
6. They may find that previously unaccepted qualities in themselves take on new meanings.
1] CDAEB 2] EBCDA 3] CAEBD 4] ECBAD

68. A. The risk return ratio still holds, but the trade off's have become much more complicated in the new globalised economy buffeted by 9 – 11, corporate governance, and the Enron implosion.
B. While the demand for accounting transparency is a recent phenomenon, it should quickly become a *sine qua non* for companies that care about their market cap, making way for the next big concern in investor circles: socially responsible investing.
C. So, you have bluechips like General Electric, American Express, and even IBM scurrying to prove that there's no Enron inside them.
D. Investing, in the more innocent days of capitalism, was about managing a simple trade off: if you wanted higher returns, you had to take on more risk.
E. So much so that companies that traditionally enjoyed a cozy, wink-wink nudge-nudge relationship with Wall Street now have to actually make their annual reports readable.
6. What the repeated scams in stock markets worldwide have done over the last two decades is to strengthen the hands of a certain kind of investor who – while pretty much profit motivated – wants to put his money where his heart is.
1] BCDAE 2] DAECB 3] DABCE 4] BACDE

Instructions for questions 69 to 73: A word and its usage is given. Choose the word farthest in meaning to the main word.

69. Garrulous: The monkeys garrulous bantering left everyone in splits.
1] Taciturn 2] Voluble 3] Placid 4] humdrum

70. Aberrant: An aberrant missile landed on a school ground and damaged public property.
1] Tentative 2] Hinder 3] Usual 4] Anonymous

71. Cogent: The manager made a cogent production proposal to the board.
1] Unconvincing 2] Disorganised 3] Immoral 4] Rational

72. Dogmatic: Mr. Shaw is regarded as a dogmatic disciplinarian.
1] Affable 2] Flexible 3] Deceitful 4] Assertive

73. Maverick: The air force is no place for maverick pilots as it endangers lives of co-pilots.
1] Amateur 2] Rational 3] Introvert 4] Conformist

Directions for questions 74 to 100: Read the passages and answer the questions that follow.

Passage 1

The eighteenth century saw the emergence of a number of radically different types of social theories which had one feature in common, an emphasis on spontaneous forms of social organization and a corresponding stress on the autonomy of the social sphere from political direction. Within this broad assumption, three distinct modes of theorizing developed. The first, embodied largely in contract, utilitarian and classical economic theories, sought to explain society in terms of individual intentions and saw social coherence as emerging from the willingness of individuals to serve the needs of others in order to satisfy their own. The second, taking shape in what might be called cultural sociology, derived social coherence from the shared values of a society, varying from community to community but in all constituting severe limits to political action. The third, expressed in various historicist philosophies, asserted the patterning of social development over time and the possibility of predicting as well as retrodicting this patterning, thus again setting bounds to political possibilities. The political uses of these varieties of social analysis have been complex, but again, broadly, the first has been identified with classical laissez faire liberalism, the second

has been developed by and supported conservative thought of one kind of another, while the third has been peculiarly although not exclusively associated with Marxist socialism. Whatever their political applications, these theories have in common served the purpose of underlining the limited efficacy or even the positive disutility of political intervention in social arrangements, the marginal use of politics.

I am concerned here with the first of these modes of theorizing, exchange theory. The central assumptions of exchange theory, necessarily postulates about individual psychology or motivation, have been egoism, the self-interest axiom and rationality – the capacity and inclination of men to choose appropriate means for the ends they have in mind. The central assertion of the theory has been that social cohesion may be achieved through (if men are egoistic and can be taught to be rational) or is based on (if men are both egoistic and rational) the adaptation of individual actions to the needs of others and to general social ends in the course of their pursuit of their own interests, and without any appeal to cohesive values other than those involved in the acceptance of common media of exchange. The central intellectual construct of the theory has been the notion of the market (or, as Hayek has called it, in order to free the term of its narrowly economic implication, a catallaxy), the notion of a spontaneous and self-adjusting order which emerges from the mutual exchange of benefits between self-interested individuals.

The political requirements seen as necessary to sustain such a catallaxy were minimal. One arose from the need to enforce agreements. Rational egoists in a world of rational egoists had to have some insurance against the excesses of egoism and some assurance therefore that promises and bargains would be enforced. The other problem demanding a political solution was the need to prevent monopoly and perhaps to stimulate competition, so as to maintain sufficient alternatives for the individual, either as supplier or demander, meaningfully to measure opportunity costs. Another political problem that might seem to present itself – that different individuals carry different resources into the market – was ignored, or rather, it was ignored as a moral problem requiring perhaps a political solution, while it was explained as a social fact in exchange terms through the division of labour, inequality of capacities, demand differentials and thus exchange inequalities. The moral problem of inequality was avoided by insisting on the moral neutrality of the market and also on the claim that inequalities in the distribution of resources derived from exchange inequalities.

There have thus been two analytical thrusts in catallactics or exchange theory: firstly and primarily to explain and predict the behavior of individuals or groups engaged in exchange within a given distribution of resources; secondly and secondarily to describe how differential distributions emerge, are maintained and may change, primarily through division of labour explanations. Used ideologically, as a justification for a particular type of political system or programme, the theory has claimed some moral superiority for the spontaneous order of a catallaxy over an order decided on politically and maintained by political power. One basis for such a claim has been utilitarian in form, but most of the weight of justification has rested on the supposed voluntary character of entry into and agreement within exchange relationships in contrast for example with the coercive character of power relationships. Bargains are freely arrived at, political obedience is essentially unfree; and thus the prima facie preferability of the first is obvious.

74. Utilitarian theory has been associated with
    1] conservative thought 2] marxist socialism
    3] historicist philosophies 4] laissez faire philosophy

75. The central assumption of exchange theory is
    1] social cohesion 2] predicted patterning
    3] self-interest axiom 4] positive disutility

76. One of the most important assumptions of exchange theory has been
    1] rational egocentrism 2] self adjusting order
    3] laissez faire 4] moral non-neutrality

77. Cultural sociology is associated with
    1] willingness of individuals to serve the needs of others
    2] patterning of social development
    3] capacity of men to achieve their ends
    4] none of the above

78. Under laissez faire, political interference was considered necessary in all the following cases except in case of
1] enforcing agreements 2] correcting exchange inequalities
3] preventing monopolies 4] maintaining competition

79. The supposed superiority of the exchange theory primarily rested on the fact that
1] it helped to predict individual behavior fairly accurately
2] the division of labour explanations offered by the theory were correct to a point
3] the exchange relationship were entered into voluntarily
4] it required minimal political interference

80. The term "positive disutility" in the context (last sentence, para 1) means
1] violation of the principles of utilitarianism 2] dangerous inadequacy
3] abnormal excess 4] clearly harmful potential

81. Which of the following statements is true?
1] Exchange theory is clearly morally superior, just and fair
2] All social arrangements other than laissez faire leaned heavily on governmental intervention
3] The marked similarity among the social theories emerging in the 18th century was their aversion to the moral problem of inequality.
4] Along with Marxism, there are other schools of thought which are associated with historicist thinking.

82. Which of the following is not necessarily one of the psychological assumptions of the classical economic theory?
1] Men are basically egoistic
2] Men are motivated by self-interest
3] Cohesive social values can be attained without any conscious effort to attain them.
4] Only egoistic men who are motivated by self-interest can act rationally.

PASSAGE – 2

The troubling emotions, jealousy and its close cousin, envy, are attracting renewed attention from psychologists: "Everyone feels some envy or jealousy, but only in those domains of life that matter the most for your own view of yourself," said Dr. Peter Salovey, a psychologist at Yale University.

Therapists say the most urgent concern in discovering ways to defuse the rage and fear that can embroil couples when one partner is jealous, especially when the jealousy is not justified.

"Up to one in five murders are motivated by jealousy, and jealousy is a major problem in a third of couples in marital therapy," said Gregory L. White, a psychologist at the Shasta County Mental Health Center in California who is an author with Paul E. Mullen of :Jealousy: Theory, Research and Clinical Strategies", published last month by Guilford Press.

While experts disagree on precise definitions, most see jealousy as the response to someone who threatens or is perceived to threaten a relationship, and envy as the feeling arising when someone covets what someone else has.

Typical of the ways scientists are capturing envy in laboratory experiments is a study by Dr. Salovey with his colleague Judith Rodin.

In the experiment, 82 Yale undergraduates were recruited for what they thought was a study of personality and career choice.

After filling out several personality questionnaire and indicating their career choices, the students were given what were said to be their scores on a test of career aptitude.

The scores were systematically varied; students interested in a medical career, for instance, received average scores on all the scales except one for "medical science aptitude", which was either high or low.

The students were then asked to evaluate an autobiographical essay supposedly written by a student they were about to meet. Actually the essays were identical, varying only in whether the author was interested in a given field of study, such as medicine, and was doing well at it.

The student reading the essay was asked to evaluate its writer. As might be expected, those who were made to feel insecure about their own skills were most envious of those had the same interests and did well. Most telling, in Dr. Salovey's view, was that the students felt envy only in those realms where they has aspirations. Future medical students felt no envy, for instance, of aspiring actors or lawyers.

"If you feel intense envy in a situation, it tells you something about yourself," Dr. Salovey said. "It's a barometer of what matters most to you, often things you hadn't really realized mattered so much."

83. Which of the statements is false?
1] Envy and jealousy are being studied by psychologists only recently.
2] Defusing the rage and fear of the person suffering from envy is the most important step.
3] The students selected for the study did not know the real purpose of the study.
4] People do not feel jealousy in the areas they have no aspirations.

84. Which of the following statements is true?
1] Jealousy arises when a person desires what some other person has.
2] We feel envy when we feel that someone is threatening a relationship of ours.
3] People suffering from insecurity are more likely to feel envious.
4] Dr. Salovey's is the only up-to-date study of the troubling emotions, jealousy and envy.

85. It is most important to defuse rage and fear of the people suffering from jealousy because
1] a sizeable number suffering from jealousy are prone to consulting murders
2] most of the time then jealousy is unjustified
3] jealousy has been responsible in breaking many marriages.
4] None of the above.

86. The most significant finding of the study is
1] all of us are subject to envy and jealousy sometime
2] upto one in five murders are motivated by jealousy.
3] roughly 33 percent couples suffer from jealously.
4] our envy reveals the truth about our innate desires.

PASSAGE –3

The more time scientists spend designing computers, the more they marvel at the human brain. Tasks that stump the most advanced supercomputer recognizing a face, reading a handwritten note – are child's play for the 3 Ib. organ. Most important, unlike any conventional computer, the brain can learn from its mistakes. Researchers have tried for years to program computer to mimic from brain's abilities, but without success. Now a growing number of designers believe they have the answer; if a computer is to function more like a person and less like an overgrown calculator, it must be built more like a brain, which distributes information across a vast interconnected web of nerve cells, or neurons.

Although barely off the production lines, the resulting computers, called neural networks have already started altering the way people think about artificial intelligence. Researchers at Ford Motor, for example, are exploring the possibility of using neural-network computers to find and fix potential problems in new cars. The U.S, Government last year invested $40 million in neural- network research, according to market analysts. Eventually, proponents say, the new technology will lead to computers that can reprogram themselves to deal with any contingency, in situations ranging from directing combat to planning a sumptuous meal.

Last week, 1,600 researchers and artificial-intelligence enthusiasts from around the world gathered in San Diego for the second international conference on neural networks. For five days they studied the recent advances in this form of artificial intelligence and pondered its bright future. Before long, Tom Schwartz in industry consultant in Mountain View, Calif., told the crowd "these machines will be recognized as the steam engines of the 21st century."

Conventional computers function by following a chainlike sequence of detailed instructions. Although very fast, their processors can perform only one task at a time. This lockstep approach works best in solving problems that can be broken down into simpler logical pieces. The processors in a neural-network computer, by contrast, form a grid, much like the nerve cells in the brain. Since these artificial neurons are interconnected, they can share information and perform tasks simultaneously. This two-dimensional approach works best at recognizing patterns.

Instead of programming a neural-network computer to make decisions, its maker brains it to recognize the patters in any solution to a problem by repeatedly feeding examples to the machine. The computer responds to each example by randomly activating its circuits in a particular configuration. The trainer electronically reinforces any connections that produce a correct answer and weakens those that produce an incorrect one. After as many as several thousand trials, the computer activates only those circuits that produce the right answer. "It works just like a kid," says Farrokh Khatibi, senior product manager at AI Ware Inc., a 3½ year-old neurocomputing company in Cleveland. "It learns and learns, and when you tell it what it did wrong, you hope, it won't do it again."

Neural networks come in all shapes and sizes. Until now, most existed as software simulations because redesigning computer chips took a lot of time and money. In experimenting with different approaches through software rather than hardware, scientists have been able to avoid costly mistakes. At last week's convention in San Diego, several firms introduced the real thing; chips that are actually configured to mimic the nerves in the brain.

Perhaps the toughest competition that neural networks will face in the field of artificial intelligence comes from the so-called expert systems used in medicine banking, navigation and other fields. Instead of looking for patterns, computerised expert systems distill the decision-making process used by human experts into rules of thumb. Neurocomputer researchers argue that neural networks will eventually prove superior, however, because they can adjust more easily to changes in the nature of the problem to be solved.

Others predict that a combination of neural networks and expert systems could solve problems too tough for either to tackle alone. Since natural intelligence anyway, consists of several ways of reasoning, the argument goes, computer engineers will have to design artificial intelligence with more than one way of processing information. Says Esther Dyson, editor of Release 1.0, computer-industry newsletter: "A neural network will tell the difference between a Russian tank and an American tank, and an expert system will tell whether to shoot."

Despite recent advances, neurocomputing attracts skeptics. Thomas Poggio, head of the Center for Biological Information Processing at M.I.T., insists that proponents of neural networks have exaggerated their computer' smarts. "The only thing they have in common with the human brain is the word neural," he argues. At best, neurocomputers consist of only a few thousand connections – a very small number compared to the trillions of connections between billions of neurons found in the human brain. "Before trying to duplicate the human brain," Poggio says, "scientists will have to learn far more about the brain than they already know."

87. According to the author,
    1] a computer cannot possibly imitate the human brain
    2] neural network originators tend to exaggerate the importance of their invention.
    3] expert systems clearly have an edge over the neural network.
    4] One way the human learns is form the errors it commits.

88. The most distinctive feature of a neural network computer is that
    1] unlike conventional computers, it can think.
    2] It can deal with any emergency
    3] It can be used to make decisions.
    4] It can recognise some patterns.

89. The human brain is far superior to any computer, mainly because it
1] can recognise many patterns
2] is only 3 Ibs. In weight
3] has trillions of neurons.
4] has a network of an immense number of connections between billions of neurons.

90. Expert systems are mainly used…
1] to aid in making decision.
2] in medicine and artillery.
3] For accelerating the development of artificial intelligence
4]to replace conventional computers.

91. With which of the following statements, Mr. Thomas Poggio of the MIT would possibly not agree?
1] It is impossible to duplicate the human brain
2] Neural network enthusiasts have greatly exaggerated the versatility of their invention.
3] Neural networks have only a superficial resemblance to the human brain.
4] Scientists do not know everything there is to know about the human brain.

92. Which of the following statements is true?
1] The lock-step approach is the best for solving problems fast.
2] The human brain does not adopt a lock-step approach in solving problems.
3] Nerve cells in a human brain form a grid.
4] In future, neural networks will increasingly be used in combat.

93. As Mr. Khatibi views it, when a child commits an error,
1] it tries to learn harder
2] it never repeats the error
3] its neural connections responsible for the error are weakened
4] none of the above

94. According to the author
1] neural networks come in uniform sizes.
2] neural networks are mostly software simulations.
3] Experimenting through hardware normally results in costly errors.
4] the latest neural networks are the result of experimenting through software.

Passage – 4

If you had a normal, roughabout childhood, why are your knees not torn to shreds? One of the body's most startling tricks is also one of its most commonplace: The ability to heal itself. Tissue regenerates after skin is scratched. Bones mend themselves after they are broken. For years scientists have tried to track down the "growth-promoting factors" involved in such regeneration so that they might be used to help restore life to dying tissues. When a few more scientific and regulatory hurdles have been leaped, such growth factors should become biotechnology's next wave of new drugs.

The existence of growth factors was first suspected years ago when it was noticed that serum – the liquid portion of clotted blood – could induce other cells to divide and multiply in laboratory dishes. In 1962 the first, the epidermal growth factor (EGF), was discovered. This stimulates the growth of skin cells and those of the cornea, the transparent and horny membrane that covers the front of the eye. Since the 1960s more growth factors have been identified. The most recent discovery was made last June by Oncogene Science, based in Manhasset, New York, which found a third type of transforming growth factor (TGF), known as TGF-beta 3. This can repair wounds and helps bones to grow.

It was not easy to turn such growth factors into pharmaceuticals; the body produces so little of them. Genetic engineering helped to solve that problem. Small molecules like EGF or IGF (insulin-like growth factor) have now been genetically engineered into bacteria, or other simple organisms like yeast, that churn out the proteins as they reproduce. The genes for larger, complex proteins such as PDGF, which makes all sorts of cells multiply, have been eased into animal cells. Animal cells have the enzymes needed to build the long sugar chains sported by large proteins.

The first growth factor to make its way to market will probably be EGF, which encourages new skin to form over gaping wounds. Chiron, a biotechnology firm based in Emeryville, California, is testing the drug on people as a potential cure for severe skin ulcers and bedsores. The company has dropped plans to use EGF to treat damaged corneas, not because there was anything wrong with the EGF itself, but because the company was unable to find a way to package the drug so that it might be administered to the eye without discomfort.

Chiron is also testing IGF to boost protein growth in the bones of women suffering from osteoporosis (brittle and distorted bones) after menopause. Half of adult bone is composed of a mineral, calcium phosphate; the other half consists of proteins (such as collagen) which bind the mineral into a sort of cement.

Most other grow factors are being checked to see if they can heal wounds and promote the growth of bones. Biotechnologists hope that eventually the products will be put to wider use-for example, to heal wounds caused by ulcers in the gut and to regenerate nerves or blood vessels. Three obstacles stand in the way:

Growth factors may cause cancer. In 1983 it was discovered that PGDF bore a resemblance to a protein whose recipe is an oncogene – a gene that can cause cancer. But according to Dr. Harry Antoniades at Harvard University (he did the early work on PGDF which let other scientists make the connection with cancer) normal cells have a safety valve known as down-regulation built into them. This ensures that they do not turn malignant, even when there is plenty of growth factor around. In order to work, growth factors need receptor-molecules on the surface of cells to pass the message "grow" on to the cells. And if there is too much growth factor, the number of receptors drops. Despite such assurances, America's Food and Drug Administration (FDA) has made the unusual demand that growth factors should be screened in expensive primates rather than the more-usual rats before they are tested in man.

So far growth factors have been easy to administer; they are applied to wounds on the skin. But if they are swallowed – as they will need to be for more advanced applications – enzymes in the gut break them down. If growth factors are injected, some do not survive in the bloodstream long enough to do their tricks. Bio-Growth, of Richmond, California, believes it may have found one solution to the delivery problem. It has discovered a set of proteins that have a natural affinity for some of the growth factors, notably IGF. The growth factor-plus-protein is 20 times more effective than IGF alone at healing artificially. Inflicted wounds in animals. Bio-growth expects to start tests on people in the next 18 months.
Preliminary experiments with some growth factors suggest that they may not be as potent as optimists hoped. But Dr. Antoniades thinks he knows why, and how to solve the problem. It seems that growth factors fall into two classes. Some, like PDGF, are "competence" factors that prepare the cells for their multiplication and division, or mitosis. Growth factors, such as IGF, are "progression" factors that drive cells through mitosis. Both are needed for regeneration.

Several biotechnology companies – such as Epoulon, based in Boston – are testing a combination of PGDF and IGF in animals in the hope that the two will work wonders together. It seems that the regeneration of connective tissue – such as tendons – and of collagen (found in bone) is boosted by 300%, and of skin cells by 100%, compared with the effects of either growth factor alone. And the healing process takes 6-7 days instead of the usual 9-11. Epoulon is also testing the cocktail on beagles with gum disease. The drugs stimulate tooth regeneration and the formation of new tissues which cover the root surface of the tooth and join up with the bone. Pharmaceuticals with just one active component can pass muster relatively quickly. But the FDA takes a long, long time to approve mixtures of drugs like Epoulon's cocktail.

95. According to the passage, all the following reasons have prevented large scale use of some growth factors except
1] improper delivery systems
2] improper packaging
3] the possibility of side effects.
4] Improper safety measures.

96. In order to work, growth factors need
1] receptor molecules.
2] Proteins with natural affinity.
3] enzymes
4] fibroblasts.

97. A potential cure for post-menopause osteoprosis is
1] growth factor plus protein
2] PGDF
3] EGF
4] IGF

98. Growth factors cannot be swallowed because.
1] they may be broken down by proteins. 2] they may react with collagen.
3] they may react with oncogenes. 4] They may be broken down by enzymes

99. According to the passage, too much growth factor can result in
1] more collagen 2] fewer receptors
3] osteoporosis 4] 100% boost in skin cells.

100. According to the passage IGF ….
1] prepares cell for mitosis 2] drives cells through mitosis
3] attacks cells undergoing mitosis 4] boosts mitosis

Sections 3
Questions 50

DIRECTIONS for questions 101 and 105: Refer to the caselet below.
Six persons Binoy, Charu, Alex, Danny, Elan, and Firoze are sitting in two rows, facing each other, with three in each. Elan is not at the end of any rows. Danny is second to the left of Firoze. Alex the neighbour of Elan is sitting diagonally opposite to Danny. Charu is the neighbour of Firoze.

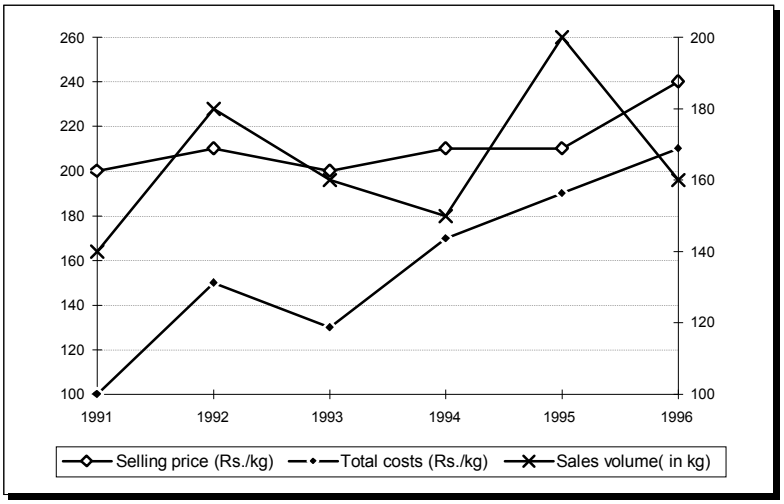
101. Who is facing Firoze?
1] Elan 2] Binoy 3] Danny 4] Alex

102. After exchanging seats with Elan, who will be the neighbours of Danny in the new position?
1] Alex and Binoy 2] Firoze and Binoy
3] Alex and Charu 4] None of the above

103. Which of the following are sitting diagonally opposite to each other?
1] Binoy and Elan 2] Firoze and Binoy
3] Danny and Elan 4] Elan and Charu

104. Which of the following are in the same row?
1] Binoy, Firoze 2] Danny, Elan
3] Alex, Charu 4] Elan, Alex, Binoy

DIRECTIONS for the questions 105 to 109: Refer to the graph below.



105. In which year were the maximum profits generated?
1] 1991 2] 1992 3] 1994 4] 1996

106. In which year were the cost/sales ratio the lowest?
1] 1991 2] 1994 3] 1995 4] 1996

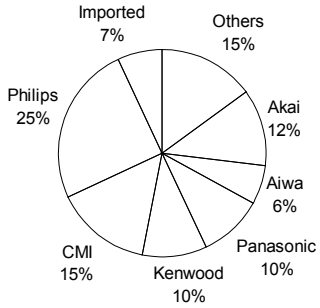
107. What was the increase/decrease in profits from 1994 to 1995?
1] Rs. 4,000 increase 2] Rs. 2,000 less 3] Rs. 4,000 less 4]Rs.5,000 less

108. If the price growth continuous from 1996-97 as for 1995-96, what would be selling price per kg in 1997?
1] 255 2] 267 3] 274 4] 286

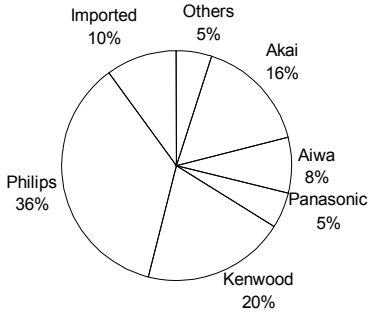
109. In which year the costs as a percentage of the previous year cost escalated the most?
1] 1992 2] 1993 3] 1994 4] 1995

DIRECTIONS for the questions 110 to 114: Refer to the pie charts below. The total sales (volume) of music systems in 1990 is 15 lakhs, in 1995 is 40 lakhs and that of televisions in 1995 is 25 lakhs.

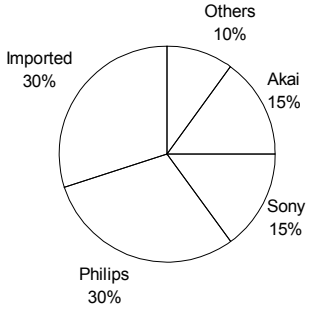
Music system market shares in 1990



Music system market shares in 1995



Television market shares in 1995



110. The number of Kenwood Music Systems sold in 1995 was greater than Aiwa Music System (in lac) in 1995 by…
1] 2.4 2] 3.6 3] 4.8 4] 6.0

111. The percentage market share of Philips in total Music System and Television sets in 1995 was…
1] 28% 2] 32% 3] 34% 4] 36%

112. The percentage change in the number of Panasonic Music System in 1995 over 1990 was…
1] 30% decrease 2] 20% decrease 3] 33% increase 4] 25% increase

113. The price of a Music System in 1990 was Rs. 2000/- per set and in 1995 was Rs. 3,000 per set. The percent increase / decrease in turnover of Kenwood in 1995 over than in 1990 is…
1] 380% increase 2] 600% increase 3] 800% decrease4] None of these

114. The number of imported TV's was more/less than imported Music Systems in 1995 by…
1] 3.5 lac more 2] 0.3 lac less 3] 0.6 lac less 4] 0.5 lac less

DIRECTIONS for questions 115 – 118: refer to the following table which gives the results of a survey conducted to find out the investment behavior of Resident Indians and non-resident Indians (NRIs). Indians in the table below refers to Resident Indians.

Income Level	Investments in						Total sample including non-investors	
	Shares		Debentures		Both			
	Indians	NRIs	Indians	NRIs	Indians	NRIs	Indians	NRIs
< Rs.60,000	120	90	90	60	30	45	300	360
Rs.61,000 to Rs.150,000	180	60	240	180	90	45	420	270
> Rs.150,000	150	120	120	150	90	60	600	480

115. What is the number of Resident Indians in the Rs. 61,000 -Rs. 150,000 income group who do not invest in debentures?
1] 190 2] 140 3] 180 4] 240

116. What is the number of investors whose income is less than Rs. 60,000 and who invest in only one of the two - shares or debentures ?
1] 360 2] 210 3] 75 4] 285

117. What percent of investors with income over Rs. 150,000 do not invest in shares or debentures ?
1] 64% 2] 87% 3] 50% 4] 18%

118. How many investors who invest in at least one of the two shares or debentures have incomes over Rs. 150,000 ?
1] 540 2] 390 3] 690 4] 108

DIRECTIONS for Questions 119 -126: A question is followed by 2 statements A and B. Mark
(1) if statement A alone is sufficient to answer the question.
(2) if statement B alone is sufficient to answer the question.
(3) if both statements are required to answer the question.
(4) if the question cannot be answered.

119. Is $b > c$ ($a, b, c \geq 0$)
A] $\frac{a}{a} \frac{b}{b}$ 2
B] $\frac{a}{a} \frac{b}{c}$ 3

120. What is the average of five consecutive prime numbers ?
A] The sum of the first three numbers is one less than the sum of the last two numbers.
B] The average of all the five numbers is greater than 8.

121. A certain directory consists of 20 volumes, each of which is x inches wide, m inches long and q inches thick. If all of the volumes are to be tightly stacked in a rectangular glass case that is m inches wide and x inches deep inside, could the length of the glass case be less than 65 inches ?
A] $q = 3$
B] $x = 18$ and $m = 20$

122. Is $p + q + r + s = 4$?
A] p, q, r, and s are each positive integers.
B] The product $pqrs = 1$.

123. Is a > b ?

A] $\frac{2a \quad x}{+} = 4$
$b \quad y$

B] $\frac{x}{y} \quad 4$

124. Of the 2000 Fiats and Ambassadors towed away by the authorities for illegal parking, what is the total number of white coloured Fiat cars ?
A] The percent of white coloured Fiats is equal to the percent of non-white coloured Ambassadors.
B] The total number of white coloured cars towed away by the authorities is 500.

125. In the sequence a_1 , a_2 , a_3 , a_4 , ... a_{100} ; if $a_1 = 5$ and $a_2 = -5$, what is the value of a_{24} ?
A] All odd numbered terms of the sequence have the same value.
B] All even-numbered terms of the sequence have the same value.

126. AD is both the central diagonal of a regular hexagon ABCDEF and the diameter of the circle. What is the length of the side of the hexagon ?
A] All the vertices of the hexagon lie on the circle.
B] The numerical value of the area of the circle is π times the length of the side of the hexagon.

Directions for questions 127 to 136: Read the passages and answer the questions that follow :

127. A new package of technologies for saving upto 25 percent water in rice cultivation is being developed by scientists. The technique include wet seeding, intermittent irrigation and proper land leveling. Wet seeding has been demonstrated to be a promising technology for meeting the water needs of rice.
Which of the following could be a plausible objection to the claims above?
1] If the above conditions result in excess growth of weeds, and weeding becomes difficult when water is less.
2] Weed management in wet seeded rice can be achieved by early flooding.
3] In intermittent irrigation, the field is irrigated and allowed to dry out.
4] The method is widely adopted in China, where the farmers face shortage of water and get incentives when water is saved.

128. The government has been advised by an expert team to solve the problem of disposal of molasses, a waste material from sugar mills, by encouraging the industry to set up distilleries for using molasses as raw material to produce alcohol by fermentation.
Which of the following is an appropriate reason for industries not to set up distilleries?
1] The cost of fermenting alcohol from molasses is high and the price ceiling on alcohol doesn't permit any increase in price to offset the production cost.
2] Sales tax on liquor is high compared to that of sugar and that getting sanctions for sugar manufacturing units is difficult.
3] Molasses is not a harmful effluent and thus its disposal into rivers do not pose any immediate threat.
4] The expert teams' suggestion may be biased, and implementation of any policy requires adequate validation.

129. Professor X : The university should do away with internal assessment and make student evaluation more objective.
Professor Y : But annual external examinations do not assess a student's personality traits which are equally important.
Which of the following can be properly inferred from the above statements?
1] University scholars differ greatly in their views on the objectives of university education.
2] The university has not consulted academicians in certain policy decisions.
3] Subjectivity is rampant in the existing university evaluation system.
4] Development of personality should be a more vital aim of university education than subject knowledge.

130. Company X recruits trainees based on their work experience. If it recruits a trainee without considering work experience, the trainee should be from university Y.
Which of the following arguments is similar to the one above?

1] Graduates from college P are absorbed in jobs immediately after degrees are awarded; If degrees are not awarded on time, they are not absorbed in jobs.
2] A certain school admits tiny tots into the preschool section based on their parental education; If it admits children whose parents are not educated, the children should be from Ward B.
3] Girls who take-up jobs immediately after graduation are fewer; If they take up jobs, they are rewarded.
4] Men who marry before the age of twenty-five are less responsible. If they marry after thirty they are more responsible.

131. The common notion that workers are apathetic about management issues is false. A recent survey on employees of three public sector units, indicates that 75 percent of the 750 workers interviewed expressed a high level of interest in the topics of corporate restructuring.
Which of the following is a flaw in the argument above?

1] Survey technique is not the most reliable research tool.
2] Public sector units are fewer in number.
3] Generalisation is drawn based on limited evidence.
4] The assumption of the argument is that techniques other than survey method is not used in collecting quantitative data.

132. It is believed that Kabini spring water contains several of the minerals necessary for good health and that it is completely bacteria - free. Residents of Kabini are less frequently hospitalised. Though the spring water available in bottles is expensive, drinking it is better than drinking tap water.
Which of the following is a questionable assumption of the above argument?

1] Water, other than that of Kabini springs may also contain minerals.
2] All minerals may not be good for health as claimed in the argument.
3] All brands of bottled water are expensive.
4] Most residents of Kabini who fall ill do not go to hospitals.

133. People have great interest in gourmet food, as evidenced by huge responses from readers of *The Times of India* to its weekend food special edition with colour pictures. Therefore, the restaurant industry will have a boom in the coming days.
Which of the following is a weakness in the prediction above?

1] There are other newspapers which have wider circulation than that of *The Times of India*.
2] People generally read only weekend editions of the newspaper.
3] People who responded to the feature, do not eat out often.
4] Colour pictures are attractive and tempting.

134. Rockford high school began assigning group projects to its students while reducing the number of classroom lectures. This resulted in some impressive achievements in the recent term examinations. To improve academic standards, therefore, schools should assign more of group projects.
Which of the following, if true, strengthens the above argument?

1] Lovedale school, that follows a conventional curriculum has higher academic achievements than that of Rockford.
2] A study conducted on selected high schools of the state revealed higher academic achievements in schools that used project methods for teaching concepts.
3] Rockford has deviated from the conventional methods of teaching and this change requires more qualified teachers.
4] Teachers are more comfortable following conventional methodology of teaching such as lecture and demonstration.

135. Many new sources of natural sweeteners have been identified in certain plants. These can provide non-saccharine sweeteners whose demand in the country is increasing due to the rising number of diabetic patients. The plant-derived sweeteners do not have any adverse impact on health, which is a problem of synthetic sweeteners.
Which of the following, if true, would make large-scale production of herbal sweeteners advisable?

1] The herbal sweeteners do not have any adverse impact on health, a common problem of synthetic sweeteners.
2] The plants in which the sweeteners are identified are widely available and need not have to be cultivated.
3] The herbal sweeteners can also replace sugar as regular use of sugar increase dental, cardio-vascular and obesity problems.
4] These herbal sweeteners contain proteins and minerals which are good for health.

136. A new technology for grinding spices - involves the use and injection of liquid carbondioxide and liquid nitrogen in a grinding chambers for the grinding process. This results in the packed spices to be microbe - free and with better shelf life.
Which of the following can be inferred from the above?

1] Currently spices have been ground and packed using conventional methods.
2] There have been no effective means of preserving spices for longer duration.
3] The new technology could be used for other food-processing purposes also.
4] Liquid carbondioxide and nitrogen have anti-microbial properties.

137. To reverse the deterioration of the postal services, the government should raise the prices of postage stamps. This solution sill no doubt prove effective since the price increase will generate large revenues and will also reduce the volume of mail, thereby eliminating the strain on the existing system and contributing to improved morale.
Which of the following, if true, would undermine the prediction above?

1] To offer better services the postal department may have to reshuffle its existing work force.
2] Increasing prices may be only one of the factors that may contribute to the quality of services.
3] If stamp prices are increased, people may depend on private courier services whose service is better for the same rate.
4] Private courier companies may increase the cargo charges if government increases the prices of postal stamps.

DIRECTIONS for the questions 138 and 139: Choose the correct option.

138. A and B are the only two children of their parents. A is the sister of B. B is the brother-in-law of C. D is the sister of C. How is D related to A?
1] Brother 2] Sister-in-law 3] Sister 4] Daughter

139. Radhika walks north east and after some distance turns left and walks straight then she turns left again. In which direction is she going now?
1] East 2] West 3] South West 4] South East

Directions for questions 140 to 146: The following table gives details of six booksellers' sales and profits for 2 years.

	No. of Outlets		Average sales (in lakhs) per outlet		Total profits (in lakhs) of all outlets	
	2002	2003	2002	2003	2002	2003
Landmark	4	5	50	55	40	60
Gangarams	2	3	170	180	125	200
Fountainhead	6	6	60	70	40	50
Crossword	12	10	90	120	120	180
Strand	4	5	180	175	150	160
Prism	2	2	40	30	15	15

140. Total sales in 2002 has been the highest for
1] Gangarams 2] Crossword 3] Strand 4] Both 1 & 2

141. Profitability is the ratio of profit to sales. For which of the following booksellers was profitability the least in 2003 ?
1] Fountainhead 2] Prism 3] Crossword 4] Strand

142. Using the definition of profitability as in previous question, for which of the following booksellers was profitability per outlet the highest for 2003 ?
1] Gangarams 2] Landmark 3] Crossword 4] Strand

143. Which bookseller experienced the highest percentage increase in profits per outlet in 2003 over that in 2002 ?
1] Landmark 2] Crossword
3] Gangarams 4] Fountainhead

144. The ratio of percentage increase in sales to percentage increase in profits in 2003 over 2002 for Gangarams was approximately…
1] 1:1 2] 2:3 3] 5:7 4] 3:4

145. If the market-leader (in terms of sales) in 2002 had experienced the same percentage increase in profits as it did in sales per outlet in 2003, over 2002, then its profits in 2003 would have been…
1] Lesser by 20 lakhs 2] Higher by 12 lakhs
2] Same as mentioned 4] Indeterminate

Directions for questions 146 to 150:
Table A gives the cumulative share price of stock A at the end of 6 trading sessions on the BSE. The share price at the beginning of the first trading sessions was 120.

Table A

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
230	340	480	560	700	810

Table B gives the ratio of advance and decline of 10 select shares including stock A on the BSE. Advance decline ratio is the ratio of number of shares that rise in price in a session to number of shares that fall in price in that session. A share is not taken into consideration for calculating the advance decline ratio if its price does not change over the previous session.

Table B

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
1:1	7:3	2:1	4:5	3:1	1:1

146. What was the maximum percentage change in share price of stock A in the 6 trading sessions ?
1] 75% 2] 50% 3] 100% 4] None of these

147. How many shares saw a decrease in their prices in session 1 ?
1] 5 2] 6 3] 4 4] Indeterminate

148. What is the maximum number of shares whose price has gone up in any of the 6 trading sessions ?
1] 7 2] 9 3] 10 4] Indeterminate

149. If no more than 1 share out of 10 showed no change in its price in 5 of the trading sessions, then what is the maximum number of shares that may have fallen in price on any one of the 6 sessions?
1] 5 2] 4 3] 3 4] Indeterminate

150. On which session/s was the price of stock A at its highest in the 6 sessions ?
1] Session 2 2] Session 3
3] Session 5 4] Session 3 and Session 5

SAMPLE OMR SHEET

NAME _____ DATE _____

DIRECTIONS :
1 Mark your answer by darkening the appropriate circle with an HB Pencil.
2 Erase clearly any answer you want to change.
3 Make no stray mark anywhere on the score sheet.

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