ICET - 2005 PAPER

(BASED ON STUDENTS MEMORY)

Time : 2 Hours] **[Max. Marks : 200**

SECTION - A
ANALYTICAL ABILITY

Questions : 75] **[Marks : 75**

I) DATA SUFFICIENCY :

Note : *In questions numbered 1 to 20, a question is followed by data in the form of two statements labelled as I and II. You must decide whether the data given in the statements are sufficient to answer the questions. Using the data make an appropriate choice from (1) to (4) as per the following guidelines :*

a) Mark choice (1) If the statement I alone is sufficient to answer the question;

b) Mark choice (2) If the statement II alone is sufficient to answer the question;

c) Mark choice (3) If both the statements I and II are sufficient to answer the question but neither statement alone is not sufficient;

d) Mark choice (4) If both the statements I and II together are not sufficient to answer the question and additional data is required.

1. What will be the age of x after 7 years from now?

I) X is 21 years younger than his father ( )

II) His father was 40 years old five years ago

2. What is the value of the non-negative integerx?

I) 2^x is odd II) 3^x is odd

3. What is the area of the circle ? ( )

I) The circle passes through (0, 0) and (0, 2)

II) The circle is fully inscribed in a square of side 8 cm

4. At what speed must the train x be travelling when it is overtaking the train y ? ( )

I) The length of the train x is 200 meters

II) The train y is travelling at a speed of 60km/hr

5. 5 men can complete a piece of work in 10 days. Some boys have joined the work 2 days later. In how many more days will the job be completed?

I) One man can do as much as 2 boys ( )

II) The boys who have joined can do the entire work in 20 days

6. A and B are two positive real numbers. Which of them is greater than the other? ( )

I) $3A - 2B + C = 0$ II) $A + B = C$

7. What is the cost of 4 tables and 6 chairs? ( )

I) One table and one chair cost Rs. 250

II) Two tables and three chairs cost Rs. 800

8. What is the length of the train? ( )

I) It crosses a pole in 8 seconds

II) It crosses a bridge of length 100m in 12 seconds

9. Does a divide b, where a, b and c are positive integers? ( )

I) a divides bc II) c is a prime

10. What is the value of 3^{5n-3}, where n is a positive integer? ( )

I) $3^n = 243$ II) $3^7 = 2187$

11. What is the number of odd positive integers less than x ? ( )

I) $x > 200$ II) Their sum is 1000

12. What is the total salary of A, B and C? ( )

I) A and B have equal salaries each of which is twice the salary of C

II) The salary of C is Rs. 4,000 lessthan that of B

13. If a, b, c are integers, is a + b + c even. ( )

I) a – b + c is even II) a, b, c is even

14. x is a positive integer. Is x divisible by 36? ( )

I) The digit in the units place of x is 2 and the digit in the tens place is odd

II) The sum of all digits in x is divisible by 9

15. What is the value of the expression $4a^2b - \frac{4a^2}{b}$

I) $a = 2$ II) $b^2 = 1$ ( )

16. The area of a rectangle is 12 sq. meters. What is its perimeter? ( )

I) The square of the diagonal of the rectangle is half of the sum of the squares of the sides

II) The length of a side of the rectangle is 4 meters

17. What is the value of $x^2 + y^2$? ( )

I) $(x - 8)^2 + (y + 6)^2 = 0$

II) $(x + 7) + (y - 4) = 0$

18. Is an Assistant's salary more than that of a manager? ( )

I) A Doctor's salary is 40% higher than that of an Assistant

II) The Doctor's salary is Rs. 159 higher than that of a manager

19. m and n are positive integers. Is m greater than n? ( )
I) $m^2 = 81$ II) $m^2 = 36$

20. A boy can swim two miles per hour in still water. What is his speed relative to shore in a river? ( )
I) The river's current flows at three miles per hour.
II) The boy swims in the same direction as the current

II) PROBLEM SOLVING

A) SEQUENCE AND SERIES

Note : In each of the questions numbered 21 to 35 a sequence of numbers or letters that follow a definite pattern is given. Each question has a blank space. This has to be filled by the correct answer from the four given options to complete the sequence without breaking the pattern.

21. 0010, 0011, 0101, ..., 1011 ( )
1) 0001 2) 0111
3) 1010 4) 1111

22. 1, 2, 3, 5, ..., 10, 15, 30 ( )
1) 6 2) 11
3) 7 4) 8

23. AZBY, CXDW, ..., GTHS ( )
1) EXUV 2) EVFU
3) EVRU 4) EVSU

24. 9, 19, 40, ..., 146 ( )
1) 70 2) 59
3) 69 4) 64

25. 7 : 13 : : 21 : ..... ( )
1) 31 2) 27
3) 23 4) 17

26. 8 : 27 : : ..... : 343 ( )
1) 125 2) 216
3) 124 4) 163

27. $11\frac{1}{9}, 12\frac{1}{2}, 14\frac{2}{7}, 16\frac{2}{3}$,..... ( )
1) $18\frac{2}{3}$ 2) $18\frac{2}{7}$
3) $17\frac{1}{6}$ 4) 20

28. 165, 195, ..., 285, 345 ( )
1) 235 2) 245
3) 275 4) 255

29. 09 : 25 : : 49 : ..... ( )
1) 64 2) 81
3) 36 4) 68

30. 13, 29, ..., 125, 253 ( )
1) 49 2) 59
3) 61 4) 72

31. 583 : 283 : : 488 : ..... ( )
1) 387 2) 378
3) 478 4) 368

32. CAT, FDW, IGZ, ... ( )
1) LIC 2) MJC
3) LJB 4) LJC

33. 82 : 122 : : ..... : 226 ( )
1) 154 2) 145
3) 185 4) 170

34. GHD, JEG, MBJ, ... ( )
1) QZM 2) PYM
3) PZM 4) PYN

35. D4V, F6T, ..., J10P ( )
1) K7P 2) L8P
3) H8R 4) H9S

Note : In questions 36 to 45 pick the odd thing out.

36. 1) 65 2) 126 ( )
3) 217 4) 343

37. 1) $\frac{15}{19}$ 2) $\frac{11}{13}$ ( )
3) $\frac{3}{7}$ 4) $\frac{2}{5}$

38. 1) 345 2) 143 ( )
3) 567 4) 789

39. 1) 169 2) 961 ( )
3) 131 4) 625

40. 1) DELM 2) BDIJ ( )
3) GHRS 4) PQAB

41. 1) BFH 2) MQS ( )
3) GJL 4) NRT

42. 1) Planet 2) Satellite ( )
3) Sky 4) Star

43. 1) Bat 2) Eat ( )
3) Fat 4) Pot

44. 1) 697 2) 957 ( )
3) 894 4) 876

45. 1) 96 2) 64 ( )
3) 48 4) 78

B) DATA ANALYSIS

Note : Study the following table carefully and answer the questions 46 to 50.

The following table gives the number of cars of different models A, B, C, D, E manufactured by a company in the years 1996 to 2001.

Type / Year	A	B	C	D	E	Total
1996	18	23	21	12	40	114
1997	20	18	24	14	35	111
1998	18	21	20	18	42	119
1999	22	26	19	21	44	132
2000	25	30	22	25	48	150
2001	28	34	26	30	52	170

46. In what type of cars the percentage of increases is more from 1998 to 1999? ( )
1) B 2) D
3) E 4) A

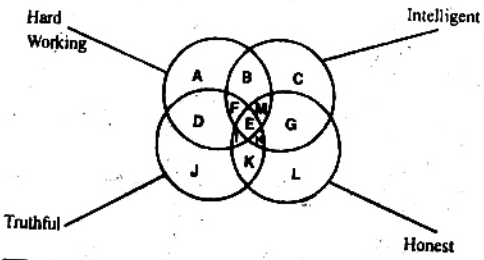
47. In 1999, which type of cars constitute approximately 20% of the total number of cars produced in that year ? ( )
1) E 2) B
3) C 4) D

48. In the years 1996 and 2000 put together, which type of cars constitute approximately 20% of the total number of cars produced in the two years ?
1) E 2) C ( )
3) B 4) D

49. The approximate percentage of increase in the total production of cars in the year 2001 over the year 1996 is ( )
1) 40% 2) 45%
3) 50% 4) 55%

50. In which year the percentage increase of total number of cars manufactured is more? ( )
1) 1998 2) 1999
3) 2000 4) 2001

Note : Below is given a figure with four intersecting circles, each representing a group of persons having the quality written against it. Study the figure carefully and answer questions 51 to 55.



51. The region which represents people who are not honest but possess all other three qualities, is denoted by ( )
1) B 2) F
3) D 4) M

52. The region which represents the people who are neither honest nor truthful but are intelligent and hard working, is denoted by
1) A 2) C ( )
3) D 4) B

53. The people possessing all the four qualities are represented by ( )
1) E 2) F
3) I 4) H

54. The honest people who are not possessing any of the other three qualities are represented by
1) K 2) H ( )
3) G 4) L

55. The region which represents the people who are intelligent, honest and truthful but not hard working is denoted by ( )
1) F 2) E
3) H 4) I

C) CODING AND DECODING PROBLEMS

In a code TANK is written as SZOL and FRIEND is written as EQHFOE. Find the process of coding and answer the questions 56 to 65.

56. The code for RING is ( )
1) QHOG 2) QHOH
3) QHMF 4) PHOH

57. The code for FROG is ( )
1) EQPH 2) GSPH
3) EQNF 4) GSNF

58. The code for ZENITH is ( )
1) YDMJUI 2) ADMJUI
3) YFMJUI 4) ADMJUG

59. The code for PARADE is ( )
1) OZQZEF 2) OZPBEG
3) OZQBEF 4) OZQBFE

60. The code for PIPE is ( )
1) QJOD 2) OHOD
3) OHQF 4) QJQF

61. Which word is coded as BATS ? ( )
1) CBTR 2) CZSR
3) CBST 4) CBSR

62. Which word is coded as COURSE ? ( )
1) DPVPRD 2) DPUPRD
3) DPVQRD 4) DPVORD

63. Which word is coded as DEMAND ? ( )
1) EFNBMC 2) EFNZMC
3) DENZMC 4) EFNZLC

64. Which word is coded as NUMBER ? ( )
1) OVNBES 2) OVOADQ
3) OVNZDQ 4) OVNADQ

65. Which word is coded as RATE ? ( )
1) SBUF 2) SBSD
3) SBRD 4) SZSD

D) DATE, TIME ARRANGEMENT PROBLEMS

66. In a row of six persons D and C are immediate neighbours of E. B is a neighbour of A only. A is the fourth from F. Who are on the two end points?
1) F, B 2) F, C ( )
3) B, D 4) C, A

67. Sekhar was A years old P years ago. How old was he T years ago ? ( )
1) A – P + T 2) P – A + T
3) A + P – T 4) A – P – T

68. $\frac{2}{3}$ of the members of a committee are women, $\frac{1}{4}$ male members of the committee are married. If there are 9 unmarried male members in the committee, how many members are there in the committee ? ( )
1) 32 2) 36
3) 28 4) 42

69. While climbing a 40 feet tall pole, a monkey ascends 4 feet in a single jump, but slips down 2 feet immediately. How many jumps does it require to reach the top of the pole ? ( )
1) 10 2) 21
3) 20 4) 19

70. If $a * b = (a + b - 5)^2$ and $a \Delta b = \frac{ab}{4}$, then $(3 * 4) \Delta (4 * 5) = ?$ ( )
1) 64 2) 0
3) 16 4) 32

71. How many Re. 1 coins of the same diameter can be placed around a similar Re.1 coin touching each other? ( )
1) 4 2) 5 3) 7 4) 6

72. Five books are lying in a pile. E is lying on A and C is lying under B. A is lying above B and D is lying under C. Which book is lying at the bottom? ( )
1) A 2) C 3) D 4) B

73. A starts from his home and goes two kilometers straight. Then he turns towards his right and goes one kilometer. He turns again towards his right and goes one kilometer. If he is North-West from his house, then in which direction did he go in the beginning? ( )
1) East 2) West
3) South 4) North

74. A clock is set right at 5 a.m. The clock loses 16 min. in 24 hours. What will be the true time when the clock indicates 10 p.m. on the fourth day ?
1) 10 : 30 pm 2) 11 pm ( )
3) 11 : 30 pm 4) 10 : 45 pm

75. On July 2, 1985, it was Wednesday. The day of the week on July 2, 1984 was ( )
1) Monday 2) Tuesday
3) Wednesday 4) Saturday

SECTION - B
MATHEMATICAL ABILITY

Questions : 75] [Marks : 75

I) ARITHMETICAL ABILITY

76. A and B can do a work individually in 12 and 8 days respectively. If C also joins them, the work can be completed in 4 days. The number of days required for C alone to do the work is
1) 20 2) 22 3) 24 4) 25 ( )

77. A sum of money is sufficient to pay A's wages for 21 days are B's wages for 28 days. The number of days for which the money is sufficient to pay the wages of both A and B are ( )
1) 12 2) 15
3) 11 4) 14

78. A wire of length 132 cm is bent to form a rectangle whose sides are in the ratio 7:4. The area (in square cms) of the rectangle is ( )
1) 4032 2) 4230
3) 1008 4) 3420

79. The number of iron rods each of length 14 meters and diameter 2 cm that can be made out of 0.88 cubic meters of iron, is ( )
1) 140 2) 200
3) 280 4) 320

80. The area of trapezium is $\frac{1}{2}(a^2 - b^2)$ sq.units where a and b are the lengths of the parallel sides. Then, the distance between the parallel sides is (in units). ( )
1) 5 2) 2a
3) a + b 4) a – b

81. The ratio of the area of a square of side a to the area of an equilateral triangle of side a is ( )

1) $4 : \sqrt{3}$ 2) $2 : \sqrt{3}$

3) $\sqrt{3} : 2$ 4) $\sqrt{3} : 4$

82. The number 69 when expressed in the base 5 system is ( )

1) 432 2) 243

3) 234 4) 231

83. The g.c.d. of the numbers m and n where $m = 2^5 . 3^2 . 7^6 . 11^4$, $n = 2^3 . 3^4 . 5^6 . 11 . 13^3$ is ( )

1) 972 2) 279

3) 297 4) 792

84. If p and q are statements, then, $p \wedge (p \vee q)$ is equivalent to ( )

1) $\sim p$ 2) $\sim q$

3) p 4) q

85. If in a group of people, m persons can speak Telugu, n persons can speak Tamil and t persons can speak both Tamil and Telugu, then, the number of persons who can speak either Telugu or Tamil is ( )

1) $m - n + t$ 2) $m - n - t$

3) $m + n - t$ 4) $n - m + t$

86. A, B, C invest a total sum of Rs. 1,00,00,000 in a business. A invests Rs. 30 lacs more than C, and B invests Rs. 10 lacs more than C. Then, the share of B out of a total profit of Rs. 20 lacs in lacs of Rupees is ( )

1) 4 2) 5

3) 6 4) 10

87. Two pipes A and B can fill a tank in 5 hours and 20 hours respectively. Both pipes together can fill it in (in hours) ( )

1) 4 2) 6

3) 10 4) 12

88. Pipe A can fill an empty tank in 6 hours, while pipe B can empty the full tank in 7 hours. If both are opened in the empty tank it will be full in (in hours) ( )

1) 13 2) 21

3) 28 4) 42

89. A is twice as fast as B and B is thrice as fast as C. Distance covered by C in one hour will be covered by A in (in minutes) ( )

1) 10 2) 5

3) $\frac{1}{6}$ 4) 30

90. One train is travelling at 90 kmph and the other at 15 meters per second. Then, the ratio of their speeds is ( )

1) 2 : 5 2) 3 : 2

3) 4 : 3 4) 5 : 3

91. If $x = \frac{5 - \sqrt{21}}{2}$ then $x^2 + \frac{1}{x^2} = ...$ ( )

1) 25 2) 23

3) $\frac{25}{2}$ 4) $\frac{23}{2}$

92. If the digit 1 is placed after a two-digit number whose tens digit is t and units digit is u, then the new number is ( )

1) $10t + u + 1$ 2) $100t + 10u + 1$

3) $1000t + 10u + 1$ 4) $t + u + 1$

93. If a : b = 1 : 3 and b : c = 2 : 5, then, a:b:c = ( )

1) 1:3:5 2) 1:6:15

3) 2:6:15 4) 6:2:15

94. If a box containing one dozen mirrors has slipped and some mirrors broken, which of the following cannot be the ratio of broken mirrors to unbroken mirrors ? ( )

1) 3 : 1 2) 7 : 5

3) 2 : 1 4) 3 : 2

95. If $\frac{a}{b+c} = \frac{b}{c+a} = \frac{c}{a+b}$, then each ratio is equal to ( )

1) $\frac{1}{2}$ 2) $\frac{2}{3}$

3) $\frac{3}{4}$ 4) $\frac{4}{5}$

96. A candidate secured 60% of the votes and is elected by a majority of 124 votes. The total number of votes polled is ( )

1) 542 2) 620

3) 435 4) 713

97. The salary of a person was first increased by 10% and later the same was reduced by 10%. Then the net change in his salary is ( )

1) 1% decrease 2) 1% increase

3) Nil 4) 11% increase

98. If the cost price of 20 tables is equal to the selling price of 25 tables, the loss percent is ( )

1) 5% 2) 10%

3) 15% 4) 20%

99. A merchant gets Rs. 500 if he sells either item A at 15% profit and item B at 10% loss or item A at 15% loss and item B at 10% profit. The cost of item A is (in Rupees) ( )

1) 100 2) 150

3) 200 4) 300

100. In a joint venture, three persons A, B, C invest respectively $\frac{1}{4}$ of the capital, $\frac{1}{5}$ of the capital and the rest. Then, the share of B in the total profit of Rs. 6,00,000/- in Rupees is ( )

1) 1,50,000 2) 3,30,000

3) 1,20,000 4) 1,00,000

101. The sum of three consecutive positive integral multiples of 3 is 72. The largest among them is ( )

1) 21 2) 24 3) 27 4) 30

102. The least number which when divided by 4, 6, 8, 12 and 16 leaves a remainder 2 in each case is ( )

1) 46 2) 48 3) 50 4) 56

103. The l.c.m. of 54, 90 and a third number is 1890 and their g.c.d. is 18. Then, the third number is ( )

1) 126 2) 144 3) 224 4) 156

104. If m and n are natural numbers such that $m^n = 121$, then $(m-1)^{n+1} =$ ( )

1) 1100 2) 1000

3) 999 4) 1001

105. If the sum of the first n natural numbers is a perfect square a^2 where a is lessthan 100, then, the possible values of n are ( )

1) 1, 8, 49 2) 1, 8, 48

3) 1, 7, 26 4) 1, 9, 27

106. The number of four digit numbers greater than thousand that can be formed with the digits 0, 1, 2, 3 is ( )

1) 18 2) 19

3) 24 4) 28

107. $(2+\sqrt{3})^7 + (2-\sqrt{3})^7 = ?$ ( )

1) 10080 2) 10082

3) 10086 4) 10084

108. The least number to be multiplied by 17640 so that the resulting number is a perfect square is ( )

1) 10 2) 6 3) 21 4) 15

109. For integers a and b, let a * b denote the remainder obtained when ab is divided by 12. Then (5 * 3) * 4 ( )

1) 3 2) 0 3) 1 4) 5

110. If $y = x + \frac{1}{x}$, then $x^4 + x^3 - 4x^2 + x + 1 =$ .....

1) $x^2(y^2+y-2)$ 2) $x^2(y^2+y-3)$ ( )

3) $x^2(y^2+y-4)$ 4) $x^2(y^2+y-6)$

II) ALGEBRICAL AND GEOMETRICAL ABILITY

111. The geometric mean between a^2 and b^2 is

1) $|ab|$ 2) a^2b^2 ( )

3) ab 4) $\frac{b^2}{a^2}$

112. If one root of the equation $ax^2 + bx + c = 0$ is double the other root, then, ( )

1) $b^2 = 9ac$ 2) $2b^2 = 3ac$

3) $b = 2a$ 4) $2b^2 = 9ac$

113. If K + 2, 4K − 6 and 3K − 2 are three consecutive terms of an arithmetic progression then, K is

1) 4 2) 3 ( )

3) 2 4) 1

114. The coefficient of x^4 in $\left(\frac{x}{2} - \frac{2}{x^2}\right)^{10}$ is ( )

1) $\frac{45}{256}$ 2) $\frac{45}{64}$

3) $\frac{68}{45}$ 4) $\frac{64}{256}$

115. If the 5 term of $\left(2x^2 + \frac{3}{x}\right)^5$ is 10, then, x =

1) 6 2) −6 ( )

3) 9 4) ± 8

116. If $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$, then $A^n =$ .... ( )

1) $\begin{bmatrix} 1 & n \\ 0 & 1 \end{bmatrix}$ 2) $\begin{bmatrix} 2 & n \\ 0 & 1 \end{bmatrix}$

3) $\begin{bmatrix} 1 & 2n \\ 0 & 1 \end{bmatrix}$ 4) $\begin{bmatrix} 1 & 2 \\ 0 & n \end{bmatrix}$

117. Equation of the line passing through the point (2, –3) and perpendicular to the line segment joining the points (1, 2) (–1, 5) is ( )

1) $2x - 3y - 13 = 0$ 2) $2x - 3y - 9 = 0$

3) $2x - 3y - 11 = 0$ 4) $2x - 3y - 7 = 0$

118. The two sides forming the right angle of a triangle whose area is 24 sq. cm are in the ratio 3 : 4. Then the length of the hypotenuse (in cm) is ( )

1) 12 2) 10

3) 8 4) 5

119. $C_0 + \frac{C_1}{2} + \frac{C_2}{3} + \ldots + \frac{C_n}{n+1} =$ ( )

1) $\frac{2^{n+1}}{n+1}$ 2) $\frac{2^{n+1}-1}{n+1}$

3) $\frac{2^{n+1}+1}{n+1}$ 4) $\frac{2^n-1}{n+1}$

120. The equation of the circle passing through the origin and making intercepts of 4 and 3 on OX and OY respectively is ( )

1) $x^2+y^2-3x-4y=0$ 2) $x^2+y^2+4x+3y=0$

3) $x^2+y^2+3x+4y=0$ 4) $x^2+y^2-4x-3y=0$

121. The equation of the straight line which cuts off equal intercepts from the axis and passes through the point (1, –2) is ( )

1) $2x + 2y + 1 = 0$ 2) $x + y + 1 = 0$

3) $x + y - 1 = 0$ 4) $2x + 2y - 1 = 0$

122. The maximum value of the expression $2 + 5x - 7x^2$ is ( )

1) $\frac{28}{81}$ 2) $-\frac{28}{81}$

3) $\frac{81}{28}$ 4) $-\frac{81}{28}$

123. If $x^y = e^{x-y}$, then, $\frac{dy}{dx}$ ( )

1) $\frac{1}{1+\log x}$ 2) $\frac{1}{(1+\log x)^2}$

3) $\frac{\log x}{(1-\log x)^2}$ 4) $\frac{y \log x}{x(1+\log x)}$

124. If $A + C = B$, then, $\tan A \tan B \tan C =$ ( )

1) $\tan B - \tan A - \tan C$

2) $\tan B + \tan A - \tan C$

3) $\tan B - \tan A + \tan C$

4) $\tan A + \tan B + \tan C$

125. If a flag staff of 6 meters height, placed on the top of a tower throws a shadow $2\sqrt{3}$ of meters along the ground, then, the angle in degrees that the sun makes with the ground is ( )

1) 30^0 2) 45^0

3) 60^0 4) 75^0

126. If $\sin\theta = \frac{15}{17}$, then, for $0^0 < \theta < 90^0$, ( )

$$\frac{15\cot\theta + 17\sin\theta}{8\tan\theta + 16\sec\theta}$$

1) $\frac{23}{49}$ 2) $\frac{22}{49}$

3) $\frac{18}{49}$ 4) $\frac{17}{49}$

127. If the lines $2x + 3y = 6$; $8x - 9y + 4 = 0$, $ax + 6y = 13$ are concurrent, than, $a =$ ( )

1) 3 2) –3

3) –5 4) 5

128. If $a > 1$, $b > 1$ and $a + b = ab$ and if

$$x = 1 + \frac{1}{a} + \frac{1}{a^2} + \ldots\ldots, \quad y = 1 + \frac{1}{b} + \frac{1}{b^2} + \ldots\ldots,$$

then $\frac{1}{x} + \frac{1}{y} =$ ( )

1) 0 2) 1

3) 2 4) 4

129. If the matrix $\begin{bmatrix} 2 & K \\ 4 & 10 \end{bmatrix}$ is invertible, then $K \neq$

1) 2 2) –5 ( )

3) 10 4) 5

130. $\lim_{x \to \infty} \frac{x(x+1)(2x+3)}{x^3} =$ ( )

1) 1 2) 2

3) 0 4) 3

131. $\lim_{x \to 0} \frac{\sqrt[3]{8+x} - 2}{x} =$ ( )

1) $\frac{1}{2}$ 2) $\frac{1}{3}$

3) $\frac{1}{4}$ 4) $\frac{1}{12}$

132. If $y = 4x^3 - 3x^2 + 2x - 1$, then, $\frac{dy}{dx}$ at $x = \frac{1}{2}$ is ( )
1) 0 2) 1
3) 2 4) 3

133. If M, N, R are respectively, the middle points AB, BC and CA of triangle ABC, then the ratio $\Delta ABC : \Delta MNR$ = ( )
1) 2 : 3 2) 3 : 2
3) 4 : 1 4) 1 : 4

134. If $f:|R \to |R$ and $g:|R \to |R$ are defined by $f(x) = x - [x]$ and $g(x) = [x]$ for each x in |R, where [x] is the greatest integer not exceeding x, then, the range of gof is ( )
1) ϕ 2) {0}
3) Z 4) |R

135. The number of injections of the set {1, 2, 3} into the set {1, 2, 3, 4, 5, 6} is ( )
1) 10 2) 30
3) 60 4) 120

136. If $x^2+2(K+2)x+36=0$ has equal roots, then K=
1) 1 (or) –1 2) 2 ( )
3) 3 4) 4 (or) –8

137. If t_n is the n^{th} term of an arithmetic progression with first term 'a' and common difference 'd', then $\sum_{k=1}^{n} t_{2k}$ = ... ( )
1) na + (n – 1)d 2) n (a + nd)
3) na + (n + 1) d 4) na + (2n – 1)d

138. If PQRS is a cyclic rhombus, then $\angle Q$ = ( )
1) 60^0 2) 150^0
3) 120^0 4) 90^0

139. The point of concurrence of medians of a triangle is ( )
1) Incentre 2) Orthocentre
3) Centroid 4) Circumcentre

140. If (0, 0), (2, 2) and (0, a) form a right angled isosceles triangle, then, a = ( )
1) 4 2) –4
3) 3 4) –3

III) STATISTICAL ABILITY

141. The arithmetic mean of the incomes of 100 workers in a factory is Rs. 50 per day and the arithmetic mean of the incomes of 75 workers of them is Rs. 40 per day. Then the arithmetic mean of the incomes of the rest of the workers per day (in rupees) is ( )
1) 60 2) 50
3) 70 4) 80

142. The mean deviation of the values 21, 23, 25, 28, 30, 32, 38, 39, 46, 48 from the mean is( )
1) 7.6 2) 6.7
3) 7.8 4) 8.7

143. The coefficient of variation is ( )
1) $\frac{M.D.}{Mean} \times 100$ 2) $\frac{S.D.}{Mean} \times 100$
3) $\frac{S.D.}{M.D.} \times 100$ 4) $\frac{M.D.}{S.D.} \times 100$

144. The frequency of the inclusive type class 20–25 of the following data is 9, 10, 17, 20, 12, 21, 22, 14, 15, 18, 23, 19, 24, 27, 28, 25, 17, 18, 13, 12, 6, 7, 8, 9, 12. ( )
1) 5 2) 6
3) 7 4) 3

145. A and B independent events. The probability that both A and B occur is $\frac{1}{6}$ and the probability that neither of them occurs is $\frac{1}{3}$. Then the probability of occurrence of A is
1) $\frac{5}{6}$ 2) $\frac{1}{2}$ ( )
3) $\frac{1}{12}$ 4) $\frac{1}{18}$

146. 8 coins are tossed simultaneously. The probability of getting at least six heads is( )
1) $\frac{39}{256}$ 2) $\frac{29}{256}$
3) $\frac{31}{256}$ 4) $\frac{37}{256}$

147. If the standard deviation of $a_1, a_2, \ldots\ldots a_n$ is s, then, the standard deviation of $a_1 + b, a_2+b, \ldots\ldots, a_n+b$ is ... ( )
1) s + b 2) s – b
3) s 4) sb

148. The mode of the distribution for which the arithmetic mean is 4.6 and median is 6.1, is.....
1) 18.3 2) 9.2 ( )
3) 9.1 4) 2.5

149. Coefficient of skewness = ( )
1) $\frac{Mode - Mean}{S.D.}$ 2) $\frac{Mean - Mode}{S.D.}$
3) $\frac{Mode - Mean}{Variance}$ 4) $\frac{Mean - Mode}{Variance}$

150. Three six faced dice are thrown together. The probability that exactly two of the three numbers are equal is ( )

1) $\frac{126}{216}$ 2) $\frac{90}{216}$

3) $\frac{120}{216}$ 4) $\frac{96}{216}$

SECTION - C
COMMUNICATION ABILITY

Questions : 50] [Marks : 50

PART - I

Choose the correct meaning for the word :

151. Alleviation ( )
1) Decoration 2) Exaggeration
3) Mitigation 4) Aggravation

152. Recycle ( )
1) Ride a bicycle 2) Regulate
3) Introduce a change
4) Convert waste to reusable material

153. Urbane ( )
1) Rustic 2) Of the city
3) Ostentatious 4) Refined

154. Credulous ( )
1) Too ready to believe 2) Hasty
3) Courteous 4) Hard to please

155. Confident ( )
1) Faith in oneself 2) Admirer
3) A person that you trust 4) A secret agent

156. Panacea ( )
1) A kind of tree 2) A cure for all diseases
3) An incurable disease 4) A sleep inducing drug

Fill in the blank choosing the correct word :

157. The old lady is an .....story teller. ( )
1) adept 2) adopt
3) adapt 4) adrift

158. Gardner wrote many detective novels..... working as a criminal lawyer. ( )
1) beside 2) besides
3) because 4) aside

159. Children guilty of crime are called ..... delinquents. ( )
1) jubilant 2) juridicial
3) judicial 4) juvenile

160. ..... is the science of ancient cultures. ( )
1) Anthropology 2) Archaelogy
3) Ornithology 4) Parapsychology

PART-II

Choose the correct Answer :

161. An Actuary is ( )
1) One who presents himself
2) One who projects himself
3) One who works in a sanctuary
4) One who makes calculations connected with insurance

162. CRR stands for ( )
1) Cash Reserve Ratio
2) Cumulative Reserve Ratio
3) Credit Requirement Ratio
4) Compulsory Reserve Ratio

163. MOU is the abbreviation of ( )
1) Management of Undertaking
2) Monetary output Unit
3) Memorandum of Understanding
4) Marketing of Unsaleables

164. MS - Excel is used for ( )
1) Word processing
2) Tabulation and number crunching
3) Spell check
4) Website creation

165. GUI is the abbreviation of ( )
1) Groupware User Interface
2) Graphic User Interface
3) Graphics User Identification
4) Graphic Universal Imaging

166. An Icon is ( )
1) A small picture on a display screen
2) An application software
3) A back up system
4) A computer designed car

167. IPO is the abbreviation of ( )
1) Initial Private Offering
2) Important Public Organisation
3) Initial Public Offering
4) Important Public Offering

168. Patent means ( )
1) The sole right to manufacture and sell a product
2) A negotiable instrument
3) An exclusive trade right
4) A design

169. A commonly accepted proper behaviour in the Net is called ( )
1) Net manners 2) Web manners
3) Net protocols 4) Netiquette

170. CAD stands for ( )
1) Computer Aided Design
2) Computer Arithmetic Design
3) Computer Analogue Design
4) Computer Architecture Development

PART-III

Choose the correct answer :

171. A: Would you mind lending your umbrella?
B: Yes, I do.
In this conversation ( )
1) B is willing to lend it to A
2) B excuses himself
3) B is hesistant
4) B is annoyed by the request

172. "Mind you, don't cut yourself; that knife is very sharp". ( )
The speaker
1) expresses fear 2) gives a warning
3) cracks a joke 4) expresses displeasure

173. "I had this piece of news ***straight from the horse's mouth***". ( )
The underlined pharse means
1) directly from the horse itself
2) while riding the horse
3) from one who has direct personal knowledge of the matter
4) from one who has a mouth like the horse's

174. "Shut the door". The passive voice form of this sentence is ( )
1) Let the door be shut
2) The door ought to be shut
3) The door may be shut
4) Let the door shut

175. "What is there in a name?" The speaker means that ( )
1) all names are unnecessary
2) it is useless to have a name
3) a name is of some consequence
4) a name is an arbitrary label

176. "Watch your step, Sir", said the watchman to his master. The watchman, in this sentence
1) threatens his master indirectly ( )
2) gives a warning to his master
3) cautions his master politely
4) expresses anxious concern for his master's safety

177. "If wishes were horses, beggars would ride". This sentence ( )
1) speaks of an utter impossibility
2) expresses a condition
3) implies a difficult possibility
4) states an absurdity

Fill in the blank with the appropriate pharse / verb / preposition.

178. We had a pleasant conversation ..... a cup of tea. ( )
1) with 2) on
3) over 4) during

179. The visiting dignitary ..... the President. ( )
1) called out 2) called on
3) called off 4) called at

180. I have decided to ..... my house. ( )
1) let off 2) let out
3) let in 4) let down

181. He suddenly ..... a fortune when his aunt died.
1) came to 2) came up ( )
3) came in 4) came into

182. Some bottles are not suitable ..... recycling.
1) for 2) with ( )
3) to 4) in

183. You look terrible. What's .....? ( )
1) took place 2) occurred
3) happened 4) haunted

184. Birds of the same feather are believed to ..... together. ( )
1) flock 2) fly
3) nest 4) gather

185. I ..... coffee to tea. ( )
1) like 2) want
3) prefer 4) taste

PART - IV

Read the following passage and answer questions 186 - 190.

Gandhi wrote thus : ( )

Gandhi rich have a superfluous store of things which they do not need, and which are neglected and wasted, while millions are starved to death for want of sustenance. If each retained possession only of what he needed, no one would be in want, and all would live in contentment. As it is, the rich are discontented no lessthan the poor. The poor man would fain become a millionaire, and the millionaire a multimillionaire... If only the rich keep their own property within moderate

limits, the starving millions will be easily fed. Working for economic equality means abolishing the eternal conflict between capital and labour. It means the levelling down of the few rich in whose hands is concentrated the bulk of the nation's wealth on the one hand, and a levelling up of the semi-starved naked millions on the other. A non-violent system of government is clearly an impossibility so long as the wide gulf between the rich and the hungry millions persists. A violent and bloody revolution is a certainty one day unless there is a voluntary abdication of riches and the power riches gives and sharing them for the common good. The real implication of equal distributions is that each man shall have the wherewithal to supply all his natural wants and more.

186. Working for economic equality means ( )

1) doing away with capital altogether
2) making all people rich
3) making the rich and the poor equal
4) levelling down the few rich and levelling up the semi-starved millions

187. There is bound to be a bloody revolution one day unless ( )

1) the rich voluntarily share their riches and power with the poor
2) there is a strict law and order machinery to suppress it
3) the rich respect the poor
4) the well-to-do renounce their wealth

188. A non-violent system of government is an impossibility so long as ( )

1) people are violent
2) people are kept hungry
3) the poor live in miserable houses and the rich in palaces
4) the wide gulf between the rich and the hungry millions persists

189. Equal distribution really implies that ( )

1) each man has the means by which he can supply all his natural wants and more
2) the rich are to be robbed and their wealth distributed among the poor
3) all become millionaires
4) there is nothing to be distributed

190. According to Gandhi, no one will be in want if everyone ( )

1) was content with what he had
2) kept with him only what he needed, and nothing in excess
3) did not desire what belonged to another
4) accepted poverty as the will of God

Read the following passage and answer questions 191-195 :

It is essential that local government authorities regard the quality of the air as one of their major responsibilities. In particular, they can plan their towns, in relation to the traffic they must withstand. Air must be 'planned' if its quality is to be ensured.

This leads on to the main goal, which is to reduce substantially and in time cut out air pollution at source. Future generations will recognise this-as with most pollution - as waste of recyclable resources. And with proper planning, particulary of energy, it should be unnecessary. The atmosphere - volcanoes, earthquakes, etc., in excess of man's efforts to date by a process of continuous recycling. But this capacity to clean so itself could be impaired, as has happened with some rivers and lakes, and this must be prevented. Hence the need to know of any substantial or potentially harmful emissions. This is possible. Industrialists, for example, could be required to report all discharges into the atmosphere as they do with those into water or dumping on land. Increasingly, our wastes are incinerated and blown into the atmosphere; more and more we use dangerous substances with a long active life, some of which can have harmful interactions or become concentrated for too long in one place.

Man is always interfering with nature, sometimes intentionally, sometimes accidentally or unconsciously. Air pollution is obviously not intended, but that does not make its effects any less serious and man should act consciously to control it. Air pollution may, in the long term, cause an imbalance in the environment which exceeds the interferences or controls deliberately imposed by man.

191. Many types of pollution were successfully controlled without human effort because( )

1) there were many volcanoes and earthquakes
2) in ancient times there wasn't much pollution
3) men were incapable of controlling pollution
4) the atmosphere is involved in a process of continuous recycling

192. What examples of natural pollution does the passage mention ? ( )

1) rivers and lakes
2) valcanoes and earthquakes

3) harmful emissions

4) recyclable resources

193. Industrialists are required to report ( )

1) discharges into the atmosphere

2) pollution of air and water

3) discharges into water or dumping on land

4) pollution of air and land

194. Which is an unintended pollution ? ( )

1) Air pollution 2) Water pollution

3) Sound pollution 4) Land pollution

195. When will attempts to control air pollution become unnecessary ? ( )

1) when there is proper planning of energy

2) when all resources become recyclable

3) when industrialists prevent pollution

4) when our wastes are blown into the atmosphere

Read the following passage and answer questions 196-200 :

The overwhelming vote given by the greater part of the public has so far been in favour of entertainment which passes the time easily, and satisfies that part of our imagination which depends on the more obvious kind of daydreams. You can argue that these daydreams are usually substitutes for our own inactivity, ineffectualness, and lack of power of influence, so that we make up for what we secretly regard as our deficiencies by watching the stimulating adventures of other people who are larger, stronger, more effective, or more beautiful than we are. The conventional starts act out our daydreams for us in a constant succession of existing situations set in the open spaces of the American West, or in the jungles we will never visit (we would not dare to, most of us, if we could), or in the underworld of great cities where crime and violence may not pay in the end, but are very exciting to watch if your youth is being spent in the day-to-day routine of school or office, on the one hand, or in the kitchen and living-room of 39 Acacia Avenue on the other.

Whether we admit it to ourselves or not, most of us very conscious of deficiencies in our looks, our clothes, and the circumstances of our homes. But on the screen we can feast our eyes on people selected to appear because of their good looks, dressed in expensive and sometimes extravagantly showy clothes, and moving about most of the time in the plushy environment of wealth! What you cannot have yourself, at least you can continuously look at surrounding other people, and, who knows, one day you may have these things too, like the stars who have comeup from nowhere but now earn large fortunes!

196. Why do we enjoy films in which there are larger-than-life characters ? ( )

1) We don't like films to be true to life.

2) We like the big screen.

3) Art is not for art's sake.

4) They enable us to compensate ourselves for our shortcomings.

197. Why do we enjoy films based on crime an violence? ( )

1) Human beings admire criminals.

2) They provide for us some relief from the boredom of routine life.

3) Crime and violence have become part of our life.

4) All human beings are sadists.

198. What aspect of human psychology does the author refer to in the second paragraph ?

1) Human beings enjoy the very sight of qualities and luxuries they are deprived of. ( )

2) Human psychology is very complex.

3) Human beings love being poor.

4) Human beings admire themselves.

199. What does the word plyshy mean ? ( )

1) extremely soft 2) extremely happy

3) extremely comfortable and expensive

4) extremely delicate

200. What kind of entertainment do people like most?

1) That which kills their strong desires. ( )

2) That which makes their daydreams become real.

3) That which feeds their imagination.

4) That which transforms daydreams into nightmares

KEY

1) 3	2) 2	3) 2	4) 4	5) 3	6) 3	7) 3	8) 4	9) 3	10) 1
11) 3	12) 4	13) 2	14) 3	15) 3	16) 1	17) 4	18) 3	19) 4	20) 3
21) 2	22) 4	23) 2	24) 3	25) 2	26) 2	27) 4	28) 1	29) 2	30) 3
31) 2	32) 4	33) 4	34) 2	35) 3	36) 4	37) 1	38) 2	39) 3	40) 2
41) 3	42) 3	43) 2	44) 1	45) 2	46) 1	47) 2	48) 1	49) 3	50) 2
51) 2	52) 4	53) 1	54) 4	55) 3	56) 2	57) 1	58) 1	59) 3	60) 3
61) 4	62) 3	63) 2	64) 4	65) 2	66) 1	67) 4	68) 2	69) 4	70) 3
71) 2	72) 3	73) 2	74) 2	75) 1	76) 3	77) 1	78) 3	79) 2	80) 4
81) 1	82) 3	83) 4	84) 3	85) 3	86) 3	87) 1	88) 4	89) 3	90) 4
91) 2	92) 2	93) 3	94) 4	95) 1	96) 2	97) 1	98) 4	99) 4	100) 3
101) 3	102) 1	103) 4	104) 2	105) 1	106) 1	107) 4	108) 1	109) 2	110) 4
111) 1	112) 4	113) 2	114) 2	115) 3	116) 3	117) 1	118) 2	119) 2	120) 2
121) 2	122) 3	123) 4	124) 1	125) 3	126) 1	127) 4	128) 2	129) 4	130) 2
131) 4	132) 3	133) 3	134) 3	135) 4	136) 4	137) 2	138) 4	139) 3	140) 1
141) 4	142) 1	143) 3	144) 1	145) 2	146) 4	147) 3	148) 3	149) 2	150) 2
151) 4	152) 4	153) 4	154) 1	155) 1	156) 2	157) 1	158) 2	159) 4	160) 2
161) 4	162) 1	163) 3	164) 2	165) 3	166) 1	167) 3	168) 1	169) 4	170) 1
171) 3	172) 2	173) 3	174) 1	175) 4	176) 3	177) 3	178) 3	179) 2	180) 3
181) 3	182) 1	183) 3	184) 3	185) 3	186) 4	187) 1	188) 4	189) 1	190) 2
191) 4	192) 2	193) 1	194) 1	195) 1	196) 4	197) 2	198) 1	199) 3	200) 2

KEY WITH SOLUTIONS
ICET - 2005

1. **(3)**
At present his father age 45 years
x is 21 years younger than his father
= 45 – 21 = 24 years
Age of x after 7 years = 24 + 7 = 31
since, we have used both the conditions.

2. **(3)**
2^x is never odd for integer x
and 3^x is odd for all positive
integer x. Hence II alone is sufficient

3. **(3)**

4. **(4)**
Both the statements I and II together are not sufficient.

5. **(3)**
Both I and II we can calculate Days.

6. **(3)**
Both (I) and (II)
as 3A – 2B + C = 0
A + B = C
$\Rightarrow$ B = 4A eliminating C
$\Rightarrow$ B > A
However with either alone I or II we cannot determine unequality among A and B.

7. **(3)**
(I) one table and one chair cost = Rs. 250
= x + y = 250 ..... (1)
(II) Two tables and three chairs cost = Rs. 800
= 2x + 3y = 800 ..... (2)
(1) x 3 = 3x + 3y = 750
(2) = 2x + 3y = 800
.....
x = 50
sub. x value in (1)
= y = 250 – x
= 250 + 50 = 300
$\Rightarrow$ cost of one table x = Rs. 50