




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

27. The number of seven-digit numbers, with sum of the digits equal to 10 and formed by using the digits 1, 2 and 3 only, is: (2009)  
**(A)** 55                      **(B)** 66                      **(C)** 77                      **(D)** 88
28. A five digits number divisible by 3 is to be formed using the numbers, 0, 1, 2, 3, 4 and 5, without repetition. The total number of ways this can be done, is: (1989)  
**(A)** 216                      **(B)** 240                      **(C)** 600                      **(D)** 3125
29. Eighteen guests have to be seated half on each side of a long table. Four particular guests desire to sit on one particular side and three others on the other side. Determine the number of ways in which the sitting arrangements can be made. (1991)
30. If  $r, s, t$  are prime numbers and  $p, q$  are the positive integers such that LCM of  $p, q$  is  $r^2 s^4 t^2$ , then the number of ordered pairs  $(p, q)$  is: (2006)  
**(A)** 252                      **(B)** 254                      **(C)** 225                      **(D)** 224
31. Let  $n \geq 2$  be an integer. Take  $n$  distinct points on a circle and join each pair of points by a line segment. Colour the line segment joining every pair of adjacent points by blue and the rest by red. If the number of red and blue line segments are equal, then the value of  $n$  is: (2014 ADV.)
32. Let  $A$  be a set of  $n$  distinct elements. Then, the total number of distinct functions from  $A$  to  $A$  is... and out of these...are onto functions. (1985) 
33. In a certain test,  $2^{n-i}$  students gave wrong answers to at least  $i$  questions, where  $i = 1, 2, \dots, n$ . No student gave more than  $n$  wrong answers. The total number of wrong answers given is: (1982) 
34. A committee of 12 is to be formed from 9 women and 8 men. In how many ways this can be done if at least five women have to be included in a committee? In how many of these committees (1994)  
**(i)** the women are in majority?      **(ii)** the men are in majority?
35. A student is allowed to select atmost  $n$  books from a collection of  $(2n+1)$  books. If the total number of ways in which he can select at least one books is 63, find the value of  $n$ . (1987) 
36. A box contains two white balls, three black balls and four red balls. In how many ways can three balls be drawn from the box, if at least one black ball is to be included in the draw? (1986)
37. 7 relatives of a man comprise 4 ladies and 3 gentlemen, his wife has also 7 relatives; 3 of them are ladies and 4 gentlemen. In how many ways can they invite a dinner party of 3 ladies and 3 gentlemen so that three are 3 of man's relative and 3 of the wife's relatives? (1985)
38.  $m$  men and  $n$  women are to be seated in a row so that no two women sit together. If  $m > n$ , then show that the number of ways in which they can be seated, is  $\frac{m!(m+1)!}{(m-n+1)!}$  (1983)