Date Planned : __ / __ / __	Daily Tutorial Sheet - 4	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 1	Exact Duration :________

***76.** There are p coplanar parallel lines. If any 3 points are taken on each of the lines, the maximum number of triangles with vertices at these points is:

(A) ${}^{3p}C_3 - p$ **(B)** $\frac{9p^2(p-1)}{2}$ **(C)** $4p^2(p-1)$ **(D)** $18^pC_2 + 27^pC_3$

77. Two lines intersect at O. Points $A_1, A_2, \ldots, A_n$ are taken on one of them and $B_1, B_2, \ldots, B_n$ on the other, the number of triangle that can be drawn with the help of these $(2n+1)$ points are:

(A) n **(B)** n^2 **(C)** n^3 **(D)** n^4

78. There are 15 points in a plane, no three of which are in a straight line except 4, all of which are in a straight line. The number of triangles that can be formed by using these 15 points is:

(A) 404 **(B)** 415 **(C)** 451 **(D)** 490

79. Three straight lines l_1, l_2 and l_3 are parallel and lie in the same plane. 5, 6, 7 points are taken on each of l_1, l_2 and l_3 respectively. The maximum number of triangles which can be obtained with vertices at these points, is:

(A) 751 **(B)** 756 **(C)** 425 **(D)** 725

80. There are three coplanar parallel lines. If any n points are taken on each of the lines, the maximum number of triangles with vertices at these points is:

(A) $3n^2(n-1)+1$ **(B)** $3n^2(n-1)$ **(C)** n^3 **(D)** $n^2(4n-3)$

81. The number of integral solutions of $x_1 + x_2 + x_3 = 0$, with $x_i \geq -5$ is:

(A) ${}^{15}C_2$ **(B)** ${}^{16}C_2$ **(C)** ${}^{17}C_2$ **(D)** ${}^{18}C_2$

82. The number of ways in which 30 coins of one rupee each be given to six persons so that none them receive less than 4 rupees is:

(A) 231 **(B)** 462 **(C)** 693 **(D)** 924

83. The number of positive integral solutions of $x + y + z = n, n \geq 3$, is:

(A) ${}^{n-1}C_2$ **(B)** ${}^{n-1}P_2$ **(C)** $n(n-1)$ **(D)** n^2

84. The number of points (x, y, z) in space, whose, each coordinate is a negative integer such that that $x + y + z + 12 = 0$, is:

(A) 385 **(B)** 55 **(C)** 110 **(D)** 91

85. The number of ordered triplets, positive integers which are solutions of the equation $x + y + z = 100$ is:

(A) 5081 **(B)** 6005 **(C)** 4851 **(D)** 4987

86. If a, b, c are positive integers such that $a + b + c \leq 8$, then the number of position values of the ordered triplet (a, b, c) is:

(A) 84 **(B)** 56 **(C)** 83 **(D)** 112

87. If a, b, c, are natural numbers in AP and $a+b+c=21$, then the possible number of values of the ordered triplet (a, b, c) is:

(A) 15 **(B)** 14 **(C)** 13 **(D)** 16

88. The number of ways in which the sum of upper faces of four distinct dices can be six:

(A) 10 **(B)** 4 **(C)** 6 **(D)** 7

89. If x, y, z is integer and $x \geq 0, y \geq 1, z \geq 2, x+y+z=15$ then the number of values of the ordered triplet (x, y, z) is:

(A) 91 **(B)** 455 **(C)** ${}^{17}C_{15}$ **(D)** 55

90. Total number of positive integral solutions of $15 < x_1 + x_2 + x_3 \leq 20$, is equal to:

(A) 1125 **(B)** 1150 **(C)** 1245 **(D)** 685

91. If a, b, c, d are odd natural numbers such that $a+b+c+d=20$ then the number of values of the ordered quadruplet (a, b, c, d) is:

(A) 165 **(B)** 455 **(C)** 310 **(D)** 620

92. Determine the total number of non-negative integral solutions of $x_1 + x_2 + x_3 + x_4 = 100$.

(A) ${}^{103}C_3$ **(B)** ${}^{103}C_4$ **(C)** ${}^{104}C_3$ **(D)** ${}^{104}C_4$

***93.** The number of non-negative integral solutions of $x_1 + x_2 + x_3 + x_4 \leq n$ (where n is a positive integer) is:

(A) ${}^{n+3}C_3$ **(B)** ${}^{n+4}C_4$ **(C)** ${}^{n+5}C_5$ **(D)** ${}^{n+4}C_n$

94. The number of non-negative integral solutions of $x_1 + x_2 + x_3 + 4x_4 = 20$ is:

(A) 236 **(B)** 336 **(C)** 436 **(D)** 536

95. The number of positive integral solutions of the equation $x_1 x_2 x_3 = 60$ is:

(A) 54 **(B)** 27 **(C)** 81 **(D)** None of these

96. The number of ways in which 20 different pearls of two colours can be set alternately on a necklace, there being 10 pearls of each colour, is:

(A) $9! \times 10!$ **(B)** $5(9!)^2$ **(C)** $(9!)^2$ **(D)** $(10!)^2$

97. Six boys and six girls sit along a line alternatively in x ways; and along a circle (again alternatively) in y ways, then:

(A) $x = y$ **(B)** $y = 12x$ **(C)** $x = 10y$ **(D)** $x = 12y$

98. In how many ways four men and three women may sit around a round table if all the women are together?

(A) 144 **(B)** 146 **(C)** 156 **(D)** 136

99. In how many ways can a party of 4 men and 4 women be seated at a circular table so that no two women are adjacent?

(A) 144 **(B)** 36 **(C)** 576 **(D)** None of these

100. The number of ways in which 6 men and 5 women can dine at a round table if no two women are to sit together is given by:

(A) 30 **(B)** $5! \times 4!$ **(C)** $7! \times 5!$ **(D)** $6! \times 5!$