ASSIGNMENT 1

EE24BTECH11013- DASARI MANIKANTA

1) The number of integers greater than $6,000$ that can be formed, using digits 3,5,6,7 and 8,without repetition,is [JEE M 2015]
   a) 120
   b) 72
   c) 216
   d) 192
2) If all words (with or without) having five letters,formed using the letters of the word SMALL and arranged as in a dictionary;then the position of the word SMALL is; [JEE M 2015]
   a) 52^{nd}
   b) 58^{th}
   c) 46^{th}
   d) 59^{th}
3) A man X has 7 friends, 4 of them are ladies and 3 are men. His wife Y also has 7 friends, 3 of them are ladies and 4 are men. Assume X and Y have no common friends.Then the total number of ways in which X and Y together can throw a party inviting 3 ladies and 3 men, so that 3 friends of each of X and Y are in this party, is: [JEE M 2017]
   a) 484
   b) 485
   c) 468
   d) 469
4) From 6 different novels and 3 different dictionaries,4 novels and 1 dictionary are to be selected and arranged in a row on a shelf so that the dictionary is always in the middle. The number of such arrangements is: [JEE M 2018]
   a) less than 500
   b) at least 500 but less than 750
   c) at least 750 but less than 1000
   d) at least 1000
5) Consider a class of 5 girls and 7 boys. The number of different teams consisting of 2 girls and 3 boys that can be formed from this class,if there are two specific boys A and B,who refuse to be members of the same team,is: [JEE M 2019-9 Jan(M)]
   a) 500
   b) 200
   c) 300
   d) 350
6) A committee of 11 members is to be formed from 8 males and 5 females. If m is the number of ways the committee is formed with at least 6 males and n is the number of ways the committee is formed with at least 3 females, is: [JEE M 2019-9April(M)]
   a) $m + n = 68$
   b) $m = n = 78$
   c) $n = m - 8$
   d) $m = n = 68$

I. SECTION-A

II. A. Fill in the Blanks

7) The sum of integers from 1 to 100 that are divisible by 2 or 5 is: (1984-2 Marks)
8) The solution of the equation $\log_7 \log_5(\sqrt{x+5} + \sqrt{x})$ (1986-2 Marks)
9) The sum of the first n terms of the series $1^2 + 2.2^2 + 3^2 + 2.4^2 + 5^2 + 2.6^2 + \ldots$ is $n(n+1)^2/2$, when n is even. When n is odd, the sum is... (1988-2 Marks)
10) Let the harmonic mean and geometric mean of two positive numbers be the ratio 4 : 5. Then the two numbers are in ratio... (1992-2 Marks)
11) For any odd integer $n \geq 1$, $n^3 - (n-1)^3 + (-1)^{n-1}1^3 = \ldots$ (1996-1 Mark)
12) Let p and q be the roots of the equation $x^2 - 2x + A = 0$ and r and s be the roots of the equation$x^2 - 18x + B = 0$. $p < q < r < s$ are in arithmetic progression,then A=... and B=... (1977-2 Marks)

III. C. MCQs with One Correct Answer

13) If x,y and z are pth,qth and rth terms respectively of an A.P and also of a G.P, then $x^{y-z}y^{z-x}z^{x-y}$ is equal to: (1982-2 Marks)
    a) xyz
    b) 0
    c) 1
    d) none of these
14) The third term of a geometric progression is 4. The product of five terms is (1982-2 Marks)
    a) 4^3
    b) 4^5
    c) 4^4
    d) none of these
15) The rational number, which equals the number2.357 with recurring decimal is (1983-1 Mark)
    a) $\frac{2355}{1001}$
    b) $\frac{2379}{997}$
    c) $\frac{2355}{999}$
    d) none of these