

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
ELECTRICAL ENGINEERING DEPARTMENT
Dr. Ibrahim O. Habiballah
EE-465

Key Solution

Quiz # 3 Serial #

Name:

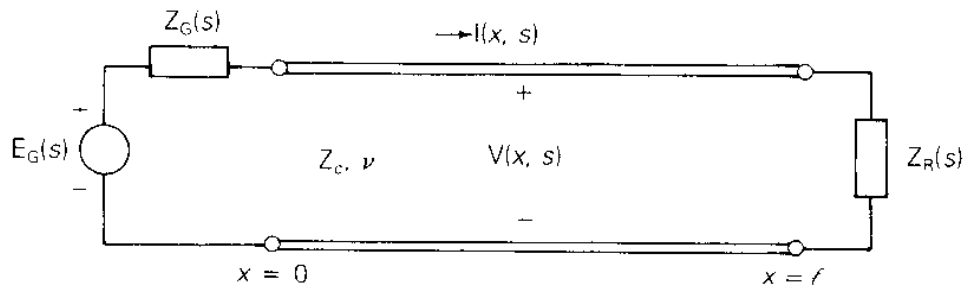
I.D.#

I. Circle the correct answer.

1) If the receiving-end impedance of a lossless transmission line is equal to the surge impedance and its Thevenin's impedance on the sending-end is equal to zero, the reflection coefficients at the receiving-end and sending-end, respectively, are (3 Marks)

- a. 1 and 1
- b. 0 and 1
- c. 0 and -1
- d. 1 and 0

2) The single-phase, two-wire lossless line shown below has a series inductance $L = (1/3) \times 10^{-6}$ H/m, a shunt capacitance $C = (1/3) \times 10^{-10}$ F/m, and a 30 km line length. The source voltage at the sending-end has $Z_G(s) = 100$ Ohm. The receiving-end load consists of a 100-mH inductor in series with a 1- μ F capacitor. The line and load are initially un-energized. The characteristic impedance, and the wave velocity of this line are (3 Marks)



- a. 100 ; 3×10^8 .
- b. 100; 0.1
- c. 0.1; 3×10^8

II. Answer the following:

Q.1 List three factors affecting the desing of Transmission Lines

(3 Marks)

- Tower height,
- Number and location of shield wires,
- Number of standard insulator discs per-phase wire,
- Tower impedance, and
- Tower ground impedance.

Q.2 Define "Wave Distortion"

(1 Mark)

Distortion is known as the alternation of the original wave