Q.3. Solve the Poisson equation $-\nabla^2 u=2$ in domain Ω shown in Figure 3 with two boundary conditions, one, $u=0$ on Γ_1, and the other, $\partial u/\partial n =0$ on Γ_2. Ω is in the first quadrant bounded by the parabola, whose equation is $y=1-x^2$, and the coordinate axes. Γ_1 and Γ_2 are the boundaries of the 2D domain. Compute the primary and secondary unknowns using Matlab software. **[10 marks]**

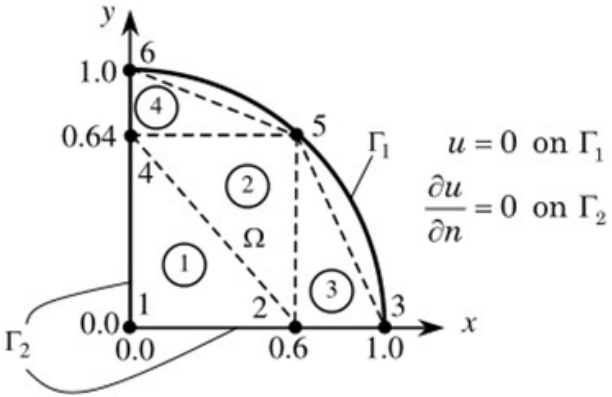

Figure 3