

Question 1: An open-wire transmission line has  $R=5 \Omega/\text{m}$ ,  $L=5.2 \times 10^{-8} \text{ H/m}$ ,  $G=6.2 \times 10^{-3} \text{ mho/m}$  and  $C=2.13 \times 10^{-10} \text{ F/m}$ . The signal frequency is 4 GHz. Calculate:

- (a) The characteristic impedance of the line
- (b) The attenuation and phase constants of the line.

Solution: (a)  $Z_0 = \sqrt{244}$  and (b)  $\alpha \approx 0$ , and  $\beta = 83.64$

Question 2: Define Lossless transmission line.

Question 3: If the transmission line in question 1 is to be terminated with matched load, what will be the  $Z_L$ .