Date/Day : *27/02/2015*, Friday   Time : *12:00 pm to 01:30pm*
Subject Name : Probability and Numerical   Max. Marks: *30*
Method(CC401B)

Instructions:1) All questions are compulsory.
2) Figures to the right indicate full marks.

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Q-1   **Do as directed**   **[10]**

(1)   Find the number of arrangements of the letters of the World
            (i)   INDEPENDENCE so that the consonants remain together
            (ii)   SOLIDARITY when the vowels are to occupy only even positions.

(2)   Compute the value of x,when $y = 8$ by using Langrange's inverse interpolation formula

x	-2	-1	1	2
f(x)	-7	2	0	11

Q-2   **Do as directed**   **[10]**

(1)   Using secant method to find the root of $cosx - xe^x = 0$ correct up to 3 decimal places.

(2)   Find the real root of the equation $x^3 + 3x^2 - 3 = 0$ using Newton-Raphson method

OR

(1)   Compute f(1.22) from the following values using Stirling's formula.

x	1.0	1.1	1.2	1.3	1.4
F(x)	0.841	0.891	0.932	0.963	0.985

(2)   Show that   (i) $\Delta\nabla = \nabla\Delta = \Delta - \nabla$ (ii) $E\nabla = \nabla E = \Delta$

            (iii) $\Delta = \delta E^{\frac{1}{2}}$

Q-3   **Do as directed**   **[10]**

(1)   From a class of 12 boys and 10 girls, 10 students are to be chosen for a competition, at least including 4 boys and 4 girls. The 2 girls who won the prizes last year should be included. In how many ways can selection be made?

(2)   Box I contain 1 white, 2 red, 3 green balls, Box II contains 2 white, 3 red, 1 green ball. Two balls are drawn from a box chosen at random. These are found to be one white and one red. Determine the probability that the balls so drawn came from Box II

OR

(1)   (a) Three group of children contain respectively 3 girls and 1 boy; 2 girls and 2 boys; 1 girl and 3 boys. One child is selected at random from each group. Find the chance of selecting 1 girl and 2 boys.

(b) An article manufactured by company consists of two parts A and B .in the process of manufacture of part A, 9 out of 100 are likely to be defective. similarly, 5 out of 100 are likely to be defective in the manufacturing of part B. calculate the probability that the assembled article will not be defective

(2)   Determine the discrete probability distribution, Expectation of discrete random variable X which denotes the minimum of the two numbers that appear when a pair of fair dice is thrown once

* *BEST OF LUCK * *