Date Planned : __ / __ / __	Daily Tutorial Sheet - 3	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 1	Exact Duration :_____

51. The number of selections of four letters from the letters of the word 'ASSASSINATION' is:
(A) 72 **(B)** 71 **(C)** 66 **(D)** 52

52. The number of selections of 4 letters that can be made out of the letters of the word EXAMINATION is:
(A) 136 **(B)** 142 **(C)** 133 **(D)** 2454

53. The total number of flags with three horizontal strips, in order, that can be formed using 2 identical red, 2 identical green and 2 identical white strips, is equal to:
(A) $4!$ **(B)** $3\cdot(4!)$ **(C)** $2\cdot(4!)$ **(D)** $4\cdot(4!)$

54. A bag contains 2 Apples, 3 Oranges and 4 Bananas. The number of ways in which 3 fruits can be selected if atleast one banana is always in the combination (Assume fruits of same species to be alike) is:
(A) 6 **(B)** 10 **(C)** 29 **(D)** 7

55. How many 4-letter words can be formed using letters of the word 'VIDYAMANDIR' such that the word always includes a letter 'I'.
(A) 1320 **(B)** 1546 **(C)** 1248 **(D)** 1456

56. A shopkeeper sells three varieties of perfumes and he has a large number of bottles of the same size of each variety in his stock. There are 5 places in row in his showcase. The number of different ways of displaying the three varieties of perfumes in the showcase is:
(A) 6 **(B)** 50 **(C)** 150 **(D)** 90

57. There are n different books and p copies of each in a library. The number of ways in which one or more books can be selected is:
(A) p^n+1 **(B)** $(p+1)^n-1$ **(C)** $(p+1)^n-p$ **(D)** p^n

58. If the $(n+1)$ numbers $a, b, c, d,...$ be all different and each of them prime number, then the number of different factors (other than 1) of $a^m\cdot b\cdot c\cdot d....$ is:
(A) $m-2^n$ **(B)** $(m+1)2^n$ **(C)** $(m+1)2^n-1$ **(D)** $m2^n-1$

59. Find the total number of factors (excluding 1) of 2160.
(A) 12 **(B)** 11 **(C)** 40 **(D)** 39

60. A library has n different books and has p copies of each of the book. The number of ways of selecting two or more books from the library is:
(A) n^p-1 **(B)** p^n-1 **(C)** $(n+1)^p-1-p$ **(D)** $(p+1)^n-1-n$

61. Rakshit is allowed to select $(n+1)$ or more books out of $(2n+1)$ distinct books. If the number of ways in which he may not select all of them is 255, then value of n is:
(A) 3 **(B)** 4 **(C)** 5 **(D)** 11

62. The number of positive odd divisors of 216 is:
(A) 4 **(B)** 6 **(C)** 8 **(D)** 12

63. The number of odd proper divisors of $3^p\cdot 6^m\cdot 21^n$ is:
(A) $(p+1)(m+1)(n+1)-2$ **(B)** $(p+m+n+1)(n+1)-1$
(C) $(p+1)(m+1)(n+1)-1$ **(D)** $(p+m+n+1)(n+1)-2$

64. Let $1 \le m < n \le p$. The number of subsets of the set $A = \{1, 2, 3, ..., p\}$ having m, n as the least and the greatest elements respectively, is:

(A) $2^{n-m-1}-1$ **(B)** 2^{n-m-1} **(C)** 2^{n-m} **(D)** 2^{n-m+1}

65. The number of divisors a number 38808 can have, excluding 1 and the number itself is:

(A) 70 **(B)** 72 **(C)** 71 **(D)** None of these

66. The letters of the word 'SURITI' are written in all possible orders and these words are written out as in a dictionary. Then the rank of the word 'SURITI' is:

(A) 236 **(B)** 245 **(C)** 307 **(D)** 315

67. If letters of the word SACHIN are arranged in all possible ways and are written out as in a dictionary, then the word SACHIN appears at serial number:

(A) 603 **(B)** 602 **(C)** 601 **(D)** 600

68. The letters of the word COCHIN are permuted, and all the permutations are arranged in an alphabetical order as in an English dictionary. The number of words that appear before COCHIN is:

(A) 360 **(B)** 192 **(C)** 96 **(D)** 48

69. If all the letters of the word 'AGAIN' be arranged as in a dictionary, what is the fiftieth word?

(A) NAAIG **(B)** NAAGI **(C)** NAGAI **(D)** NAGIA

70. There is a set of m parallel lines intersecting a set of another n parallel lines in a plane. The number of parallelograms formed is:

(A) ${}^{m-1}C_2 \cdot {}^{n-1}C_2$ **(B)** ${}^{m}C_2 \cdot {}^{n}C_2$ **(C)** ${}^{m-1}C_2 \cdot {}^{n}C_2$ **(D)** ${}^{m}C_2 \cdot {}^{n-1}C_2$

71. The number of triangles whose vertices are at the vertices of an octagon but none of whose sides happen to come from the sides of the octagon is:

(A) 24 **(B)** 52 **(C)** 48 **(D)** 16

72. 25 lines are drawn in a plane. Such that no two of them are parallel and no three of them are concurrent. The number of points in which these lines intersect, is:

(A) 300 **(B)** 315 **(C)** 325 **(D)** 450

73. n lines are drawn in a plane such that no two of them are parallel and no three of them are concurrent. The number of different points at which these lines will cut is:

(A) $\sum_{k=1}^{n-1} k$ **(B)** $n(n-1)$ **(C)** n^2 **(D)** $2n(n-1)$

74. There are n points in a plane of which no three are in a straight line except 'm' which are all in a straight line. Then the number of different quadrilaterals, that can be formed with the given points as vertices, is:

(A) ${}^{n}C_4 - {}^{m}C_3\left({}^{n-m+1}C_1\right) - {}^{m}C_4$ **(B)** ${}^{n}C_4 - {}^{m}C_3\left({}^{n-m}C_1\right) - {}^{m}C_4$

(C) ${}^{n}C_4 - {}^{m}C_3\left({}^{m-n}C_1\right) - {}^{m}C_4$ **(D)** ${}^{n}C_4 + {}^{n}C_3 \cdot {}^{m}C_1$

75. Let T_n be the number of all possible triangles formed by joining vertices of an n-sided regular polygon. If $T_{n+1} - T_n = 10$, then the value of n is:

(A) 7 **(B)** 5 **(C)** 10 **(D)** 8