PRACTICAL 5(B)

Transmission Line Losses on a Loaded Lossy Line

```
//Mayank Barman
//22025558001
//8562
// Transmission Line Losses on a Loaded Lossy Line
// Given parameters
Pin = 400;              // Input power in Watts
Zo = 50;                // Characteristic impedance in Ohms
f = 13.56e6;            // Frequency in Hz
VF = 0.84;              // Velocity factor
ZL = 50;                // Load impedance in Ohms
L = 20;                 // Length in meters
Gamma_L = (ZL - Zo) / (ZL + Zo);
// Convert attenuation constant alpha from dB to Neper
alpha_db_per_100m = 1.483;
alpha = alpha_db_per_100m * 0.1151277918 / 100; // per meter
c = 3e8; velocity = c * VF; beta = 2 * %pi * f / velocity;
// Complex propagation constant gamma = alpha + j*beta
gamma = complex(alpha, beta);
// Power delivered to the load
P_delivered = Pin * exp(-2 * alpha * L);
// Power lost in the cable
P_lost = Pin - P_delivered; //
Display results
disp("Power delivered to the load (W): " + string(P_delivered));
disp("Power lost in the cable (W): " + string(P_lost));
```

OUTPUT:

  "Power delivered to the load (W): 373.59441"

  "Power lost in the cable (W): 26.405591"