SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR), NOVEMBER-2015

B.ARCH, I YEAR I SEMESTER

APPLIED MATHEMATICS (10110105)

Maximum Marks – 50 **Time – 2.00 Hours**

a) Answer any Two questions out of 1to 4 questions.
b) Question No.5 is compulsory and answer any four out of six sub-questions.
c) Calculator can be used.

Q1. Fit a parabola of the form $y = a+bx+cx^2$ to the following data. **(15M)**

x	1	2	3	4	5	6	7
y	2.3	5.2	9.7	16.5	29.4	35.5	54.4

Q2. Apply simplex procedure to solve the LPP **(15M)**

$4x_1 + 3x2 \leq 12$
$4x_1 + x_2 \leq 8$
$4x_1 - x_2 \leq 8$
$x_1, x_2 \geq 0$
Max $Z = 2x_1 + x_2$

Q3. A Window of an office is in the form of a rectangle surrounded by a semi-circle. If the perimeter of the window is 4.5m, show that its width is $4.5m/4+\pi$, if the area of the window is maximum. **(15M)**

Q4. If $u = \text{Sin}(x + y) + \log(x + y)$, then **(15M)**
Prove that $d^2u/dx^2 = d^2u/dy^2$

Q5. **(4x5=20M)**
(1) Explain Fractal Design
(2) Define Correlation and represent diagrammatically types of Correlation
(3) Define Orthogonal Matrix
(4) Define Tangent and Normal
(5) Define Rank of matrix
(6) Explain the Golden ratio

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