Solved Paper

Symbiosis MBA Entrance Examination held on December 7, 2003

SECTION—I

Instruction (Qs. 1 to 40): Read the following and choose the correct or the most appropriate answer from the alternatives given.

1. The digit in the tenth's place of a two digit no. is equal to the square of the digit in the unit place if 54 is subtracted from the number, its digits are inter changed. The number is:

(a) 93　　(b) 39　　(c) 65　　(d) 99

2. If $\dfrac{x}{(y+z-x)} = \dfrac{y}{(z+x-y)} = \dfrac{z}{(x+y-z)}$ and $x+y+z \neq 0$ then each ratio is equal to:

(a) 2　　(b) 1　　(c) $\dfrac{1}{2}$　　(d) $\dfrac{3}{2}$

3. If the angles of a triangle are 30°, 60° and 90°. Then the side opposite to 30° is——times the hypotenuse and the side opposite to 60° is——times the hypotenuse:

(a) $\dfrac{\sqrt{3}}{2}, \dfrac{1}{2}$　　(b) $\dfrac{1}{\sqrt{2}}, \dfrac{\sqrt{3}}{2}$　　(c) $\dfrac{1}{2}, \dfrac{\sqrt{3}}{2}$　　(d) $\dfrac{\sqrt{3}}{2}, \dfrac{1}{\sqrt{2}}$

4. A man walks 17 kms towards south then turns to west and continues to walk 24 kms and finally turns to north and walks 10 kms, the distance of the terminal point from the starting point is:

(a) 30 kms　　(b) 15 kms　　(c) 17 kms　　(d) 25 kms

5. The velocity of a boat relative to water is 3i + 4j and that of water relative to earth is i – 3j, the velocity of the boat relative to the earth is:

(a) $\overrightarrow{3i} + \overrightarrow{4j}$　　(b) $\overrightarrow{4i} + \overrightarrow{j}$　　(c) $\overrightarrow{4j} + \overrightarrow{i}$　　(d) $\overrightarrow{i} + \overrightarrow{4j}$

6. A and B are two independent witnesses in a case. The probability that A will speak the truth is $\dfrac{3}{4}$ and that B will speak the truth is $\dfrac{4}{5}$, the per cent of chances they are likely to contradict are:

(a) 30%　　(b) 35%　　(c) 40%　　(d) 45%

7. A right circular cylinder is to be made such that the sum of its radius and height is 9 m. The maximum volume of this cylinder will be when the radius and height are:

(a) 7 m, 2 m　　(b) 6 m, 3 m　　(c) 5 m, 4 m　　(d) 4 m, 5 m

8. A cricket team with 11 players consists of 4 batsmen, 3 all rounders, 3 bowlers and 1 wicket keeper. 3 players are selected at random. Find the probability that the selection contains a batsman, a bowler and an all rounder.

(a) $\dfrac{12}{60}$　　(b) $\dfrac{13}{25}$　　(c) $\dfrac{12}{55}$　　(d) $\dfrac{104}{165}$

9. Two non-intersecting circles, one lying inside the other are of radii a and b (a > b) and the minimum distance between their circumferences is c. The distance between their centres is:

(a) a – b　　(b) a – b + c　　(c) a + b – c　　(d) a – b – c

10. In Δ ABC, ∠ABC = 90°, AB = 4 cm, BC = 3 cm. M is the mid point of AB and a line parallel to BC pass through M and at N on AC. The length of CN is:

(a) 4.5 cm　　(b) 4 cm　　(c) 2.5 cm　　(d) 3.5 cm

11. If $a^x = b$, $b^y = c$ and $c^z = a$, then xyz is equal to:

(a) 0　　(b) –1　　(c) 1　　(d) a + b + c

12. The equations $ax – (a + b) y = 1$　$(a – b) x + ay = 5$ have a unique solution:

(a) for all values of a and b　　(b) only when a = b
(c) only when $a^2 : b^2 = 1 : 2$　　(d) only when a = 0 and b = 0

13. The sum of the digits of a number is subtracted from the number. The result is always:

(a) divisible　　(b) divisible by 9
(c) not divisible by 6　　(d) not divisible by 9

14. The diagonals of a rhombus are 10 cm and 24 cm. The perimeter of the rhombus is:

(a) 68 cm　　(b) 30 cm　　(c) 34 cm　　(d) 52 cm

15. The locus of the centres of the circles touching both the arms of an acute angle is:

(a) a concentric circle　　(b) a circle
(c) a parallelogram　　(d) a bisector of the angle

16. Which one of the following is a negative number?

(a) cos 40°　　(b) cos (–40)°　　(c) cos 320°　　(d) cos 140°

17. A right circular cone and a right cylinder have a circle of the same radius as their base and their heights are equal to the radius itself. If a hemisphere has the same radius, then their volumes are in the proportion of:

(a) 1 : 2 : 3　　(b) 3 : 2 : 1　　(c) 2 : 1 : 3　　(d) 1 : 3 : 2

18. In a survey of 100 computer professionals it was found that 48 read Byte, 39 read PC World and 44 read PC Magazine. It was also found that 17 read both Byte and PC World, 18 read both PC World and PC Magazine and 22 read both Byte and PC Magazine and the balance 20 read none of these 3 magazines. Determine the number of professionals who read exactly one magazine.

(a) 33　　(b) 34　　(c) 35　　(d) 36

19. My watch runs fast at the rate of 15 seconds per hour. If I have set my watch correctly at 10 a.m. on Tuesday, what will be the time shown by the watch at 6 p.m. on Saturday?

(a) 6.16 p.m.　　(b) 6.30 p.m.　　(c) 6.26 p.m.　　(d) 5.34 p.m.

20. What is the measure of the acute angle between the minute hand and the hour hand of a clock at 6.54?

(a) 114°　　(b) 117°　　(c) 115°　　(d) 118°

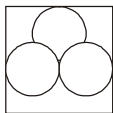**21.** If the sum of 6 consecutive odd integers is 888, then the median of this series is:

(a) 147　　(b) 148　　(c) 149　　(d) 151

22. If $1 = \left[\dfrac{3}{4}\right]\left[1 + \dfrac{y}{x}\right]$, then which of the following is correct?

(a) y = 4x　　(b) $y = \dfrac{x}{4}$　　(c) $x = \dfrac{y}{3}$　　(d) $y = \dfrac{x}{3}$

23. In the diagram given below, each circle is tangent to the other two and also the sides of the rectangle. If the diameter of each circle is

20 cm, what is the area of rectangle?

Note: *Figure is not drawn to scale.*
(*a*) 800 + 400 √3 cm   (*b*) 400 + 800 √3 cm   (*c*) 1600 cm
(*d*) Cannot be determined from the data given

24. If $x^2y^3 z < 0$, which of the following must be true?
(*a*) yz < 0   (*b*) y < 0   (*c*) $y^2z < 0$ (*d*) z < 0

25. If T is the sum of z consecutive integers, then T must be even if z is a multiple of:
(*a*) 5   (*b*) 4   (*c*) 3   (*d*) 2

26. If 1 kg of sand is added to a bin containing only cement, so that the resulting mix is 20% sand by weight. How many more kgs of sand must be added to the bin, in order to create a mix that is 60% sand by weight?
(*a*) 4   (*b*) 4.75   (*c*) 3.5   (*d*) 5.25

27. In the circle given below, CD is parallel to the diameter AB. With AB having length of 24, what would be the length of the minor arc CD?

(*a*) 8π (*b*) 4π

(*c*) $\dfrac{9\pi}{4}$ (*d*) $\dfrac{9\pi}{2}$
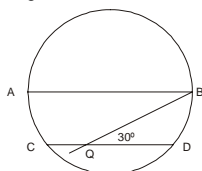
28. Jai Kumar has invested Rs 100,000 in stocks of pharmaceutical companies three years ago. The value of his stocks rose by 10% in the first year, then rose by 5% in the second year and fell by 10% in the third year. What is the value of his stocks today?
(*a*) Rs 100,350   (*b*) Rs 103,500
(*c*) Rs 103,950   (*d*) Rs 127,050

29. During the testing of a drug, the results were found to be 85% positive of the 1st phase of 100 tests and 55% positive in the 2nd phase of tests. If the overall results were 75% positive, what was the total number of tests conducted in 1st and 2nd phase?
(*a*) 160   (*b*) 156   (*c*) 150   (*d*) 220

30. On the number line given below, the segment from 0 to 1 has been divided into fifths, as indicated by the small lines and also sevenths, as indicated by the large line. What is the least possible distance between any two marks on the line?

(*a*) $\dfrac{1}{70}$ (*b*) $\dfrac{1}{35}$ (*c*) $\dfrac{2}{35}$ (*d*) $\dfrac{1}{7}$

31. Mohit was 24 years old when his son Akshit was born. If Mohit is now 3 times as old as Akshit, how many years ago was he 4 times as old as Akshit?
(*a*) 4   (*b*) 6   (*c*) 8   (*d*) 12

32. How many prime numbers less than 1000 are divisible by 7?
(*a*) 0   (*b*) 1
(*c*) more than 1 but less than 142   (*d*) more than 142

33. An hour after Ashish started from his college towards Tanvir's home, a distance of 53 km, Tanvir started from her home on the same road towards Ashish's college. If Ashish's speed was 4 km per hour and Tanvir's was 3 km per hour, how many km from Tanvir's home did the two meet?
(*a*) 24   (*b*) 22   (*c*) 21   (*d*) 19.5

34. A certain population of bacteria quadruples every 15 minutes. If the starting population of the bacteria was 10^4, what will be the population after 1 hour?

(*a*) $4(10^4)$ (*b*) $4^4(10^4)$ (*c*) $104(10^4)$ (*d*) $(10^4)^4$

35. A factory has 3 stamping machines for stamping, which can finish a lot in 4, 5 and 6 hours respectively. Due to some power problems in the city on Thursdays, only 2 of these machines can work simultaneously at any given point in time. What is the largest part of the job that can be finished in one hour on a Thursday?
(*a*) $\dfrac{11}{30}$ (*b*) $\dfrac{11}{15}$ (*c*) $\dfrac{9}{20}$ (*d*) $\dfrac{5}{6}$

36. In the figure given below, line y = x is the perpendicular bisector of line segment AB (not shown in the figure) and the x-axis is the perpendicular bisector of the line segment BC (not shown in the figure). If the coordinates of point A are (–4, –3), what are the coordinates of point C?
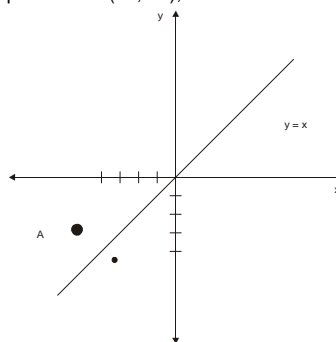
(*a*) (–3, –4)   (*b*) (–4, 3)   (*c*) (4, 3)   (*d*) (–3, 4)

37. Amit's office is 12 km from his home. In the evenings he travels to pick up his wife from her office, which is 6 km from his office and then travels 4 km to his gym. If he is then x km from his home, what is the range of values for x?
(*a*) $4 \le x \le 12$ (*b*) $2 \le x \le 18$ (*c*) $4 \le x \le 22$ (*d*) $2 \le x \le 22$

38. What is the total of the figures in the table below:

–4	–8	–12	–16	–20	–24
5	10	15	20	25	30
–6	–12	–18	–24	–30	–36
7	14	21	28	35	42
–8	–16	–24	–32	–40	–48

(*a*) 126   (*b*) –252   (*c*) –378   (*d*) –126

39. The cashier at a jeweller's shop reversed the digits in his mind while giving back the change to a customer, hence gave the customer an incorrect amount back. While closing the cash register at the end of the day, the cashier found a deficit of Rs 54. If the deficit is attributed to the mistake mentioned, which of the following is the correct amount of change to be given to the customer?
(*a*) 45   (*b*) 71   (*c*) 83   (*d*) 17

40. If a fair coin is tossed 5 times and comes up heads four times out of five. Then if the coin is tossed a sixth time under the same conditions, the probability of it turning up heads is:
(*a*) 80%   (*b*) 125%   (*c*) 50%   (*d*) 20%

SECTION—II

Directions (Qs. 41 to 54): Each of the following problems comprises of a question followed by two statements labelled (1) and (2). Use these statements and generic mathematical knowledge (mathematical facts and other knowledge like number of hours in a day) to decide whether the statements are **sufficient** to answer the question. Then mark your answers according to the following:
(*a*) If you can get the answer from **(1) ALONE** but not from (2) alone
(*b*) If you can get the answer from **(2) ALONE** but not from (1) alone
(*c*) If you can get the answer from **BOTH (1) and (2) TOGETHER** but not from (1) alone or (2) alone

(*d*) If you **CANNOT** get the answer from **(1) and (2) TOGETHER** but need more data.
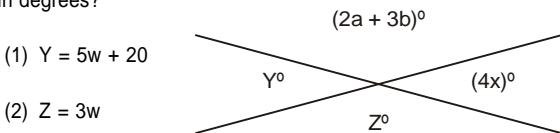
41. How many philosophy books does Amar have in his personal library?

(1) Amar has four times as many philosophy books as physics books.

(2) Amar has 36 more philosophy books than physics books.

42. Is 'A' an integer?

(1) A > 0   (2) $12^2 + 5^2 = A^2$

43. If two straight lines intersect as shown below, what is the value of x in degrees?

(1) Y = 5w + 20

(2) Z = 3w

$(2a + 3b)^\circ$

Y° $(4x)^\circ$

Z°

44. Is X an odd integer?

(1) $\dfrac{X}{3}$ is an odd integer   (2) 3X is an odd integer

45. The latest hair-oil brand of a multinational FMCG company contains coconut oil, oleic acid and perfume. How much of coconut oil is present in its 500 ml bottle?

(1) The content of coconut oil is equal to the content of oleic acid

(2) By content, the mix is $\dfrac{1}{6}$ perfume and $\dfrac{5}{12}$ oleic acid

46. Profits of an Indian multinational over a 4-year period averaged Rs 22 crores. If the company made profits in all four years, in which of the years were the profits greatest?

(1) In the fourth year, the profits of the company were thrice the average of its profits for the first 3 years.

(2) Profits of the company were twice as great in the 2nd year and thrice as great in the 3rd year as in the 1st year.

47.   X5

     + 2Y
     ———
     AB

In the operation of 'addition' shown above, X, Y, A and B represent non-zero digits. What is the number represented by 'AB'?
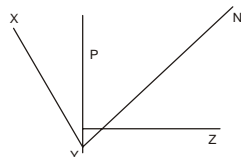
(1) X = 3Y   (2) 10A + B = 87

48. What is the number of 360-degree rotations that a bicycle wheel makes while rolling 1000 meters in a straight line without slipping?

(1) The wheel made 20 rotations (360-degree) per minute

(2) The radius of the bicycle wheel is 0.3 meters

49. If ab = – 12, then what is the value of ab(a + b)?

(1) $ab^2 = 36$ (2) a – b = 7

50. In the figure given below, what is $\angle XYZ$?

(1) NY bisects $\angle PYZ$ (2) $\angle XYP$ is 35°

51. In a marketing research survey for a new service launched by a cellular services provider, did more than 60% respondents 'Recommend' the service?

(1) 60% of the female respondents 'Liked' the service and exactly $\dfrac{1}{3}$rd of these would 'Recommend' the service.

(2) Exactly 20 male respondents would 'Recommend' the services and they would make approx 30% of the population surveyed.

52. What was the ratio of administrative staff to the production staff in a factory X, last year?

(1) Last year, if the number of administrative staff had been 12% higher, and if the number of production staff had been 20% higher, then the number of administrative staff had been 80% of production staff.

(2) Last year, the number of production staff was 40 more than the number of administrative staff.

53. In which year was Sheetal born?

(1) Shalini, who is 3.5 years elder to Sheetal, was born in 1975

(2) Shefali, who is 2.5 years younger to Sheetal, is now in high school

54. Is 2^x greater than 100?

(1) $2^{\sqrt{x}} = 4$

(2) $\dfrac{1}{4^x} < 0.01$

55. The following chart shows the business mix of different Business Units (BU) of an IT organization:

Business Unit	Income in JFM quarter, 2003 (in Rs Crore)	% change from JFM quarter 2002
Hardware Services	72.4	+45
Security Services	54.7	–2
Software Services	112.3	+298
Consulting Services	48.9	–27

Which of the BU had the greatest income in JFM quarter, 2002?

(*a*) Hardware Services

(*b*) Security Services

(*c*) Software Services

(*d*) Consulting Services

Directions (Qs. 56 to 65): Read the data given in the case below and answer the questions by choosing the correct or most approximate choice, in the context of the data.

Case: Statistical Computing Machines and Heuristic Research Labs (SCMHRL) has been in the business of building statistical computing solutions since 1992. The primary product range of SCMHRL includes personal computers with high-end numerical co-processors and statistical software solutions. The hardware part of the business has been facing stiff competition in the recent past with run-of-the-mill personal computers showing a tremendous increase in computing power. Table A shows the sales figures of SCMHRL over the past 10 years. The rapid development of newer generations of processors and the rapidly falling prices had helped to expand the market size for SCMHRL. Smaller and smaller corporations could now afford to deploy SCMHRL solutions. SCMHRL had responded to this change in the market scenario by lowering the prices of not only its hardware components but also its software packages.

The hardware side of the business was primarily an assembly line for off-the-shelf components to be built into a computer. The software side on the other hand was a more complex set-up. In 1998, SCMHRL decided to move from a customized-solutions approach to a product approach. The product was packaged as core software retailing for Rs 150,000 with add-on modules that could be purchased later. Table A also lists the pricing for SCMHRL's core software product suite. SCMHRL priced its software products at an average gross profit of 33.33% on sales.

Until 2001, each software unit was sold together with a hardware unit. Thus, the numbers of software and hardware units sold were identical each year until 2001. In 2002, SCMHRL was reviewing this strategy of bundling the two together in the face of falling sales. The average prices of hardware products manufactured over the years and the gross profit margin thereon are listed in Table below:

Year	Total Revenue (Rs)	Software Price (Rs)	Hardware Price (Rs)	Hardware GP (% of Sales)	Other Expenses
1992	4,320,000	140,000	220,000	22%	380,000
1993	5,760,000	150,000	170,000	18%	496,000
1994	8,100,000	180,000	120,000	16%	1,000,000
1995	9,880,000	180,000	80,000	14%	1,680,000
1996	12,600,000	225,000	75,000	12%	1,840,000
1997	12,000,000	200,000	50,000	10%	2,870,000
1998	12,800,000	150,000	50,000	8%	3,700,000
1999	7,560,000	165,000	45,000	6%	4,000,000
2000	7,980,000	165,000	45,000	4%	3,300,000
2001	4,400,000	165,000	35,000	3%	2,600,000

56. The total number of units sold was growing until the year:
(*a*) 1995   (*b*) 1997   (*c*) 1998   (*d*) 2000

57. The number of units sold in 1998 was:
(*a*) 48   (*b*) 64   (*c*) 36   (*d*) 42

58. The total gross profit (before deducting other expenses) in 1996 was approximately:
(*a*) Rs 3.0 million   (*b*) Rs 1.5 million
(*c*) Rs 2.5 million   (*d*) Rs 2.0 million

59. The total activity started making a loss in the year:
(*a*) 1996   (*b*) 1998   (*c*) 2000
(*d*) None of the above—It has always been profitable

60. The total gross profit earned by the software units sold in the year 2000 was approximately:
(*a*) Rs 1 million   (*b*) Rs 2 million
(*c*) Rs 3 million   (*d*) None of the above

61. The gross profit per unit of hardware sold in 1992 was approximately?
(*a*) Rs 50000   (*b*) Rs 40000
(*c*) Rs 30000   (*d*) Rs 20000

62. The percentage gross profit per piece of the hardware was closest to the percentage gross profit per unit of the software in the year:
(*a*) 1992   (*b*) 1994   (*c*) 1998   (*d*) 2000

63. In the year in which the other expenses were maximum, the number of units sold:
(*a*) was also the maximum
(*b*) was the minimum across the 10-year period
(*c*) was stable as compared to the previous year
(*d*) was less than the maximum across the 10-year period

64. The total gross profit from hardware was maximum in the year:
(*a*) 1992   (*b*) 1995   (*c*) 1997   (*d*) 2000

65. The percentage gross profit on each unit of hardware to went below 5% for the first time in:
(*a*) 1996   (*b*) 1998   (*c*) 1999   (*d*) 2000

Directions (Qs. 66 to 70). The graph and table below shows the data regarding the industrial and commercial water consumption in Delhi. Answer the questions by choosing the closest choice answer among the alternatives given below.

WATER CONSUMPTION IN DELHI
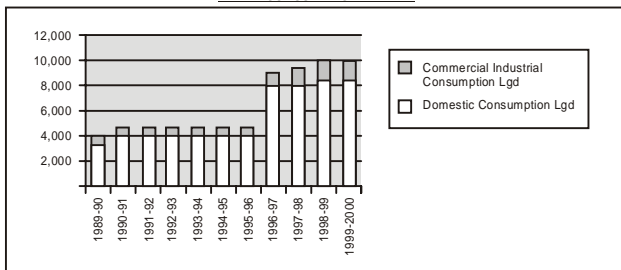
Year	Number of Connections Metered	Unmetered	Domestic Consumption Lgd	Commercial Industrial Consumption Lgd	Total Consumption Lgd	Per Capita Consumption of water (Gallons/Day)
1989-90	637,914	206,850	3,534	523	4,057	45.57
1990-91	678,461	226,960	4,013	527	4,540	49.03
1991-92	700,923	245,451	4,049	556	4,605	47.66
1992-93	745,029	253,977	4,082	567	4,649	46.66
1993-94	804,180	294,174	4,087	424	4,511	43.74
1994-95	826,624	311,262	4,057	433	4,490	42.04
1995-96	853,807	315,687	4,114	627	4,741	43.76
1996-97	915,974	284,917	8,377	935	9,312	80.24
1997-98	934,170	290,217	8,120	1,408	9,528	94.11
1998-99	955,721	297,182	8,441	1,490	9,931	94.09
1999-2000	993,939	300,100	8,451	1,491	9,942	91.15

66. Which year shows the steepest increase in commercial consumption?
(*a*) 1996-97   (*b*) 1997-98   (*c*) 1995-96   (*d*) 1991-92

67. What is the % increase in per capita consumption of Water in the period 1989-2000?
(*a*) 200%   (*b*) 50%   (*c*) 0%   (*d*) 100%

68. Across the years, what % does domestic consumption account for out of the total?
(*a*) 25%   (*b*) 90%   (*c*) 80%   (*d*) 88%

69. In which year did the total connections (metered and unmetered) cross the 1.2 million mark?
(*a*) 1996-97   (*b*) 1999-2000   (*c*) 1998-99   (*d*) 1995-96

70. In 1995-96 (v/s 1994-95) the % increase in metered and non-metered connections was:
(*a*) 3% and 6%   (*b*) 6% and 3%   (*c*) 1% and 3%   (*d*) 3% and 1%

Directions (Qs. 71 to 75): The table below shows the population, area, density, literacy and public expenditure on education data of Delhi state. Answer the questions by choosing the correct and most approximate choice, using the data below.

Particulars	Population ('000s) (1996)	Area (Sq Kms)	Percentage of adult illiterate Population 1996	Public expenditure on education as %age of GNP (1996)
World	5,767,443	135,604,354	N.A.	N.A.
Afghanistan	20,883	652,090	68.5	N.A.
Bangladesh	120,073	143,998	61.9	2.9
China	1,232,083	9,596,961	18.5	2.3
India	944,580	3,287,590	48.0	3.4
Indonesia	200,453	1,904,569	16.2	-
Japan	125,351	377,801	N.A.	3.6
Myanmar	45,922	676,578	16.9	N.A.
Nepal	22,021	140,797	72.5	3.1
Pakistan	139,973	796,095	62.2	3.0
Sri Lanka	18,100	65,610	9.8	3.4
Thailand	58,703	513,115	6.2	4.1

Note: N.A.: Not Available

71. The density of population in India exceeds China's population density by:
(*a*) > 2 times   (*b*) 1.5 times   (*c*) 1.25 times   (*d*) 0.9 times

72. These 11 countries together account for what % of the world's population?
(*a*) > 60%   (*b*) < 30%   (*c*) 50.40%   (*d*) 50.70%

73. The total number of illiterates in India is more than the total population of which of the above countries?
(*a*) Thailand

(b) Nepal, Sri Lanka and Bangladesh

(c) Japan, Nepal, Sri Lanka and Bangladesh

(d) Japan, Nepal, Sri Lanka, Bangladesh and Thailand

**74.** If the GNP of Nepal was 1 Billion USD, what is the per capita expenditure on education in 1995?

(a) $ 1.36   (b) $ 13.62   (c) $ 136.23   (d) $ 30

75. On an average how many people live in every square kilometer across the world?

(a) 5.70   (b) 10.3   (c) 71.2   (d) 42.2

Directions (Qs. 76 to 80): The graph and table below shows the data regarding education of migrants in India. Answer the questions by choosing the correct or most approximate answer from the choices given below.

EDUCATION OF MIGRANTS IN INDIA
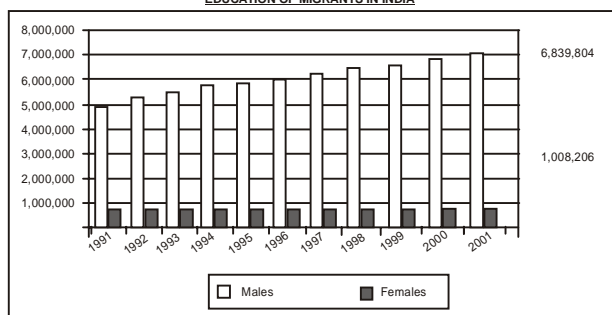
Particulars	Urban	
Data of 1991	**Male**	**Female**
Graduation And Above	669,897	37,823
Illiterate	938,085	323,679
Literate But Below Matric	1,752,647	208,455
Matric But Below Graduate	1,406,250	109,642
Technical Degree	156,234	17,041
Technical Diploma	117,194	11,227
Total Migrants	**5,040,307**	**707,867**

76. What proportion of female migrants have studied upto Matriculation or less?

(a) 50%   (b) 75%   (c) 25%   (d) 90%

77. Of the total Migrant population just 5% have:

(a) Technical degree/diploma   (b) Graduation degree

(c) Passed Matriculation   (d) Not studied at all

78. The 2001 census shows that 20% of the total migrants are graduates and above. What is the % increase in graduate and above migrants over 1991?

(a) No change   (b) < 25%   (c) 50 to 75%   (d) >100%

79. What % of the total migrants are females?

(a) 88%   (b) 12%   (c) 9%   (d) 91%

80. What is the decadal growth rate of total migrants in the period 1991-2000?

(a) 2.1%   (b) 2.8%   (c) 3.0%   (d) 3.2%

SECTION—III

Directions (Qs. 81 to 101): Read the passage carefully and answer the questions that follow by choosing the most appropriate option in the context of the passage.

Passage I

I have little use of the past and future and rarely think about it at any moment of time. This awareness came after thirty years of my living in anxiety and agony to such an extent that "I never wanted to live with myself". This was the thought that kept repeating itself in my mind. Then suddenly I became aware of what a peculiar thought it was. "Am I one or two? If I cannot live with myself, there must be two of me: 'I' and the 'self' that I cannot live with." "May be" I thought, "Only one of them is real". And, I was stunned with this realization. My internal journey to discover my 'real' self began...and one day all my sufferings vanished and I became light like light; as if someone had taken away all my burden and sufferings in one go. I understood, that the intense pressure of suffering must have forced my consciousness to withdraw from its identification with the unhappy and fearful self—the false, suffering self—which is a fiction of the mind and not real.

A time came when, for a while, I was left with nothing on the physical plane. I had no relationships, no job, no home and no socially defined roles or identification. I was a nobody. I spent almost two years sitting on park benches in a state of the most intense joy. I realized that I had this with me even during those 30 years of agony, suffering and misery. However, I could not feel it although I was carrying it with me because my mind was too much noisy. I was in it, lost in it, and became the noise itself that I could not even be aware that a self other than that miserable self ever existed.

To explain let me quote a parable. A beggar had been sitting by the side of a road for years. He used to ask "spare some change?" to passersby. One day a stranger not being able to give anything material replied "I have nothing to give you". He asked "how long you are sitting here". The beggar replied "over thirty years". "What is that you are sitting on?" asked the stranger. "Nothing, just an old box abandoned by somebody and I have been sitting on it as long as I can remember" said the beggar. "Ever looked inside?" asked the stranger. "What is the point, there is nothing in there and why waste time" replied the beggar. "Have a look inside" insisted the stranger. The beggar for the first time, just to satisfy the insistent stranger opened the box. To his astonishment, disbelief and elation found that the box was filled with gold. Are we not like that beggar? Unaware of being on it or carrying it, searching it outside? Or seeking some one to provide it—the happiness? Not getting what one seeks one is unhappy. Getting something one does not want or dislike, one is unhappy. Craving for pleasures from outside objects and or an outsider to provide it and avoiding pains seeking external balms, one perpetuate suffering. It is like a child sitting in the middle of a beautiful garden, crying for plastic toys to be provided by some one and suffer accusing or excusing if the toys are not available to him or not made available to him. This is a fictitious self created by the mind. If one wants to be joyful, one has to get out of the clutches of that mind.

Mind is a superb instrument if you take control of it and use it at your will. The problem with man is that he allows him to be used by the mind. In fact, you do not use your mind. The mind uses you. Instead of the owner using the instrument, the instrument uses the owner. And the owner believes that the instrument is himself. Thus, the instrument taking over the owner is complete. Further, if you watch your mind you can see that the mind exists only in the past or future and never in the present. That is, mind is the replay of the recorded past or the fear of the future. It never exists in the "Now". If you analyze further you will realize that even the past never existed except in the perceptual creation of the mind. Nor the future exists. Whatever happened in the past, the past as we refer to it, has happened in the "Now" then. Similarly whatever will happen in the future will happen in the "Now" then. This is the ultimate reality. However mind creates a fictitious past by way of thoughts of the past and a fictitious future by way of the thoughts of future. This string of thoughts, perpetuating itself becomes an automation with no breaks or intervals. Thoughts appear without you being aware of it. You get into it and allow you to be taken over. And you believe you are the thoughts. And you say, "I think therefore I am." This is delusion. Unaware of this truth, you dwell in and identify with the incessant, compulsive and involuntary thoughts of the past and illusory future. The instrument of mind causes this delusion and illusion. And as mind perpetuates the bad past and a fearful future, you suffer carrying the burden of the past and worries of the future. That is, you live in the past and or in the future. And you believe this is your self. But believing to be true is not the same as knowing and experiencing the truth. Believing the thoughts to be oneself and being taken over by its continuous flow, one

misses the stillness, the silence and the space of the present "now" as one believes that the thoughts are natural and suffering is normal as every one is suffering. And this now, becomes a means to achieving a pleasant, happy and joyful future. That is, happiness and life are at a distance, at a future time out there and not here and now. In reality it is not so. Life—the joyfulness is here and now. I realized this only when I could experience the "stillness" and the eternal "silence" in me being in the "Now" refusing to be in the past or future.

It is like the silence between two musical notes. Sound of music will have no meaning, without the silence. In fact silence is the eternal and the musical sounds the perishable. It is like the space in the room where the furniture cannot be there without the space but no one sees the space but only the furniture. Because one cannot see the space, it does not mean the space does not exist. In reality the space is the permanent and the furniture the perishable and the impermanent. For an ordinary eye the space is "nothing" and the furniture a "thing". But if you look closer you will find that in this beginningless and endless vast space of "nothing" exist every thing. It encompasses the entire universe—the solar systems, the galaxies, and everything. Without silence no sound can exist, without the stillness no movement can take place and without that nothingness no thing can exist. This is equally true of man and mind also. Man gets into the movements of mind and not into the moment, which is now. There is no beginning or end for silence, stillness and space. It is there. It has no past or future. It is beyond analysis, measurements, understanding and explanation. Knowing it and experiencing it being there, is the realm of eternal peace, joy and bliss. Here the noisy mind disappears, and the real "I" emerges. To put it accurately, the real 'self' is reclaimed—the "self" which exist in the 'now and here' with no past and no future. Here 'I' use the instrument called mind the way 'I' want to use it and 'I' direct my thinking rather than the mental automation taking over me. The belief that joyfulness or happiness is when I achieve this and that or when I get rid of this and that or after that out there etc. are mere mental fiction as time—the psychological time—has no past or future. It has only "now". Not knowing this truth, dwelling in the fictitious past and future is "suffering" and is a disease. In short, mind is the disease. Liberation from that mind by taming and overpowering it to be used rightly and at will and choice, is called self mastery by atma-vidya or self knowledge. It awakens one to one's divinity. Respect, reverence and compassion to all beings and a "help ever, hurt never" principle of life will start flowing from you in relation to the world. Personally, it will be the end of all suffering as you have freed yourself from the mind's games and noises and reclaimed the original land of eternal silence, stillness, and serenity. At least this is my experience. And the "self which I never wanted to live with" is no more with me. I am free.

81. "I never wanted to live with myself" means:
(a) There are two persons in one self
(b) There are two perceptual self's in one person
(c) There is a real self and an unreal self in all the persons
(d) There is a natural unknown self and a suffering known self in most of the persons

82. When the author says that he has little use of past or future, what he means is:
(a) That he does not care about what his past was and what his future would be
(b) That the memories of and the experiences of the past and the thoughts of the future do not affect his present life
(c) That the memories and experiences of the past and the thoughts of the future are irrelevant to living at the moment
(d) That the past and future do not exist in his life

83. The author's awareness and experience of his "real self" happened:
(a) When his consciousness withdrew from him
(b) When he realized that he is not the mind and mind is separate from his 'being'

(c) When he came out of all identifications of being happy, miserable and suffering etc
(d) None of the above

84. When the author had nothing on the physical plane he was in a state of intense joy:
(a) Because he could free himself from the mental noises and realize the serenity within
(b) Because for thirty years he was suffering despite having everything; and now it is only natural that he enjoys the nothingness
(c) Because he renounced every thing and accepted the reality as it is
(d) Because he had no identified roles or responsibilities to carry as a burden

85. The moral of the beggar's story is:
(a) That one has to seek and put in efforts 'to find' and to be blessed
(b) Ignorance finally leads to bliss
(c) Do not give up, you shall ultimately find your place
(d) One needs someone to show the path

86. Another important learning one can have from the beggar's story is that:
(a) One has to demolish one's frameworks to reclaim one's true self
(b) Most of the people live a life of suffering due to ignorance of the true self
(c) Mind always perpetuates itself to keep the joyful self-buried
(d) None of the above

87. The averment that craving for pleasures and avoidance of pain are the causes of suffering is:
(a) A contradiction that without ambition and desires how can one work and progress in life; and why one should not try to avoid pains?
(b) Not a contradiction because what the author conveys is that one can aspire and work for all his positive goals without suffering, by taking charge of the mind
(c) Both (a) and (b) are not correct
(d) The averment is absolutely wrong

88. The author could not be aware of a self other than the suffering self because of:
(a) His identification with experiences of the past and the anxieties of the future
(b) Fiction created by the mind
(c) He was too much into the noise around
(d) None of the above

89. The statement "Now of then"—for the past and future means:
(a) That there cannot exist a past except as a memory and the future as a concept in the domain of the mind. Therefore it is a fiction and whatever happens, happens now in the present moment
(b) Past and future are nothing but a continuous flow of "Nows"
(c) The "Nows" of then—the earlier "nows" and the "Nows" hereafter
(d) All the above

90. The mind is a superb instrument of destructive nature and causes suffering:
(a) When the thoughts are voluntary and one is aware of the thoughts
(b) When the thoughts are involuntary and one is unaware of the automation
(c) When the thoughts are involuntary and one believes that the thoughts are himself/herself
(d) None of the above

91. The mind is a superb instrument of great use to oneself if:
(a) One is aware of the thoughts, which are involuntary
(b) One is aware of how mind works and experiencing and being in

the stillness, can choose thinking

(c) One can create intervals between thoughts and stay serene

(d) One can control thoughts

92. Suffering is considered normal, and accepts that life is a struggle:

(a) When people believe and live as if happiness and joyfulness are ends to be realized at a later date going through suffering now

(b) When people see that every one is subject to suffering

(c) When people are used to carrying the pains of the past and worries of the future

(d) None of the above

93. The author is of the view (out of his own experience) that:

(a) Happiness lies in the nothingness

(b) Happiness lies in the stillness or vacuum in between the thoughts and not in the thoughts

(c) To attain the state of permanent joyfulness, one should be in the silent "now" living moment to moment

(d) None of the above

94. The author's reference to the stillness, eternal silence and the beginningless and the endless space of nothing etc means:

(a) That there is a state of 'being' of permanent joyfulness that can be attained by human beings

(b) That without the eternal "Nothing" no thing can ever exist

(c) That the thoughts are transient and the stillness is the permanent state of being

(d) None of the above

95. Respect, reverence and compassion for all beings will happen as a result of:

(a) Awakening of the divinity   (b) Atma vidya

(c) End of suffering   (d) Self mastery

96. Self mastery means:

(a) Overpowering the mind

(b) Ability to control and use the mind at will and the way one chooses

(c) Ability of the mind to choose the way it wills

(d) None of the above

97. "I became a nobody". What does the author try to convey in this statement?

(a) One must strip of all attachments to be free and joyful

(b) One must not have ego to be free and joyful

(c) The state of "humbleness" can lead to one being free and joyful

(d) One should not identify oneself with position, roles, responsibilities and various other man made trappings, if one wants to be in the intense natural endowment of joyfulness

98. The beggar's story, and the analogy of the child in the garden crying for the toys accusing excusing...etc are to bring home a reality that:

(a) One is wasting one's life searching for happiness outside one or from objects or from someone to give it

(b) Craving for pleasures at a distant time is multiplying "suffering"

(c) No outsiders or outside matter can give peace and joyfulness

(d) Possessiveness leads to miserable state of mind

99. An important learning the passage can give to the reader is that:

(a) "Suffering" is a mental affliction unlike physical pain

(b) Pain and "sufferings" are one and the same

(c) The mind's interpretation of the non-existent past and non-existent future creates suffering

(d) Fiction of mind creates a fiction called suffering

100. The one practical clue the passage gives to the reader, if he/she is intelligent, is that:

(a) Watch the mind, and watch the thoughts for their relationship with the past/future but stay solidly in the "now" of the present, for a life of peace and joyfulness. Postponing it is an illusion caused by delusion

(b) To be joyful do not get into the flowing thoughts but focus on the

intervals of stillness, and vacuum in between thoughts

(c) Both (A) and (B) above   (d) None of the above

101. "Mind is a superb instrument to be used to one's advantage or to be used by it to be miserable", denotes the following:

(a) Using intellect, if you tap the mind's potential to think, analyze and take decisions, it is useful. But trapped by it wriggling in the incessant thoughts of the past and of the future, is destructive

(b) A thoughtless mind by refusing to be in the automated thought process can lead to peace and joyfulness

(c) Both (A) and (B) above   (d) None of the above

Directions (Qs. 102 to 120): Read the passage carefully and answer the questions that follow by choosing the most appropriate options in the context of the passage.

Passage II

In 1854 the "Great White Chief" in Washington made an offer for a large area of land of the red Indians and promised a reservation for the Indian people and the Chief of Seattle replies;

How can you buy or sell the sky, the warmth of the land? The idea is strange to us. If we don't own the freshness of the air and sparkle of the water, how can you buy them?

Every part of this earth is sacred to my people. Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing and humming insect is holy in the memory and experience of my people. The sap which courses through the trees carries the memories of the red man. The whiteman's dead forget the country of their birth when they go to walk among the stars. Our dead never forget this beautiful earth, for it is the mother of the red man. We are part of the earth and it is part of us. The perfumed flowers are our sisters; the deer, the horse, the great eagle, these are our brothers. The rocky crests, the juices in the meadows, the body heat of the pony, and man—all belong to the same family.

So, when the great Chief in Washington sends word that he wishes to buy land, he asks much of us. The great Chief sends word he will reserve us a place so that we can live comfortably to ourselves. He will be our father and we will be his children. So we will consider your offer to buy our land. But it will not be easy. For this land is sacred to us. This shining water that moves in the streams and rivers is not just water but the blood of our ancestors. If we sell you land, you must remember that it is scared, and you must teach your children that it is sacred and that each ghostly reflection in the clear water of the lakes tells of events and memories in the life of my people. The water murmur is the voice of my father's father.

The rivers are our brothers, they quench our thirst. The rivers carry our canoes, and feed our children. If we sell you our land, you must remember, and teach your children, that the rivers are our brothers, and yours, and you must henceforth give the rivers the kindness you would give any brother. We know that the whiteman does not understand our ways. One portion of land is the same to him as the next, for he is a stranger who comes in the night and takes from the land whatever he needs. The earth is not his brother, but his enemy, and when he has conquered it, he moves on. He leaves his father's graves behind, and he does not care. He kidnaps the earth from his children, and he does not care. His father's grave and his children's birthright are forgotten. He treats his mother, the earth, and his brother, the sky, as things to be bought, plundered, sold like sheep or bright beads. His appetite will devour the earth and leave behind only a desert.

I do not know. Our ways are different from your ways. The sight of your cities pains the eyes of the red man. But perhaps it is because the red man is a savage and does not understand. There is no quiet place in the whiteman's cities. No place to hear the unfurling of leaves in spring, or the rustle of an insect's wings. But perhaps it is because I am a savage and do not understand. The clatter only seems to insult the ears. And what is there to life if a man cannot hear the lonely cry of the whippoorwill or the

arguments of the frogs around a pond at night? I am a red man and do not understand. The Indian prefers the soft sound of the wind darting over the face of a pond, and the smell of the wind itself, cleaned by a mid day rain, or scented with pinion pine.

The air is precious to the red man, for all things share the same breath—the beast, the tree, the man, they all share the same breath. The white man does not seem to notice the air he breathes. Like a man dying for many days, he is numb to the stench. But if we sell you our land, you must remember that the air is precious to us, that the air shares its spirit with all the life it supports. The wind that gave our grandfather his first breath also receives his last sigh. And if we sell you our land, you must keep it apart and sacred, as a place where even the white man can go to taste the wind that is sweetened by the meadow's flowers.

So we will consider your offer to buy our land. If we decide to accept, I will make one condition: The white man must treat the beast of this land as his brothers. I am a savage and I do not understand any other way, I've seen a thousand rotting buffaloes on the prairie left by the white man who shot them from a passing train. I am a savage and I do not understand how the smoking iron horse can be more important than the buffalo that we kill only to stay alive. What is man without the beast? If all beasts were gone, man would die from a great loneliness of spirit. For whatever happens to the beast, soon happens to man. All things are connected.

You must teach your children that the ground beneath their feet is the ashes of your grand fathers. So that they will respect the land, tell your children that the earth is rich with the lives of our kin. Teach your children what we have taught our children, that the earth is our mother. Whatever befalls the earth befalls the sons of the earth. If men spit upon the ground, they spit upon themselves. This we know: The earth does not belong to man; man belongs to the earth. This we know. All things are connected like the blood, which unites one family. All things are connected. Whatever befalls the earth befalls the sons of earth. Man did not weave the web of life: he is merely a strand in it. Whatever he does to the web, he does to himself. Even the white man whose God walks and talks with him as friend to friend, cannot be exempt from the common destiny. We may be brothers after all. We shall see. One thing we know, which the white man may one day discover, our God is the same God. You may think now that you own Him as you wish to own our land; but you cannot. He is the God of man, and His compassion is equal for the red man and the white. This earth is precious to Him, and to harm the earth is to heap contempt on its Creator. The whites too shall pass; perhaps sooner than all other tribes. Contaminate to your bed, and you will one night suffocate in your own waste. But in your perishing you will shine brightly, fired by the strength of the God, who brought you to this land and for some special purpose gave you dominion over this land and over the red man. That destiny is mystery to us, for we don't understand when the buffaloes are all slaughtered, the wild horses are tamed, the secret corners of the forest heavy with scent of many men, and the view of the ripe hills blotted by talking wires.

Where is the thicket? Gone?

Where is the eagle? Gone.

The end of living and the beginning of survival.

102. The reply of the chief of Seattle appears to:
(a) be an attack on whiteman's arrogance.
(b) brings out the ignorance of the so-called civilized whites.
(c) be a defiance of the authority of the white chief.
(d) be the most profound and respectful statement on the environment.

103. By describing the shining pine needles, shores, mist, and insects, the author:
(a) appears to have gone very emotional and sentimental.
(b) seems to convey that his people worship all creations.
(c) seems to convey that all the above are integral part of human life.
(d) expresses his reverence and faith in the mutuality of all natural beings and things around for a harmonious living.

104. According to the passage:
(a) The dead whites can walk among the stars and forget the past.
(b) The dead red Indians cannot forget the past.
(c) The red Indians are the inseparable part of the mother earth and hence death does not severe their relationship with the mother earth.
(d) None of the above.

105. By connecting the flowers, eagles, horses, meadows and the rocky crests—all animate and inanimate things—as belonging to the same family, the author:
(a) seems to have lost the power of rational discrimination.
(b) seems to be living on a philosophical and unpractical plane.
(c) seems to be a very highly elevated and enlightened person who has experienced the interconnectedness.
(d) seems to be living in fiction and dreams.

106. The shining water according to the author is not just water but the blood of ancestors. This means:
(a) The ancestors toiled and shed blood and sweat to create the sacred land where his people now live.
(b) The water reflects the memories of the ghostly events in their life.
(c) That the water has been the lifeblood of their ancestors out of which the present generation is borne.
(d) The land and the people are inseparable and the river becomes the lifeblood of all.

107. According to the author:
(a) The rivers, the sky, the land etc are to be treated with kindness and gratitude and preserved as they are for the children to inherit and grow as the forefathers of the native did.
(b) The whiteman cannot understand the importance of the environment.
(c) The whiteman forgets his past and is interested only in his pleasures out of the earth.
(d) None of the above.

108. The chief of the Seattle—the native's protector:
(a) accuses the whiteman for his greed.
(b) bemoan the so called civilized whites, will make a desert out of the mother earth, which otherwise is full of abundance.
(c) sounds helpless and prays that the nature left as it is.
(d) None of the above.

109. The statements, "Our ways are different from your ways", "perhaps the red man is a savage and does not understand", in the context of the passage:
(a) expresses condemnation of the greed of the so-called civilized men.
(b) ridicules the so-called progress made by modern man.
(c) genuinely questions the way the environment was being destroyed instead of preserving and conserving it for the next generation.
(d) establishes that the whites are the most selfish people.

110. "The white man does not understand our ways...comes as a stranger, kidnaps the earth from his children" etc., sums up:
(a) the foolishness of the so called civilized society.
(b) that the so called civilized are committing a crime on the unborns by depriving their birth rights to inherit the earth with all its abundance in which man has not played any role to create.
(c) that the civilized are writing the epithets of their own destiny.
(d) the white man is not interested in knowing "our ways".

111. According to the passage the "ears" are, meant:
(a) to hear the sounds and listen to the surroundings.
(b) to enjoy the music and rhythm of life around, of all creations and not the clatter of artificialities.
(c) to be a sensory organ so that communication with all from the

world around is possible and fruitful.

(*d*) None of the above.

112. The air is precious to the red Indians because:

(*a*) it supports life.

(*b*) its spirit, which sustains life, is shared by all living beings and without which there is no life.

(*c*) it gave the grandfather the first breath and they are his children.

(*d*) None of the above.

113. If all beasts are gone:

(*a*) man will suffer depression.　　(*b*) man will suffer loneliness.

(*c*) man will die of starvation.　　(*d*) man will die.

114. The author exhorts to teach the children that the earth is our mother because:

(*a*) earth sustains life.　　(*b*) earth is home to all living beings.

(*c*) earth is rich.

(*d*) that what happens to earth is only a prelude to what will happen to its sons.

115. The red Indian natives know that the earth is precious because:

(*a*) man belongs to the earth and is a part of it.

(*b*) there cannot exist man without earth but there can be earth without man.

(*c*) all what man needs are provided by earth.

(*d*) earth is home for all beasts, which are killed for man to live.

116. Man should not disturb the web of life on this earth because:

(*a*) he is only a strand in the web of life and if he disturbs the web— he does it to himself.

(*b*) the one who cannot create should not disturb it.

(*c*) every thing is connected to from the cosmic web.

(*d*) None of the above.

117. The passage is a great lesson that:

(*a*) it proves that there is only one God.

(*b*) if the so called civilized man refuses to accept the preciousness of the nature and its web of life—he will suffocate in his own waste.

(*c*) the talking wires can spin disaster.

(*d*) that all species are important.

118. The passage proves that:

(*a*) the natives are emotional.

(*b*) the whites—the civilized ones are very advanced.

(*c*) the natives are more enlightened than the educated and civilized.

(*d*) None of the above.

119. The passage:

(*a*) brings out the eternal truth for consideration of the civilized.

(*b*) questions the wisdom of the civilized and urges them to live a primitive life.

(*c*) expresses the agony of the visionary.

(*d*) bemoans a great tragedy in the making.

120. The passage is very profound that the mist, the crest, the body heat of the pony, the sap, the murmur of the rivers, the air, the breath, the horse, the buffaloes all are strands of life on earth and are equally important and man needs to respect the mother earth.

(*a*) The above assertion is not fully true.

(*b*) The above assertion is 100% true.

(*c*) The above assertion is nothing but figment of imagination.

(*d*) The above is philosophical and on the material plane it is impractical to accept.

Directions (Qs. 121 to 140): Read the questions clearly and choose the most appropriate answer from the alternatives given below:

Q. 121-122

121. Consider an object on the XY plane, with point P on the object at coordinates (m, n). If this object is rotated 90° counterclockwise about the origin, what will be the new co-ordinates of point P.
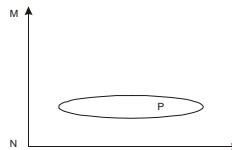
(*a*) m, n　　　(*b*) – m, n　　　(*c*) – n, m　　　(*d*) – m, – n

122. If the object is rotated 90° clockwise around point P, the new coordinates of point P will be:

(*a*) m, n　　　(*b*) – m, n　　　(*c*) – n, –m　　　(*d*) – m, – n

123. Consider two friends travelling perfectly alongside each other. One of them is riding a motorcycle with a wheel diameter of 2.5 ft. The other is riding a scooter with a wheel diameter of 1.5 ft. As they start to travel uphill, the person on the motorcycle notices that the speed as indicated on his speedometer has dropped from 50 kmph to 45 kmph. Given that these speedmeters work by computing the number of revolutions per second of the front wheel, what will be the reading on the speedometer of the scooter that is travelling alongside him?

(*a*) 75　　　(*b*) 27　　　(*c*) 45　　　(*d*) 50

Q. 124-125.

124. You notice a glass of water with a large ice-cube floating on it. If the mass of water in the ice is 96 gm and the mass of water (temperature —approx 4 degrees C in the glass is also 96 gm, and if volume of water at 4°C is 1.04 times lower than the volume of water at 0°C), the following can be construed:

(*a*) The ice is heavier and denser than the water

(*b*) The ice is lighter but denser than the water

(*c*) The water is denser but no lighter than the ice

(*d*) The water is heavier but no denser than the ice

125. If the ice melts into the water and the overall system temperature stabilizes at 0°, the total mass of water in the glass will be:

(*a*) 192 gm　　(*b*) 200 gm　　(*c*) 208 gm　　(*d*) 96 gm

126. If a torroid (ring shaped or doughnut shaped) magnet of soft iron is heated:

(*a*) The outer diameter will increase but the inner diameter will decrease

(*b*) The outer diameter and the inner diameter will both increase

(*c*) Cannot be said—Result depends on the expansion/contraction properties of soft iron

(*d*) Cannot be said—Result depends on the ratio of inner diameter to outer diameter

127. We have two glasses, Glass A containing 100 cc of milk and Glass B containing 100 cc of water. If we take 10 cc of water from the Glass B and pour it into the Glass A of milk and stir it completely. Then we take 10 cc of the mixture of milk and water from Glass A and pour it back into the Glass B of water and mix it up completely, the following can be concluded:

(*a*) The percentage of milk in the mixture in Glass A is HIGHER than the percentage of water in the mixture in Glass B

(*b*) The percentage of milk in the mixture in Glass A is LOWER than the percentage of water in the mixture in Glass B

(*c*) Not enough information to determine the outcome

(*d*) None of the above

128. You have four different pairs of socks all mixed up in a chest of drawers. You run up to your room and are just about to open the drawers when the light bulb blows. Not having enough time to replace the light bulb, you decide to take a number of socks out. The minimum number of socks (single socks) that you need to take to find a matching pair is:

(*a*) 2　　　(*b*) 3　　　(*c*) 4　　　(*d*) 5

129. If all odd colours are blue and all even colours are yellow, then by adding blue to yellow you will get:

(*a*) green　　(*b*) yellow　　(*c*) blue　　(*d*) purple

130. In the certain code "conglomeration" is written as

molgnocnoitare. How would **Stratification** be written in that code?

(*a*) Tartsnoitacifi   (*b*) Ifitartsnoitac

(*c*) Fitartsnoitaci   (*d*) Cifitartsnoita

131. If **"Washington"** is 28, 6, 24, 13, 14, 19, 12, 25, 20, 19 **"Infotechpark"** will be:

(*a*) 15, 20, 12, 21, 27, 11, 09, 14, 22, 07, 24, 17

(*b*) 13, 18, 10, 19, 25, 09, 07, 12, 20, 05, 22, 15

(*c*) 14, 19, 11, 20, 26, 10, 08, 13, 21, 06, 23, 16

(*d*) 16, 21, 13, 22, 28, 12, 10, 15, 23, 08, 25, 18

132. Which two letters would come next **A D E F I J K N O P - -**

(*a*) QR   (*b*) RS   (*c*) ST   (*d*) TU

133. Four girls are sitting in a circle P, Q, R, S in the same order. Which of the following necessarily follows in the circumstances?

(*a*) P is to the left of R   (*b*) S is to the right of R

(*c*) P and S face each other   (*d*) All the above

134. If P × Q means is "P is brother of B", and P + Q means "P is the father of Q" which of the following means "C is the nephew of D".

(*a*) D × Z + C   (*b*) C × Z + D

(*c*) D + C × Z   (*d*) Data inadequate

135. The ages of Praveen and Shivani are in the ratio of 3 : 5. After 9 years the ratio of their ages will become 3 : 4. The present age of Shivani in years is:

(*a*) 24   (*b*) 18   (*c*) 15   (*d*) 24

136. A snail is at the bottom of a 20 meters deep pit. Each day the snail climbs 5 meters upwards, but at night it slides 4 meters back downwards. How many days does it take the snail to reach the top of the pit?

(*a*) 15   (*b*) 16   (*c*) 17   (*d*) 18

137. A cube on whose sides letters have been written is shown below in different positions. The missing letter is:

(*a*) C   (*b*) N   (*c*) T   (*d*) Y

138. If all monkeys are donkeys and some donkeys are hippopotamus which of the following can be definitely concluded?

(*a*) No monkey can be a hippopotamus

(*b*) All donkeys are monkeys

(*c*) Some hippopotamus are donkeys

(*d*) No conclusion can be made

139. How many 9's are there in the following number sequence which are immediately preceded by 3 but not immediately followed by 4:

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

(*a*) 3   (*b*) 2   (*c*) 1   (*d*) 4

140. Find out the missing number from the given series:

32, 27, 30, 29, ..., 31, 26, 33

(*a*) 24   (*b*) 26   (*c*) 28   (*d*) 30

SECTION—IV

Instructions: (Qs. 141 to 155): Every question given below consists of a paragraph, which is broken into its constituent sentences in an arbitrary way indicated with a unique alphabet (a, b, c, or d). You are required to select the correct combination from the alternatives provided, that OPTION, which re-organizes these sentences into a passage in the most logical manner so that the re-organized passage, is meaningful and complete, in its message.

141. (*a*) It is attractive to the one who is attracted by it. As food is tasty to the one who finds it tasty.

(*b*) There is no such thing as attractiveness.

(*c*) So what is real beauty?

(*d*) This brings us to the consideration of the fact that nothing in these terms of value exists in an object, except what we put into them.

(*a*) abcd   (*b*) cbad   (*c*) cabd   (*d*) bcda

142. (*a*) The credit and honour that go with a high grade become the end and not the means.

(*b*) Perhaps many high achievers seek the grade rather than the knowledge.

(*c*) This trait which makes for a good student does not necessarily make a good manager.

(*d*) A good manager is a credit giver, not a credit taker.

(*a*) abdc   (*b*) bacd   (*c*) cabd   (*d*) adbc

143. (*a*) Since their satisfaction comes from the exercise of authority, they are not likely to share much of it with lower-level managers who eventually will replace them even though most high-level executives try diligently to avoid the appearance of being authoritarian.

(*b*) But to expect otherwise is not realistic.

(*c*) Few men who strive hard to gain and hold positions of power can be expected to be permissive particularly if their authority is challenged.

(*d*) The power drive that carries men to the top also accounts for their tendency to use authoritative rather than consultative or participative methods of management.

(*a*) abcd   (*b*) cadb   (*c*) dbca   (*d*) cdab

144. (*a*) The modern industrial organization has given birth to a few giant business corporations, which tend to reduce the state to a subservient position and bind it to what Professor Galbraith calls a technostructure consisting of specialists, planners and technicians.

(*b*) In order to avoid the perils of such an industrial system the American economist recommends the strong assertion of "other goals" so that the new industrial state would become responsive to the larger purposes of the society.

(*c*) We have to realise without equivocation that the pursuit of material prosperity alone, would lead us into a blind valley.

(*d*) These "goals" could doubtless be essentially human and spiritual in accordance with Gandhiji's ideal and programs.

(*a*) acbd   (*b*) cbad   (*c*) cabd   (*d*) cdab

145. (*a*) Many relationship problems between boss and subordinate occur because the boss fails to make clear how he plans to use his authority.

(*b*) Problems may occur when the boss uses a "democratic" facade to conceal the fact that he has already made a decision which he hopes the group will accept as its own.

(*c*) If, for example, he actually intends to make a certain decision himself, but the subordinate groups gets the impression that he has delegated this authority. Considerable confusion and resentment are likely to follow.

(*d*) We believe that it is highly important or the manager to be honest and clear in describing what authority he is keeping and what role he is asking his subordinates to assume in sowing a particular problem.

(*a*) abcd   (*b*) acbd   (*c*) dabc   (*d*) dbca

146. (*a*) One proposal, therefore, is to introduce plea-bargaining.

(*b*) Reformers hope that this alone will reduce the prison population by about 35% and prevent jails becoming universities of crime for the merely wayward.

(*c*) At the moment, the weakest and poorest always got to prison for the pettiest of crimes, sent there by judges wedded to inflexible interpretation of a convoluted penal code and procedure bound juridical administration.

(*d*) Judges will be given alternatives to prison such as community service, as a punishment for the minor infractions.

(*a*) abcd   (*b*) cabd   (*c*) cadb   (*d*) cdab

147. (*a*) Many of our youth felt that their homes had protected them against facing their emotional weaknesses.

(*b*) By excluding contact with peers the homes had given them a very narrow base for relationships.

(*c*) The parents in a self-centred way had mortgaged their growth and social maturity to the role of "achieving son" alone with their shortsighted view of growth.

(*d*) In the achievement-oriented environment there was little scope for the youth to experiment with themselves and their emotions.

(*a*) dabc   (*b*) acbd   (*c*) cdba   (*d*) cdab

148. (*a*) Achievement was a bargain for acceptance.

(*b*) The fear of losing status and significance by even a slight fall in academic performance raised storms of guilt, anxiety and self-condemnation.

(*c*) The primacy of academic achievement to the exclusion of all other significant aspects of socialization and its linking up with the sense of self-worth, in retrospect, created a very strong sense of being controlled.

(*d*) This acted as a constant eroding factor against the sense of self-worth, adequacy and security being built by the positive overt stream and naturally resentment against control and guilt against performance became a way of life.

(*a*) abcd   (*b*) cdba   (*c*) cdab   (*d*) cabd

149. (*a*) In general, the youth learnt to be there where they were not expected.

(*b*) Peers ridiculed serious academic commitment and it was considered better if you appeared casual about studies, talked of boredom, made fun of the teachers and yet managed to get a good grade.

(*c*) Basically one needed to create an impression that he only needed to use part of his intelligence to make through the college.

(*d*) To display this de-emphasis on academics, the peer culture provided opportunities for sparing, hanging around the cafeterias, cutting classes and going to see films.

(*a*) abcd   (*b*) bdca   (*c*) bcda   (*d*) cbda

150. (*a*) The need of this hour is not territory, gold mines, railroads, or specie payments but a new evangel of womanhood, to exalt purity, virtue, morality, true religion, to lift man up into the higher realms of thought and action.

(*b*) Man has been moulding woman to his ideas by direct and positive influences, while she, if not a negation, has used indirect means to control him, and in most cases developed the very characteristics both in him and herself that needed repression.

(*c*) And now man himself stands appalled at the results of his own excesses, and mourns in bitterness that flasehood, selfishness, and violence are the law of life.

(*d*) We ask woman's enfranchisement, as the first step toward the recognition of that essential element in government that can only secure the health, strength, and prosperity of the nation and whatever is done to lift woman to her true position will help to usher in a new day of peace and perfection for the race.

(*a*) abcd   (*b*) dabc   (*c*) abdc   (*d*) bcad

151. (*a*) If the civilization of the age calls for an extension of the suffrage, surely a government of the most virtuous educated men and women would better represent the whole and protect the interests of all than could the representation of either sex alone.

(*b*) With violence and disturbance in the natural world, we see a constant effort to maintain equilibrium of forces.

(*c*) Nature, like a loving mother, is ever trying to keep land and sea, mountain and valley, each in its place, to hush the angry winds and waves, balance the extremes of heat and cold, of rain and drought, that peace, harmony, and beauty may reign supreme.

(*d*) There is a striking analogy between matter and mind, and the present disorganization of society warns us that in the dethronement of woman we have let loose the elements of violence and ruin that she only has the power to curb.

(*a*) bcda   (*b*) dabc   (*c*) cdba   (*d*) abcd

152. (*a*) It is a sign of the health and wholeness of India's spiritual genius that the advent of religious traditions resulted in spiritual ferments and the revitalization of an already multifarious spiritual heritage.

(*b*) When the Western Hemisphere was busy coercing conformity and suppressing free thinking as heresy, the Sufi saints were wandering freely in the garden of truth and to us, the domain of the Spirit, as Swami Vivekananda argues, has been a sphere of pure freedom; Indian spirituality is an inspired protest against confining God to places of worship.

(*c*) In other cultures, the arrival of extraneous religious traditions activated negative reactions of insecurity and intolerance

(*d*) The spiritual marriage of Hinduism and Islam, powered by Persian mysticism, gave rise to a philosophy of dissent inspiringly captured, among others, by Kabir. Christianity, which arrived in South India in A.D. 52, long before Europe heard the Gospel, touched and was touched by the soul of India.

(*a*) abcd   (*b*) dcab   (*c*) dabc   (*d*) bacd

153. (*a*) The face saving formula was the promise to consider grievances and demands when opportune, something which the employees were offered before they struck work.

(*b*) However, can popular opinion against unjust, frivolous strikes, now authenticated and sanctified by the judiciary, prevail and won't the wily politicians find some way to wriggle out of the constraints of the verdict, as they have found, in other instances?

(*c*) The verdict against strikes by government employees was also greeted by a fair section of the public as a deserving retort to the bureaucracy's and trade unions' wayward and insensitive ways.

(*d*) Whereas the recent strike in Tamil Nadu was decimated by administrative belligerence, that in Kerala last year fizzled out after a month for want of people's support and because of an unheeding executive.

(*a*) abcd   (*b*) bacd   (*c*) dabc   (*d*) cdab

154. (*a*) We need to look at the civilization of India according to geographical and ecological imperatives that are far more certain than historical speculation conditioned by simplistic ideas of ethnicity, linguistics or migrations.

(*b*) In this regard the study of the Sarasvati river system by the geologists of India and linking it to the Sarasvati river as lauded in Vedic literature is probably the key.

(*c*) Civilisation is like a plant that owes its existence to the land on which it grows.

(*d*) We cannot ignore this important fact either for our past or for our future and therefore the current government of India plan to link all the great rivers of the country represents such a responsible ecological approach which, including reconstituting the old Sarasvati river channel, links the great future of the country with its great past.

(*a*) abcd   (*b*) bacd   (*c*) cabd   (*d*) adcb

155. (*a*) The rich should now live in the ever-present threat of the poor resorting to illogical methods to get even with them. The poor, on the other hand, have to live a hand-to-mouth existence, and on many nights have to go to bed with empty stomachs.

(*b*) Their leaders, politicians, corporate heads and the common investors never realized that this prosperity (or its illusion) is only limited to a microscopic minority of people in this world, and to an ever smaller number of people even inside the U.S.!

(*c*) This had created a widening gulf between the haves and the have-nots in this world and this gulf is at the root of all human ills, including terrorism.

(*d*) The American public, and to a lesser degree the people in the "so-called" developed first world, were continually fed with the idea that their "new world order" and their "new economy" would keep on growing bringing prosperity for ever.

(*a*) abcd   (*b*) dbca   (*c*) acab   (*d*) acdb

Instructions (Qs. 156 to 170): Every question given below consists of a sentence the constituent words/phrases of which are arranged in an arbitrary way. Each separated phrase/set of words is indicated by an unique alphabet. You are required to select from the alternatives provided, that OPTION, which re-organizes the phrases/set of, words back into the original sentence.

156. (*a*) Surprising many in the audience by its shortness and leaving many others quite unimpressed.

(*b*) he spoke in his high, penetrating voice

(*c*) and in a little over two minutes

(*d*) delivered this speech

(*a*) abcd   (*b*) bacd   (*c*) bcda   (*d*) abdc

157. (*a*) the world will little note,

(*b*) what we say here,

(*c*) nor long remember

(*d*) but it can never forget what they did here

(*a*) acbd   (*b*) bacd   (*c*) abcd   (*d*) adcb

158. (*a*) primarily this is because

(*b*) the rulers of the exchange of mankind's goods have failed,

(*c*) through their own stubbornness and their own incompetence,

(*d*) have admitted their failure, and abdicated.

(*a*) bacd   (*b*) abcd   (*c*) dcab   (*d*) acdb

159. (*a*) a corporation must identify its best and worst performers.

(*b*) then nurture the former and rehabilitate and/or discard the latter

(*c*) that in order to develop and thrive

(*d*) it is a workforce-management tool based on the premise

(*a*) dbca   (*b*) dcab   (*c*) dabc   (*d*) abcd

160. (*a*) in our anger against conspiring tyrants,

(*b*) let us be ardent and obstinate

(*c*) imperturbable in dangers,

(*d*) patient in labours, terrible in striking back, modest and vigilant in successes

(*a*) bacd   (*b*) acbd   (*c*) bcad   (*d*) abcd

161. (*a*) to associate it with their crimes,

(*b*) if they are able no longer to disfigure Divinity by superstition,

(*c*) so that they may reign there alone with crime.

(*d*) they try to banish it from the earth,

(*a*) bdac   (*b*) bcda   (*c*) abcd   (*d*) badc

162. (*a*) but the greatness comes and you are really tested, when you take some knocks, some disappointments, when sadness comes.

(*b*) because only if you have been in the deepest valley

(*c*) can you ever know how magnificent it is to be on the highest mountain.

(*d*) it must always sustain us, because the greatness comes not when things go always good for you,

(*a*) dbac   (*b*) dbca   (*c*) dabc   (*d*) dacb

163. (*a*) we must ensure that knowledge prevails over the evil of illiteracy

(*b*) and the light of education dispels the darkness of ignorance

(*c*) instead of mere pomp and show

(*d*) associated with these festivals,

(*a*) abcd   (*b*) cbda   (*c*) cabd   (*d*) cdab

164. (*a*) great movements of people in America

(*b*) have usually been taken freely and,

(*c*) more often than not, resulted in better lives for the transplanted

(*d*) with the exceptions of the African slave trade and the forced marches of the Indians

(*a*) dabc   (*b*) dbca   (*c*) abcd   (*d*) adbc

165. (*a*) a straightforward storyteller admired by undergraduates

(*b*) rather than a profound intellectual who probed the human psyche.

(*c*) as less profound and more superficial than the other two,

(*d*) some critics have sought to dismiss him

(*a*) abdc   (*b*) dcba   (*c*) dcab   (*d*) abcd

166. (*a*) the violence in the fairy tale, besides adding to the story value and creating a dramatic impact

(*b*) is today even seen as beneficial for the child

(*c*) set in old world kingdoms, forests and fiefdoms

(*d*) and peopled with evil giants, cruel stepmothers, wicked wolves and of course little children

(*a*) abcd   (*b*) acdb   (*c*) cadb   (*d*) cdab

167. (*a*) despite the handicap of foreign birth

(*b*) it was left to Sonia Gandhi to establish

(*c*) and draw crowds

(*d*) that proximity to dynasty is enough to propel political ambition

(*a*) bdac   (*b*) bdca   (*c*) abdc   (*d*) acbd

168. (*a*) for the persons who have inflicted violence

(*b*) against the religious minorities in Gujarat,

(*c*) impunity seems probable and accountability seems illusive

(*d*) as in the case of perpetrators of the communal attacks in Mumbai

(*a*) cdab   (*b*) abdc   (*c*) dcab   (*d*) dabc

169. (*a*) along with all other living beings,

(*b*) fortunate or unfortunate, human beings are embedded,

(*c*) in a food chain which is part of evolution

(*d*) whether it is right or not,—

(*a*) abcd   (*b*) bacd   (*c*) dabc   (*d*) dbac

170. (*a*) to the callous exclusion of animal rights

(*b*) how sad that human rights groups,

(*c*) which are otherwise so essential to society,

(*d*) have evolved such a narrow, irrelevant and barbarous conception of human rights

(*a*) bcda   (*b*) bdac   (*c*) bdca   (*d*) adbc

Instructions (Qs. 171 to 180): In the following passage some of the words have been left out, each of which is numbered with the question number. The same numbers are printed below the passage and against each question number four words are suggested. Choose the correct word to fill the blank question number. First read the passage over and try to understand what they are about. Then fill in the blanks with the alternative chosen and mark your answer in the answer sheet.

Passage-I

This finding is very exciting....(**171**)....it means there is a....(**172**)....potential for developing an....(**173**)...vaccine. The amounts of ....(**174**)....that are usually transmitted....(**175**)....semen and blood are quite....(**176**)....much smaller than in....(**177**)....case of the hepatitis B virus....(**178**)....example. If a vaccine....(**179**)....make the body produce....(**180**)....small amounts of antibodies, you wont get infected with the real virus when your meet it.

171. (*a*) although   (*b*) ordinarily   (*c*) though
      (*d*) because

172. (*a*) certain   (*b*) critical   (*c*) real
      (*d*) final

173. (*a*) effective   (*b*) intensive   (*c*) enduring
      (*d*) acceptable

174. (*a*) virus   (*b*) germs   (*c*) bacteria
      (*d*) microbes

175. (*a*) with   (*b*) in   (*c*) over
      (*d*) for

176. (*a*) a bit   (*b*) a lot   (*c*) little
      (*d*) small

177. (*a*) the   (*b*) some   (*c*) any
      (*d*) that

178. (*a*) an   (*b*) for   (*c*) as
      (*d*) small

179. (*a*) might   (*b*) should   (*c*) will
      (*d*) can

180. (*a*) even   (*b*) some   (*c*) little
      (*d*) enough

SECTION—V

Directions (Qs. 181 to 200): For each question choose the correct/most appropriate answer.

181. WIPRO intends to provide computer training at polytechnics in which State of India?
(*a*) Maharashtra   (*b*) Karnataka
(*c*) West Bengal   (*d*) Bihar

182. Recently India and which other country have agreed to step up their cooperation in areas like biotechnology and school education, and explore new areas for further cooperation like the Golden Rice project:
(*a*) Russia   (*b*) Bangladesh
(*c*) Israel   (*d*) South Africa

183. What is the magnitude of India's defence expenditure as a percentage of her GDP?
(*a*) 1.2%   (*b*) 1.5%   (*c*) 1.8%   (*d*) 2.4%

184. Reliance Industries Ltd has made its 2nd largest gas discovery after the Krishna-Godavari basin in the coal-bed methane exploration block in which part of India?
(*a*) Shahdol (M.P.)   (*b*) Hazaribagh (Jharkhand)
(*c*) Chambal (U.P.)   (*d*) Rourkela (Orissa)

185. Recently ONGC has secured two major projects in which African country for laying a 714-km pipeline and for revamping a refinery:
(*a*) Morocco   (*b*) Libya
(*c*) Egypt   (*d*) Sudan

186. Following a complaint by the Indian Academy of Paediatrics which company has been asked by Drugs Controller General of India (DCGI) to withdraw all advertisements aimed at promoting its hepatitis vaccine?
(*a*) Pfizer   (*b*) Torrent Pharma
(*c*) GlaxoSmithkline   (*d*) Ranbaxy

187. The Supreme Court has recently given a land mark judgement by which the government employees, that including doctors working in the State-run hospitals and dispensaries:

(*a*) have the right—fundamental, legal, moral and equitable—to go on strike.

(*b*) have the right—fundamental, legal, moral and equitable—to go on strike with 20 days prior intimation to the government.

(*c*) have the right—fundamental, legal, moral and equitable—to strike work under certain conditions.

(*d*) have no right—fundamental, legal, moral and equitable—to go on strike.

188. As per the Election and Other Related Laws (Amendment) 2003 Bill, it is proposed that corporates can fund political parties up to____per cent of their net profit?
(*a*) 7%   (*b*) 6%   (*c*) 5%   (*d*) 4%

189. PETA was recently in global news on persuading/forcing:
(*a*) Petroleum companies stop using chamois leather products in petrol pumps
(*b*) General motors to not use leather interiors in cars
(*c*) Daimler Chrysler to withdraw its leather interiors from their Benz cars
(*d*) All the above

190. UNSC West Asia road map envisages:
(*a*) Palestinian State by 2005
(*b*) Secularism and democracy in Lebanon
(*c*) Israel's withdrawal from West Bank
(*d*) A grand road connecting Palestine, Lebanon and Syria

191. As per news report the FDI limit in private banks in India is likely to be raised from the current....per cent to....per cent shortly.
(*a*) 62% to 75%   (*b*) 49% to 74%
(*c*) 51% to 49%   (*d*) 26% to 74%

192. The current rate of inflation latest reported is:
(*a*) 7.4%   (*b*) 6.3%
(*c*) 4.8%   (*d*) 5%

193. The following is no more in the small savings schemes:
(*a*) Kisan Vikas Patra   (*b*) PPF NSS Scheme
(*c*) Post office saving scheme   (*d*) Indira Vikas Patra

194. Biometrics technology is associated with:
(*a*) Identifying individuals by body scan
(*b*) Identifying individuals by fingerprints, voice, eyes etc
(*c*) Technology used in plant tissue culture
(*d*) None of the above

195. Srinidhi Varadarajan was in news recently. He is associated with:
(*a*) Convergence technologies
(*b*) Bio informatics
(*c*) Creation of world's third fastest super computer
(*d*) Japanese Earth Simulator

196. Name the company which has agreed to pay a fine of $ 50 Million for "inadequacy in sales and disclosure practices":
(*a*) DSP Merrill Lynch   (*b*) Morgan Stanley
(*c*) Anderson   (*d*) Enron

197. As per the latest reports, the NPAs of Public sector banks amount to:
(*a*) 7200 Crores   (*b*) 54086 Crores
(*c*) 7232 Crores   (*d*) 4568 Crores

198. Annual Economic Survey and Mid-year Reviews are brought out by:
(*a*) Commerce Ministry   (*b*) Finance Ministry
(*c*) RBI and CII   (*d*) Economic Times

199. India's share of world trade is:
(*a*) 1%   (*b*) 1.26%   (*c*) 0.65%   (*d*) .76%

200. The Frame Work Agreement on Comprehensive Economic co-operation recently signed by Prime Minister is between:
(*a*) India and USA   (*b*) India-ASEAN
(*c*) India and China   (*d*) India and Indonesia

ANSWERS AND EXPLANATIONS

SECTION - I

1. (*a*) This can be solved best by putting conditions into given choices. Clearly, in (*a*), $3^2 = 9$ and $93 - 54 = 39$ (*i.e.* digits get interchanged)

2. (*b*) $x = y = z = 1$ and each ratio $= \dfrac{1}{1 + 1 - 1} = \dfrac{1}{1} = 1$

3. (*c*) Side opposite 30° is 'p'

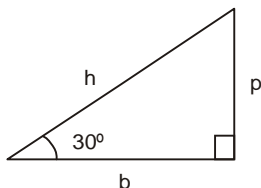$\dfrac{p}{h} = \sin 30° = \dfrac{1}{2}$

$p = h \times \dfrac{1}{2}$

Side opposite 60° is 'b'

$\dfrac{b}{h} = \cos 30° = \dfrac{\sqrt{3}}{2}$

$b = h \times \dfrac{\sqrt{3}}{2}$

Thus, p is $\dfrac{1}{2}$ times of h and b is $\dfrac{\sqrt{3}}{2}$ times of h

4. (*d*) If S is the starting point and T is the terminal point, the position of man can be calculated as follows:
Since TA = CB = 24 and SA = 17 – 10 = 7
$TS^2 = AS^2 + AT^2$ (by Pythagoras' theorem)
$TS^2 = 7^2 + 24^2 = 49 + 576 = 625$
$TS = \sqrt{625} = 25$ km
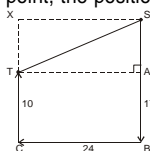
5. (*b*) Let velocity of boat be x and that of water be y, relative to earth
Relative speed of boat and water = x + y
Thus, 3i + 4j = (x) + (i – 3j)
x = 4i + j

6. (*b*) Contradiction will occur when A speaks truth, B speaks lie, or B speaks truth while A speaks lies

$p(A) = \dfrac{3}{4} \to p(\overline{A}) = 1 - \dfrac{3}{4} = \dfrac{1}{4}$

$p(B) = \dfrac{4}{5} \to p(\overline{B}) = 1 - \dfrac{4}{5} = \dfrac{1}{5}$

Required chances or probability = p(A) p($\overline{B}$) + p(B) p($\overline{A}$)

$= \dfrac{3}{4} \times \dfrac{1}{5} + \dfrac{1}{4} \times \dfrac{4}{5}$

$= \dfrac{3}{20} + \dfrac{4}{20} = \dfrac{7}{20}$

$= \dfrac{7}{20} \times 100\% = 35\%$

7. (*b*) For maximum volume of cylinder, h = $\dfrac{R}{2}$ or R = 2h

8. (*c*) The number of ways of selecting a batsman from 4, a bowler from 3 bowlers and an all-rounder from 3 is:
$^4C_1 \times {}^3C_1 \times {}^3C_1$
Total number of 3 selections can be made from 11 in $^{11}C_3$ ways.

Thus, required p $= \dfrac{^4C_1 \times {}^3C_1 \times {}^3C_1}{^{11}C_3} = \dfrac{4 \times 3 \times 3 \times 3 \times 2}{11 \times 10 \times 9}$

$= \dfrac{12}{55}$

9. (*d*) You can understand it like this:

Let centres be X and Y
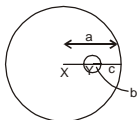
$XY = a - (b + c) = a - b - c$

10. (*c*) Use mid-point theorem and Pythagoras' theorem
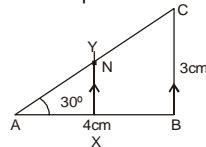
Since XY is parallel to BC and passes mid point of AB, it also passes mid point (N) of AC

Thus, AN = NC = $\dfrac{5}{2}$ = 2.5 cm

(Here, AC = 5 cm from Pythagoras' theorem)

11. (*c*) Since $a^x = b \to \log_a b = x$,
$b^y = c \to \log_b c = y$,
$c^z = a \to \log_c a = z$.

Thus, xyz = $\log_a b \times \log_b c \times \log_c a$

$= \dfrac{\log b}{\log a} \times \dfrac{\log c}{\log b} \times \dfrac{\log a}{\log c} = 1$

12. (*c*) Condition for unique solution is: $\dfrac{a}{a'} \neq \dfrac{b}{b'} \neq \dfrac{c}{c'}$

Thus, $\dfrac{a}{a-b} \neq \dfrac{-(a+b)}{a} \neq \dfrac{1}{5}$

$a^2 \neq -(a^2 - b^2)$

$a^2 \neq -a^2 + b^2$

$2a^2 \neq b^2$

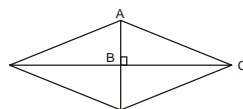$2 \neq \dfrac{b^2}{a^2}$ or $\dfrac{a^2}{b^2} \neq \dfrac{1}{2}$

13. (*b*) Let the number be 10x + y
Sum of digits   x + y
Thus, 9x is divisible by 9

Result = 10x + y – (x + y) = 9x

14. (*d*)

Since diagonals are 10 and 24, AB = 5, BC = 12
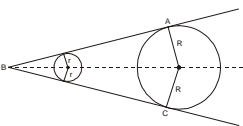In $\triangle$ ABC, $AC^2 = 12^2 + 5^2$
(Pythagoras' theorem)
AC = 13 cm
Thus, perimeter = 13 × 4 = 52 cm

15. (*d*)

The locus will be the dotted line, which is the bisector of given angle ABC

16. (*d*) cos 40° = '+' because 40° lies in 4th quadrant (all positive)
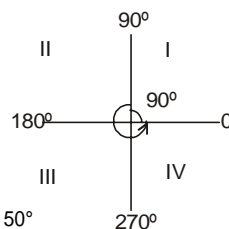cos (–40°) = '+' because – 40° lies in 4th quadrant (cos positive)
cos 320° = '+' because 320° lies in 4th quadrant (cos positive)
cos 140° = '–' because 140° lies in 2nd quadrant (cos negative)
cos (140°) = cos (90° + 50°) = – sin 50°

17. (*d*) Volumes will be as $\dfrac{1}{3}\pi r^2 h : \pi r^2 h : \dfrac{1}{2}\left(\dfrac{4}{3}\pi r^3\right)$
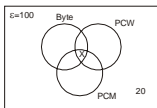
Since h = r, $\dfrac{1}{3}\pi r^3 : \pi r^3 : \dfrac{2}{3}\pi r^3$

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

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

18. (*c*) Use venn diagrams and formula

Let $A \cap B \cap C = x$

$A \cup B \cup C = A + B + C - A \cap B - B \cap C - C \cap A + A \cap B \cap C$

Here, 20 people do not read any magazine

$A \cup B \cup C = 100 - 20 = 80$

Thus, $80 = 48 + 39 + 44 - 17 - 18 - 22 + x$

$x = 6$

Now, only A = 48 − 17 − (22 − 6) = 15

Similarly, only B = 4 + x = 10

and only C = 4 + x = 10

Thus, only 1 magazine readers = 15 + 10 + 10 = 35

19. (*c*) 10 am Tuesday to 10 am Saturday = 4 days = 96 hours

10 am Saturday to 6 pm Saturday = 8 hours

Time gained = 15 seconds × (96 + 8) = 1560 seconds

Converted into minutes = $\dfrac{1560}{60} = 26$ minutes gain

Thus, time shown = 6 pm + 26 mins = 6 : 26 pm

20. (*b*) The hours can be divided into 30° each $\left[\dfrac{360°}{12} = 30°\right]$

Between each hour, there are 5 divisions of minutes

Thus, each minute division $= \dfrac{360°}{60} = 6°$

Consider hour hand:

At 6 : 54, it will be at:

$180° + \dfrac{54}{60} \times 30° = 180° + 27° = 207°$

Consider minute hand:

At 6 : 54, it will be at:

$270° + 30° + \dfrac{4}{5} \times 30° = 324°$

Therefore, angle required = 324° − 207° = 117°

We have given the detailed concepts here. You can increase your speed with practice to arrive at direct answers.

21. (*b*) Let the consecutive odd integers be:

x, x + 2, x + 4, x + 6, x + 8, x + 10

Then, median = middle number = $\dfrac{(x + 4) + (x + 6)}{2} = x + 5$

Since sum of integers is 888

x + x + 2 + x + 4 + x + 6 + x + 8 + x + 10 = 888

x = 143. Median = x + 5 = 143 + 5 = 148

22. (*d*) $1 = \dfrac{3}{4} + \dfrac{3y}{4x} \to 1 - \dfrac{3}{4} = \dfrac{3y}{4x} \to \dfrac{1}{4} = \dfrac{3y}{4x} \to 1 = \dfrac{3y}{x} \to y = \dfrac{x}{3}$

23. (*b*) Area = $l \times b$

$= 40 \times (10 + 20\sqrt{3})$

$= 400 + 800\sqrt{3}$
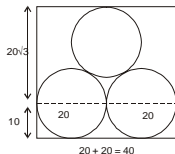
24. (*a*) $x^2 y^3 z < 0 \to (x^2 y^2) yz < 0$

But $x^2 y^2$ cannot be < 0. Thus, $x^2 y^2 > 0$ and yz < 0

(+) (−) = (−) < 0

25. (*b*) Sum of z integers, $S_z = \dfrac{z}{2}[2a + (z − 1)d]$

e.g., S_z for 1st z terms $= \dfrac{z(z + 1)}{2}$

Here $z(z + 1) =$ always (even), but $\dfrac{even}{2} =$ even or odd

Thus, $\dfrac{z(z + 1)}{2} \times 2$ will not solve our purpose

$\dfrac{z(z + 1)}{2} \times 4 \to z$ is multiple of 4

26. (*c*) Since sand = 1 kg = 20% of resulting mix

Total contents = $\dfrac{100\%}{20\%} \times 1\,kg = 5\,kg$

Thus, we have 1 kg sand and 4 kg cement

Let us add 'x' kg sand

Required % = $60 = \dfrac{1 + x}{4 + x} \times 100$

$\dfrac{3}{5} = \dfrac{1 + x}{4 + x} \to x = 3.5\,kg$

27. (*a*) * Assumption: Q = mid point of CD

Angle at centre = 120°

$\widehat{CD} = \dfrac{120°}{360°} \times 2\pi r = \dfrac{1}{3} \times 2 \times \pi \times 12 = 8\pi$

28. (*c*) Required value = Rs 100,000 × $\dfrac{110}{100} \times \dfrac{105}{100} \times \dfrac{90}{100}$

$= 105 \times 99 = Rs\,1,03,950$

29. (*c*) Let the number of tests conducted in the second phase be 'x'

Then, 85% of 100 + 55% of x = 75% of (100 + x)

$85 + \dfrac{11}{20}x = \dfrac{3}{4}(100 + x)$

x = 50, Total = 100 + 50 = 150

30. (*b*) The small lines represent $\dfrac{1}{5}, \dfrac{2}{5}, \dfrac{3}{5}, \dfrac{4}{5}$

The large lines represent $\dfrac{1}{7}, \dfrac{2}{7}, \dfrac{3}{7}, \dfrac{4}{7}, \dfrac{5}{7}, \dfrac{6}{7}$

The close pairs differences are:

$\dfrac{1}{5} - \dfrac{1}{7} = \dfrac{2}{35}, \dfrac{3}{7} - \dfrac{2}{5} = \dfrac{1}{35}, \dfrac{3}{5} - \dfrac{4}{7} = \dfrac{1}{35}$ and $\dfrac{6}{7} - \dfrac{4}{5} = \dfrac{2}{35}$.

Thus, $\dfrac{1}{35}$ is least possible distance

31. (*a*) M = A + 24.

From Ist condition, M + x = 3 (A + x)

A + 24 + x = 3A + 3x → x = 12 (if A = 0 at birth)

From 2nd condition, M + x' = 4(A + x') → x' = 8

Thus, 12 − 8 = 4 years ago

32. (*b*) Prime numbers have only 2 divisors 1 and themselves.

The only such prime number = 7, which satisfies given condition

33. (*c*) You can understand their positions to be like this:
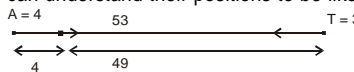
Since after 1 hour, A moves by 4 km

Remaining distance = 53 − 4 = 49

Speed = relative speed = 4 + 3 = 7

Since $t = \dfrac{distance}{speed}$, $t = \dfrac{49}{7} = 7$ hours

Distance moved by T in 7 hours = 7 × speed of T = 7 × 3

$= 21$ km

34. (*b*) Required population = $10^4 \times (4 \times 4 \times 4 \times 4) = 4^4 \times 10^4$

35. (*c*) Since the fastest machines will be those taking least time, we choose machines taking 4 and 5 hours

$\therefore$ WD in 1 hour = $\dfrac{1}{4} + \dfrac{1}{5} = \dfrac{9}{20}$

36. (*d*) Since x = y is perpendicular bisector of AB, B is reflection of A

Thus, B = (− 3, − 4)

Similarly, since BC is bisected by x-axis, C is reflection of B on x-axis as mirror
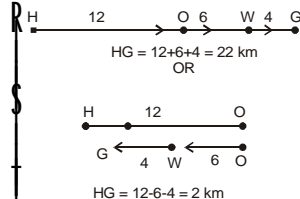
x - axis Thus, C = (–3, 4)

37. (*d*) The 2 possibilities can be:
Thus, x lies between 2 and 22 km

H $\rightarrow$ home

O $\rightarrow$ office

W $\rightarrow$ wife's office

G $\rightarrow$ gymnasium

H   12   O 6   W 4   G
HG = 12+6+4 = 22 km
OR

H   12   O
G   4   W   6   O
HG = 12−6−4 = 2 km

38. (*d*) 126

39. (*d*) Let the money given be (xy) and that actually given be yx
Then, (10x + y) − (10y + x) = 54

$9(x - y) = 54$

$x - y = 6$

Either (*b*) or (*d*)

Since xy > yx, and 71 > 17 $\rightarrow$ 17 should be given

40. (*c*) Since probability for each toss is an independent event, the probability for 6th toss remains same as for single throw.

Required p = $\dfrac{1}{2}$ = 50%

SECTION—II

41. (*c*) From 1, y = 4x
From 2, y −x = 36   (let x = physics, y = philosophy)
Put y = 4x in 2nd equation
4x − x = 36
x = 12 and y = 48

42. (*b*) $A^2 = 12^2 + 5^2 = 144 + 25 = 169$
$A = \sqrt{169} = 13$ $\rightarrow$ integer

43. (*c*) From 1 and 2,
5w + 20 + 3w = 180° (because these angles form 180° straight line)
i.e. Y + Z = 180°. Thus, 8w = 160°, or w = 20°
Y = 5w + 20° = 5 × 20° + 20° = 120°,   Z = 3w = 60°
Again Z and 4x form a linear pair of 180° $\therefore$ Z + 4x = 180°
4x = 120° or x = 30°

44. (***) None of the given option follows
You can get the answer from either of (1) or (2)
Consider the following examples:

$\dfrac{3}{3} = 1$ (odd), $\dfrac{6}{3} = 2$ (even), $\dfrac{9}{3} = 3$ (odd), $\dfrac{12}{3} = 4$ (even)

Thus, $\dfrac{odd}{3} =$ odd and $\dfrac{even}{3} =$ even

If $\dfrac{X}{3}$ is odd, then X is odd

3 × 1 = 3 $\rightarrow$ odd, 3 × 2 = 6 $\rightarrow$ even, 3 × 3 = 9 $\rightarrow$ odd, etc.

Thus, 3 × odd = odd and 3 × even = even
If 3X is odd, then X is odd
So, either of (1) or (2) alone are sufficient to answer.

45. (*b*) c = $(1 - \dfrac{1}{6} - \dfrac{5}{12})$ of 500 ml = 291.67 ml

46. (*a*) Average = $\dfrac{a + b + c + d}{4} = 22$

$a + b + c + d = 88$

From 1, d = 3 $\left[\dfrac{a + b + c}{3}\right]$ $\rightarrow$ greatest

From 2, b = 2a, c = 3a, etc $\rightarrow$ no need

47. (*b*) Since 10A + B = 87
A = 8, B = 7 ($\because$ 80 + 7 = 87)
Thus, Y = 2 ($\because$ 5 + Y = 7) and X = 6 ($\because$ X + 2 = 8)

48. (*b*) From 2, n = $\dfrac{D}{2\pi r} = \dfrac{1000}{2 \times 3.14 \times 0.3}$

(1) is not required

49. (***) None of the given choices follows. You can get the answer from either of (1) alone or (2) alone.
From (1), ab = − 12
$ab^2 = 36$ On dividing, $\dfrac{ab^2}{ab} = \dfrac{36}{-12}$

b = 3, a = −4

From (2), ab = − 12,
a − b = 7   a = − 4, b = 3

50. (*d*) More data is needed

51. (*d*) From (2), 20 males $\cong$ 30%

Total males (100%) = $\dfrac{100}{30} \times 20 \cong 67$

From (1), $\dfrac{1}{3}$ of 60% females recommended

But number of females is not known
Thus, no conclusion

52. (*c*) Let adm : prod = x : y
From (1), Adm staff = 80% of production staff

$\dfrac{\text{adm staff}}{\text{prod staff}} = \dfrac{80}{100} = \dfrac{4}{5}$

$\dfrac{x + \dfrac{12}{100}x}{y + \dfrac{20}{100}y} = \dfrac{4}{5}$

From (2), y = x + 40

Put y in (1), $\dfrac{x + \dfrac{12}{100}x}{(x + 40) + \dfrac{20}{100}(x + 40)} = \dfrac{4}{5}$

x = 240, y = 280

53. (*a*) From (1), Sheetal was born in 1975 + 3.5 years = 1978
From (2), No positive information

54. (*c*) (*) from (1), $2^{\sqrt{x}} = 4$
We know that $2^2 = 4$ Comparing, $\sqrt{x} = 2$
From (2), $\dfrac{1}{4^x} < 0.01$ *i.e.* $\dfrac{1}{4^x} < \dfrac{1}{100}$ x = 4   *i.e.* $\dfrac{1}{4^x} < \dfrac{1}{10^2}$

$4^x > 10^2$
x = 4   ($\because 4^1 = 4, 4^2 = 16, 4^3 = 64, 4^4 = 256$)
$\therefore 2^x = 2^4 = 16$
and 16 < 100   Answer: No, 2^x is less than 100
(*) You can answer using (1) alone or (2) alone

55. (*d*) Required figures in Jan-Feb-March, 2002 are:

$$72.4 \times \frac{100}{145}, \ 54.7 \times \frac{100}{98}, \ 112.3 \times \frac{100}{398}, \ 48.9 \times \frac{100}{73}$$

i.e. 50, 56, 28 and 67 approximately
67 is greatest → Consulting Services, Ans.

56. (*c*) * For the next 10 questions, keep in mind the following important points:
   (*a*) average gross profit = 33.33% of sales
      (see para 2, last line)
   (*b*) Until 2001, each software sold together with 1 hardware (*i.e.* x, x in numbers)
   (*c*) Hardware G.P. → gross profit margin on hardware prices
   (*d*) Software, hardware price → sales price (S.P.)

   Since no. of software units = no. of hardwares (say x)

   No. of units (x) in 1992 = $\dfrac{4,320,000}{140,000 + 150,000} = 12$

   In 1993 = $\dfrac{5,760,000}{150,000 + 170,000} = \dfrac{576}{32} = 18$

   In 1994 = $\dfrac{8,100,000}{180,000 + 12,000} = \dfrac{810}{30} = 27$

   In 1995 = $\dfrac{988}{18 + 8} = 38$

   In 1996 = $\dfrac{126}{3} = 42$

   In 1997 = $\dfrac{1200}{25} = 48$

   In 1998 = $\dfrac{128}{2} = 64$

   In 1999 = $\dfrac{7560}{210} = 36$

   i.e. increase till 1998 and fall in 1999 → (*c*)

57. (*c*) From above solutions = 36 (in 1999)
58. (*b*) Average % profit for hardware and software ≅ 28%
59. (*d*) Average gross profit = $33\frac{1}{3}$% of sales and hardware GP also at profit
60. (*b*) Hardware GP = 4% sales and total = 33.3% of sales
   Software GP ≅ 33.3 – 4 = 29% ≅ 2 million
61. (*b*) GP per unit hardware = $\dfrac{22\% \text{ of Rs } 220,000}{\text{No. of units}} \cong \text{Rs } 40,000$

62. (*a*) In 1992, $\dfrac{1}{3} \times 140,000 \cong \dfrac{22}{100} \times 220,000$

   4.2 ≅ 4.8
63. (*d*) In 1999, n = 36, *i.e.* 36 < 64 (of 1998)
64. (*a*) $\dfrac{22}{100} \times 220,000$

65. (*d*) In 2000, % profit = 4%
   * % profit on each unit and on all units remains same.
66. (*b*) From (935) → (1408)
67. (*d*) Required % = $\dfrac{91.15 - 45.57}{45.57} \times 100 \cong 100\%$

   * (Roughly also, it doubles from 46 to 91).
68. (*d*) Approximate % ≅ $\dfrac{61,000}{70,000} \times 100 \cong 88\%$

69. (*a*) 915974 + 284917 = 1200891
70. (*d*) Increase in metered connection ≅ $\dfrac{854 - 826}{826} \times 100 = 3\%$

   Increase in unmetered connections ≅ $\dfrac{316 - 311}{311} \times 100 = 1\%$

71. (*c*) India : $\dfrac{944,580,000}{3,287,590} = 287$

   China : $\dfrac{1,232,083,000}{9,596,961} = 128$

   It exceeds by 287 – 128 = 159

   ∴ No of times = $\dfrac{159}{128} = 1.25$ (approx.)

72. (*d*) Required % ≅ $\dfrac{30}{58} \times 100$ (approximated figures from 2,928,142

   and 5,767,433)

   = 50.7%
73. (*b*)   453398   >   108028
   (48% of 944580) (Total of 3 countries)
74. (*a*) Per capita expenditure = $\dfrac{3.1\% \text{ of GNP}}{\text{Population}}$

   = $\dfrac{\dfrac{3.1}{100} \times 10^9}{22021 \times 1000} = \$ \ 1.36$

75. (*d*) $\dfrac{5,767,443 \times 1000}{135,604,354} \cong 42.2$

76. (*b*) Required proportion ≅ $\dfrac{(324 + 208) \times 10^3}{(708) \times 10^3} \cong 75\%$

77. (*a*) Total migrant population ≅ $(5040 + 708) \times 10^3 \cong 5748 \times 10^3$
   5% of this ≅ 290×10^3 → Technical Degree and Diploma
   i.e. $(156 + 117 + 17 + 1) \times 10^3$
78. (*d*) 1991: (669,897 + 37,823) } % Increase
   ≅ 70 × (10)^4 = $\dfrac{(157 - 70) \times 10^4}{70 \times 10^4} \times 100$

   2001: $\dfrac{20}{100} \times 785 \times (10)^4$ % Increase > 100%

   ≅ 157 × 10^4
79. (*b*) Required % ≅ $\dfrac{708 \times 10^3}{(5040 + 708) \times 10^3} \cong 12.3\%$

80. (*c*) Growth rate

   ≅ $\dfrac{(6,839,804 + 1,008,206) - (5,040,307 + 707,867)}{(5,040,307 + 707,867)} \times 100$

   ≅ $\dfrac{(785 - 575) \times 10^4}{(575 \times 10^4)} \times 100$

   ≅ $\dfrac{210}{575} \times 100$ *i.e.* ≅ 36%

   Growth rate per year ≅ 3.0%

SECTION—III
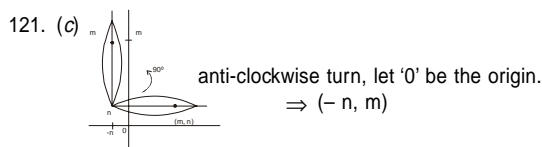81. (*d*) .... this is the author's realisation.
82. (*c*)
83. (*d*) ... on return of consciousness to identify the self.

84. (*a*) ... my mind was too much noisy ... that I could not even be aware.
85. (*a*) ... seeking someone to provide the happiness → one should put in own efforts.
86. (*c*) ... efforts to seek.
87. (*b*) ... to be joyful, one has to get out of the clutches of that mind.
88. (*b*) ... mind creates a fictitious past and ... future.
89. (*a*)
90. (*c*) ... thoughts appear without you being aware of it.
91. (*b*)
92. (*a*) ... achieving a pleasant ... future.
93. (*c*)
94. (*c*)
95. (*b*) ... Atmavidya awakens divinity and this causes respect, etc.
96. (*b*) ... Taming to be used rightly ... at will ... choice.
97. (*d*) ... para 3, (starting sentences).
98. (*a*) ... craving for pleasures ... one perpetuate suffering.
99. (*d*) ... para 3, end lines.
100. (*c*) ... para 4 and 5.
101. (*a*) ... para 4

102. (*d*)	103. (*d*)	104. (*c*)	105. (*c*)	106. (*a*)
107. (*a*)	108. (*b*)	109. (*c*)	110. (*b*)	111. (*b*)
112. (*b*)	113. (*b*)	114. (*a*)	115. (*c*)	116. (*a*)
117. (*b*)	118. (*c*)	119. (*a*)	120. (*a*)	

121. (*c*)

anti-clockwise turn, let '0' be the origin.
$$\Rightarrow (-n, m)$$

122. (*c*) Similarly (as above), $(-n, -m)$.
123. (*c*) * question details create doubts for a lengthy solution.
Hint: "alongside" means same speed → 45 km/hr

124. (*a*) $\dfrac{\text{Density}}{(D)} = \dfrac{\text{Mass}}{\text{Volume}} \rightarrow D_1 (\text{ice}) = \dfrac{96}{V}, D_2 (\text{Water}) = \dfrac{96}{V'}$

Since $V' < V$ (by 1.04 times) $\rightarrow D_2 > D_1$

Water is denser, but not lighter (since ice floats on water).

125. (*a*) 96 + 96 = 192 gm
* If it is mentioned that glass is full initially, then, the melted ice (water) would flow out and net result = 96 gm (only).

126. (*a*) Expansion will occur on all sides (both inwards and outwards)
Thus, we have:

(Initial Condition)   (Final Condition)
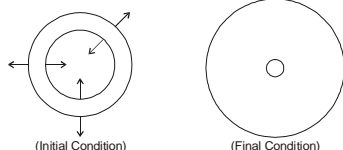
So, inner diameter decreases whereas outer diameter increases.

127. (*b*) Milk : Water in glass A, on pouring 10 ml water = 100 : 10
= 10 : 1

∴ % milk = $\dfrac{10}{11} \times 100 = \dfrac{1000}{11}$ ... (*i*)

Now, 10 ml of this mixture (from A) is poured into B (water)

In 10 ml mixture, milk quantity $= \dfrac{1}{11} \times 10$ ml $= \dfrac{10}{11}$ ml

Water quantity $= \dfrac{10}{11} \times 10$ ml $= \dfrac{100}{11}$ ml

Thus, total water in glass B = 90 ml + $\dfrac{100}{11}$ ml $= \dfrac{990 + 100}{11}$ ml

Total mixture = 100 ml

∴ % water $= \left[\dfrac{\dfrac{1090}{11}}{100} \times 100\right] = \dfrac{1090}{11}$ ... (*ii*)

(2) > (1) *i.e.* % water in B is more
(*) Otherwise also, we poured 10 ml pure milk into A, whereas we poured 10 ml mixture into B
Thus, water in B remains more

128. (*d*) FIVE. After taking 4 socks (even all different), the 5th sock has certainly belong to any one of these 4 pairs

129. (*c*) odd + even = odd → blue

130. (*c*) Total alphabets = 14
Arrange (7 to 1) in reverse order and (14 to 8) in reverse order.

131. (*c*) Position of a = 1 and 1 + 5 = 6. Similarly W = 23, 23 + 5 = 28, etc.

132. (*b*) See the number of gaps.

133. (*b*) They can sit as follows:
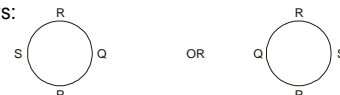
134. (*a*) Put values → D × Z + C = D is brother of Z and Z is father of C
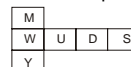

i.e.   Thus, C is nephew of D.

135. (*c*) P : S = 3x : 5x

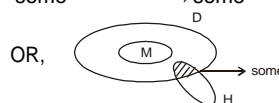∴ After 9 years, $\dfrac{3x + 9}{5x + 9} = \dfrac{3}{4}$

12x + 36 = 15x + 27
x = 3, *i.e.* Shivani = 5x = 15

136. (*b*) Net result of each day = 5 – 4 = 1 m
Thus, in 15 days, net result = 15 m
However, on 16 "day", result = 15m + 5m = 20m
(* don't count the night)

137. (*d*) The cube can be opened and spread out as follows:

Clearly, MWYU are neighbours.

138. (*c*) some $\xrightarrow{\text{inversion}}$ some

OR,

139. (*d*)

140. (*c*) There are 2 series: 32, 30, 28, 26 (–2 each time)
and 27, 29, 31, 33 (+2 each time)

SECTION—IV

141. (*b*)	142. (*b*)	143. (*b*)	144. (*c*)	145. (*c*)
146. (*d*)	147. (*d*)	148. (*d*)	149. (*b*)	150. (*b*)
151. (*a*)	152. (*c*)	153. (*c*)	154. (*c*)	155. (*b*)
156. (*c*)	157. (*a*)	158. (*b*)	159. (*b*)	160. (*b*)
161. (*a*)	162. (*c*)	163. (*d*)	164. (*c*)	165. (*c*)
166. (*d*)	167. (*c*)	168. (*a*)	169. (*d*)	170. (*a*)
171. (*d*)	172. (*a*)	173. (*a*)	174. (a)	175. (*a*)
176. (*d*)	177. (*a*)	178. (*b*)	179. (*d*)	180. (*a*)

SECTION—IV

181. (*b*)	182. (*c*)	183. (*d*)	184. (*a*)	185. (*c*)
186. (*d*)	187. (*d*)	188. (*c*)	189. (*d*)	190. (*c*)
191. (*b*)	192. (*b*)	193. (*d*)	194. (*b*)	195. (*c*)
196. (*c*)	197. (*b*)	198. (c)	199. (*c*)	200. (*c*)