Marking Scheme for ECE357 Lab #1 16/2/2006

[ ] Indicates the number of marks out of 100.

A. [3] Sketch of the waveform at point C when the line is terminated in Z_0.
[2] Z_0=?

B. [5] $Z_0 = \frac{V_1(t,0)}{I_1(t,0)} = ?$ (Show calculations)

C. [5] V vs. t graphs at C, D, E, F for $R_L = 50\Omega$.
[5] V vs. d graphs at t = T/2, T, 3T/2, 2T ;T=pulse width (Show calculations)

D. [3] Complete the table. v_{ave}=?
[2] ε_r=? (Show calculations)

E. [5] Complete the Γ_L table. (Show calculations)
[5] V vs. t graphs at C for R_L = 0 Ω, 20 Ω, 100 Ω and ∞
[5] V vs. t graphs at F for R_L = 20 Ω, 100 Ω and ∞
[2] Discuss the relationship between the pulses at C and F
[5] V vs. t graphs at C, D, E, F for R_L = 20 Ω
[5] V vs. d graphs at t = T/2, T, 3T/2, 2T ;T=pulse width (Show calculations)
[2] Discuss the pulse propagation along the line with a mismatch at the load

F. [5] V vs. t graphs at C, D, E, F for R_{source} = (50+100) Ω and $R_L = 20\Omega$.
[2] Γ_S=? Γ_L=?
[10] Calculate the corresponding theoretical bounce diagram and plot the theoretical V vs. t graphs at C, D, E, F.
[2] Discuss how the measured results compare to the theoretically calculated ones

G. [5] Complete the table for the short circuit load. (Show calculations)
[2] Show that the current is a maximum at one of the above frequencies and discuss why.
[5] Complete the table for the capacitor load. (Show calculations)
[5] Discuss how and why the results for the short circuit and the capacitor are different.

[10] Presentation and neatness

TOTAL: 100 marks