Date Planned : __ / __ / __	Daily Tutorial Sheet - 5	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 1	Exact Duration :_________

101. 20 persons are invited for a party. In how many different ways can they and the host be seated at circular table, if the two particular persons are to be seated on either side of the host?

(A) $\lfloor 20$ **(B)** $\lfloor 2 \times \lfloor 18$ **(C)** $\lfloor 18$ **(D)** None of these

102. In how many ways a garland can be made from exactly 10 flowers?

(A) $\lfloor 10$ **(B)** $\lfloor 9$ **(C)** $2\lfloor 9$ **(D)** $\lfloor 9/2$

103. There are n numbered seats around a round table. In how many ways can m (< n) persons sit around the round table.

(A) ${}^nC_m \cdot m!$ **(B)** ${}^nC_m \cdot (m-1)!$ **(C)** $\frac{{}^nC_m \cdot (m-1)!}{2}$ **(D)** None of these

104. A cabinet of ministers consists of 11 ministers, one minister being the chief minister. A meeting is to be held in a room having a round table and 11 chairs round it, one of them being meant for the chairman. The number of ways in which the ministers can take their chairs, the chief minister occupying the chairman's place, is:

(A) $\frac{1}{2}(10!)$ **(B)** $9!$ **(C)** $10!$ **(D)** $\frac{9!}{2}$

105. The number of ways in which 7 men and 6 women can dine at a round table, if no two women are to sit together, is given by:

(A) $6! \times 7!$ **(B)** 42 **(C)** $5! \times 6!$ **(D)** $7! \times 5!$

106. The number of ways to give 16 different things to three persons A, B, C so that B gets 1 more than A and C gets 2 more than B, is:

(A) $\frac{16!}{4!\,5!\,7!}$ **(B)** $4!\,5!\,7!$ **(C)** $\frac{16!}{3!5!8!}$ **(D)** $\frac{16!}{3!4!6!}$

107. The number of ways of distributing 10 different books among 4 students $(S_1 - S_4)$ such that S_1 and S_2 gets 2 books and S_3 and S_4 get 3 books each is:

(A) 12600 **(B)** 25250 **(C)** ${}^{10}C_4$ **(D)** $\frac{10!}{2!\,2!\,3!\,3!}$

108. If $3n$ different things can be equally distributed among 3 persons in k ways, then the number of ways to divide the $3n$ things in 3 equal groups is:

(A) $k \times 3!$ **(B)** $\frac{k}{3!}$ **(C)** $(3!)k$ **(D)** $3k$

109. n different toys have to be distributed among n children. Total number of ways in which these toys can be distributed so that exactly one child gets no toy, is equal to:

(A) $n!$ **(B)** $n!\,{}^nC_2$ **(C)** $(n-1)!\,{}^nC_2$ **(D)** $n!\,{}^{n-1}C_2$

110. Number of ways in which a pack of 52 playing cards be distributed equally among four players so that each may have the Ace, King, Queen and Jack of the same suit, is:

(A) $\frac{361!\cdot 4!}{(9!)^4}$ **(B)** $\frac{36!}{(9!)^4}$ **(C)** $\frac{52!\cdot 4!}{(13!)^4}$ **(D)** $\frac{52!}{(13!)^4}$

111. 8 different balls have to be distributed among 3 children so that every child receives at least 1 ball, the total number of ways to do this is:

(A) 3^8 **(B)** ${}^8C_3$ **(C)** 8^3 **(D)** $3^8 - {}^3C_1 \times 2^8 + {}^3C_2$

112. The total number of ways in which a beggar can be given at least one rupee from four 25-paisa coins, three 50-paisa coins and 2 one-rupee coins, is:
(Assume coins of same type are identical)

(A) 54 **(B)** 51 **(C)** 53 **(D)** 52

***113.** The number of ways in which 10 candidates $A_1, A_2, \ldots\ldots, A_{10}$ can be ranked so that A_1 is always above A_2 is:

(A) $\frac{10!}{2}$ **(B)** ${}^{10}C_2 \times 8!$ **(C)** ${}^{10}P_2$ **(D)** ${}^{10}C_2$

114. Let A be the set of 4-digit numbers $a_1 a_2 a_3 a_4$ where $a_1 > a_2 > a_3 > a_4$ then $n(A)$ is equal to:

(A) 126 **(B)** 84 **(C)** 210 **(D)** 120

115. Ten persons, amongst whom are A, B and C are to speak at function. Find number of ways in which it can be done if A wants to speak before B, and B wants to speak before C?

(A) $10!$ **(B)** $10!/6$ **(C)** $10!/7!$ **(D)** $10!/2!$

116. Two teams are to play a series of 5 matches between them. A match ends in a win or loss or draw for a team. A number of people forecast the result of each match and no two people make the same forecast for the series of matches. The smallest group of people in which one-person forecasts correctly for all the matches will contain n people, where n is:

(A) 81 **(B)** 243 **(C)** 486 **(D)** 729

117. The number of numbers of 9 different non-zero digits such that all the digits in the first four places are less than the digit in the middle and all the digits in the last four places are greater than that in the middle is:

(A) $2(4!)$ **(B)** $(4!)^2$ **(C)** $8!$ **(D)** $4!$

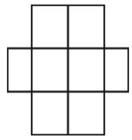
118. A teacher takes 3 children from her class to the zoo at a time as often as she can but does not take the same three children to the zoo more than once. She finds that she goes to the zoo 84 times more than any particular child goes to the zoo. The number of children in her class is:

(A) 12 **(B)** 10 **(C)** 60 **(D)** 11

119. A is a set containing n elements. A subset P of A is chosen. The set A is reconstructed by replacing the elements of P. A subset Q of A. is again chosen. The number of ways of choosing P and Q so that $P \cap Q$ contains exactly two elements is:

(A) $9 \cdot {}^nC_2$ **(B)** $3^n - {}^nC_2$ **(C)** $2 \cdot {}^nC_n$ **(D)** ${}^nC_2 \cdot 3^{n-2}$

120. Six X have to be placed in the squares of figure such that each row contains at least one X. The number of ways in which this can be done is:



(A) 25 **(B)** 26 **(C)** 27 **(D)** 30

121. A car will hold 2 in the front seat and 1 in the rear seat. If among 6 persons 2 can drive, then the number of ways in which the car can be filled is:

(A) 10 **(B)** 40 **(C)** 30 **(D)** 20

122. A family consists of a grandfather, m sons and daughters and $2n$ grandchildren. They are to be seated in a row for dinner. The grand-children wish to occupy the n seats at each end and the grandfather refuses to have grand-children on either side of him. In how many ways can the family be made to sit.

(A) $(2n)!\, m!(m-1)$ **(B)** $(2n)!m!m$

(C) $(2n)!\,(m-1)!\,(m-1)$ **(D)** $(2n-1)!\, m!(m-1)$

123. In a conference 10 speakers are present. If S_1 wants to speak before S_2 and S_2 wants to speak before S_3, then the number of ways all the 10 speakers can give their speeches with the above restriction if the remaining seven speakers have no objection to speak at any number is:

(A) ${}^{10}C_3$ **(B)** ${}^{10}P_8$ **(C)** ${}^{10}P_3$ **(D)** $\frac{10!}{3!}$

124. The number of ways to fill each of the four cells of the table with a distinct natural number such that the sum of the numbers is 10 and the sums of the numbers placed diagonally are equal, is:

(A) $2! \times 2!$ **(B)** $4!$ **(C)** $2(4!)$ **(D)** $(2!)^3$

125. For a set of five true/false questions, no student has written all correct answers, and no two students have given the same sequence of answers. What is the maximum number of students in the class, for this to be possible?

(A) 30 **(B)** 31 **(C)** 32 **(D)** 33